



In this monograph, Major Riley Post and Dr. Jeffrey Peterson offer a compelling look into economic activities and influence in the context of unconventional warfare (UW). The value of this monograph lies in the creation of a framework that provides a structured approach for UW practitioners to employ as they assess and analyze economic factors that influence and support insurgency movements. This framework offers a way to simplify the varied and complex economic activities required to support equally complex resistance operations. This monograph provides examples of tactical, economic opportunities that support operational and strategic objectives. As a vignette, the authors evaluate the rise and potential vulnerabilities of the Islamic State of Iraq and the Levant. This monograph concludes with recommendations to enhance training for Special Operations Forces leaders and operators in the application of economic factors in UW.

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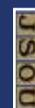


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Unconventional Economics

Post and Peterson



JOINT SPECIAL OPERATIONS UNIVERSITY



Unconventional Economics: Operational Economics in Unconventional Warfare

Major Riley Post and Jeffrey D. Peterson, Ph.D.

JSOU Report 16-5



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*Unconventional Economics:
Operational Economics in
Unconventional Warfare*

Major Riley J. Post

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Back cover. A Special Forces soldier engages with Afghan children waiting to be seen by a Special Forces medic during a medical and veterinarian engagement in the Gereshk Valley, Helmand province, Afghanistan. U.S. Army photo by Sergeant Debra Richardson.

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Foreword

In *Unconventional Economics: Operational Economics in Unconventional Warfare*, Major Riley Post and retired colonel Dr. Jeffrey Peterson offer a compelling look into economic activities and influence in the context of unconventional warfare (UW). The value of this monograph lies in the creation of a framework that provides a structured approach for UW practitioners to employ as they assess and analyze economic factors that influence and support insurgency movements. With this framework, the UW practitioner is offered a way to simplify the varied and complex economic activities that are required to support equally complex resistance operations.

This framework evaluates economic activities in a complex environment—not simply as an isolated variable. By recognizing that these activities and their effects on resistance movements interact in an environmental mosaic, one that is impacted by political, military, and information activities, the authors present a powerful critical thinking tool for the SOF operator.

Major Post and Dr. Peterson begin their monograph by explaining how the economic theory of resistance is linked to the tactical situation and actions on the ground. There are economic motivations for a resistance, what is in it for the individual or organization, as well as the need to finance the activities that support operations and sustain the resistance. Center of gravity analysis is then woven into their narrative to lay the foundation of the operational planning framework. The framework is built around five factors, critical economic requirements, for the resistance movement and existing government. These factors explain the competitive environment as both sides of the resistance movement must battle to gain popular support and secure revenue. The authors then introduce a modified ‘value chain’ model. That model is used to explain the tactical vulnerabilities of the critical economic requirements.

This monograph provides examples of tactical, economic opportunities that support operational and strategic objectives. As a vignette, the authors evaluate, through the lens of operational economics, the rise and potential vulnerabilities of the Islamic State of Iraq and the Levant. This monograph concludes with recommendations to enhance training for Special Operations Forces (SOF) leaders and operators in the application of economic factors in UW.

This research project was inspired by a topic proposed by former USSOCOM Deputy Commander Lieutenant General John Mulholland. The topic, titled *Examining operational economics in unconventional warfare and irregular environments*, was proposed with the goal of creating and enhancing SOF operators understanding of how operational economics impact both positively and negatively UW campaign success.

Kenneth H. Poole, Ed.D.
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About the Authors

Major Riley J. Post, U.S. Army, is the Chief of Strategic Analysis for the Special Operations Command–Central (SOCCENT). Originally commissioned as an infantry officer in 2001, the majority of his operational experience has been in the special operations community. In that capacity, Major Post’s assignments have ranged from multiple combat deployments as a Special Forces Operational Detachment–Alpha commander to his current assignment as an operations research and systems analyst at SOCCENT. Between those experiences, Major Post served as an assistant professor of economics at the United States Military Academy at West Point. Both his teaching and research at West Point focused on economic and social drivers of conflict in Africa and the Middle East. He has published on topics such as social mobilization in Africa and the impact of food insecurity on conflict. This monograph was researched and written during his tenure at West Point prior to his assignment at SOCCENT in August 2015. Major Post holds a Bachelor of Science from West Point and Master of Science degrees in Economic History and Social Policy from the University of Oxford, England.



Colonel (ret.) Jeffrey D. Peterson, U.S. Army, is the Chair for the Study of Officership at the United States Military Academy, West Point, New York. Commissioned in 1987 as an armor officer, his operational career included command of 1-14 Cavalry, 3 Stryker Brigade Combat Team during a 15 month deployment to Iraq in 2006. The squadron’s use of economic resources to stabilize the local area sparked his interest in the study of how economic resources can support national security objectives at the tactical and operational level. Following his operational assignments, he served as an academy professor of economics at West Point from 2008 until his retirement in 2015. As an academy



professor, he spoke at several conferences and taught courses on the topic of post-conflict economic development. He continues to study post-conflict economic development as he contributes to the education of officers who will conduct future stabilization operations. Colonel Peterson holds a Bachelor of Science degree from West Point, an MBA from the Massachusetts Institute of Technology Sloan School of Management, and a Ph.D. from the RAND Graduate School.

Introduction

An unconventional warrior must be a renaissance man. On any given day, he could provide veterinary services for livestock or terminal guidance for laser-guided munitions. His ability to understand and navigate social, political, and economic terrain is as valuable as his land navigation skills. President John F. Kennedy highlighted this reality decades ago when he affirmed the need for a special force capable of conducting unconventional warfare (UW).

The enemy uses economic and political warfare, propaganda and naked military aggression in an endless combination ... Our officers and men must understand and combine the political, economic, and civil actions with skilled military efforts. – President John F. Kennedy, 1962¹

Yet, despite this and many other calls to understand and use economic activities in UW, the U.S. military lacks a coherent framework for doing so. This monograph attempts to fill that gap by developing a framework that provides UW practitioners a structured approach for considering the economic activities that influence a movement's popular support and the ability to finance its activities.

While the military lacks a framework for incorporating economic effects in supporting an insurgency, the same cannot be said for countering an insurgency.² Recent counterinsurgency experiences highlighted the connection between conflict and economics. As a result, current Army doctrine for stabilization and counterinsurgency operations repeatedly references the importance of economic power—usually in conjunction with political, informational, and other sources of power. Additionally, in recognition of the importance of prosperity in achieving a stable society, economic development experts have published countless handbooks for achieving economic development during stabilization operations. Unfortunately, military doctrine lacks the specificity necessary for implementation, and development expert handbooks lack contextual understanding of military operations. Even so, these efforts indicate a willingness to incorporate economic activities in

pursuit of military objectives to defeat a resistance movement and stabilize a government.

But what if our national security objective is the destabilization of a hostile government? What if the objective was to create opportunities for changing government behavior or persuading the population to overthrow the government to free the oppressed? In other words, what if our forces are required to assume the role of supporting a resistance movement or insurgency? Few have considered how we might combine economic, military, and information operations to undermine, rather than reinforce, an existing government. Joint doctrine establishes that UW practitioners should be prepared to do just that:

Unconventional Warfare includes activities to enable a resistance to coerce, disrupt, or overthrow a government or occupying power by operating through or with an underground, auxiliary, and guerilla force in a denied area.³

If, as that document goes on to say, governments require some minimum amount of military, economic, psychological, and political power to maintain control, we should be developing multidisciplinary methodologies for undermining those bases of power.⁴ Economic activities are part of this effort and the focus of this paper.

In some respects, U.S. adversaries, both modern and historical, could be our greatest teachers. In not only Iraq and Afghanistan, but also Ukraine, Yemen, the Philippines, and other lesser-known conflicts, resistance forces succeeded or failed based largely on their ability to destabilize existing governments by using economic activities. The authors will demonstrate that resistance movements have historically succeeded to the extent that they outmaneuvered and outperformed the government in two critical areas: winning the support of the population and generating finance for an adequate security force capable of establishing internal control.

This framework does not consider economic activities in isolation. The authors recognize that resistance movements operate within an environment simultaneously impacted by political, military, and information activities. Much of the complexity in UW originates from the interaction and combination of all sources of power. Economic activities influence and are influenced by other government and resistance activities. As a result, the UW practitioner must always consider economic activities as one aspect of

supporting a resistance. Our challenge is to simplify the economic terrain with a planning framework while considering the complexity of resistance operations. The authors also recognize that economic activities will work in concert with military and information activities to achieve the desired effect on public support or raising revenue. In no way do the authors assert that building more wells or providing more jobs alone will convince the population to support a movement or lay down their weapons; economic activities are simply one important facet of a multifaceted problem that defies simple solutions. However, the authors also assert that economics is an important facet of UW that has not been fully appreciated or utilized effectively in UW or stabilization operations—hence, the motivation for this framework.

The authors begin connecting the economic theory of resistance to tactical actions on the ground by highlighting the economic motivations for resistance (grievance and greed), as well as the economic requirements (finance) to sustain a resistance. Building on this theoretical foundation, a center of gravity analysis is then used to build a novel UW operational planning framework. The framework focuses on economic factors and identifies five critical economic requirements for the resistance movement and existing government as they compete for popular support and revenue. The critical economic requirements are the ‘economic terrain’ that is neutral to both sides of an unconventional conflict. In the competition between the resistance movement and the established government, the side that best understands how to exploit and manipulate the components of these critical economic requirements will most effectively gain the support of the people and sustain a fighting force capable of monopolizing violence. A modified ‘value chain’ model will then be used to help readers understand the tactical vulnerabilities of these critical economic requirements. The identified vulnerabilities provide opportunities for the resistance movement to attack or defend the centers of gravity. Based on these vulnerabilities, this monograph will provide examples of tactical, economic opportunities that support operational and strategic objectives. The authors then attempt to understand the rise and potential undoing of the Islamic State of Iraq and the Levant (ISIL) through this framework. This monograph concludes with recommendations for training Special Operations Forces (SOF) leaders in the application of economics in UW.

1. The Economics of Resistance: Motivation and Sustainment

To employ the economic tools available to UW practitioners, we must first understand the economic currents that flow through any resistance movement. Only once we appreciate the economic drivers of resistance can we identify opportunities for entry of U.S. influence via UW. Broadly, we might think of these drivers in two categories: those that motivate resistance and those that sustain it. Motivation generally takes the form of either grievance resulting from relative deprivation, or greed caused by available profits from resistance. Often times, both greed and grievance interact to motivate rebellion—what one rebel views as a political grievance to be rectified another may view as an opportunity to enrich himself personally. Often, economic drivers of resistance connect to factors that sustain the movement. For example, tension over revenue sharing on diamond mines significantly increased conflict in the Democratic Republic of Congo. Those same mines later provided armed insurgents the funding necessary to continue fighting the Mobutu regime.

Economics of Motivation in Resistance Movements

All societies face the basic economic problem of allocating scarce resources. Both individuals and societies face the reality of unlimited desires constrained by limited means. Communal groups, whether families, tribes, or nations, constantly allocate those scarce resources according to some set of rules. This is true for any form of government, whether a democracy or dictatorship—the difference is only in what the rules are, not if they exist. Almost inevitably, the existing rules will create winners and losers by giving an advantage to one sub-group of a governed population over another—land owner over worker, Sunni over Shi'a, male over female. Economics and politics are, as the economist Friedrich Hayek noted, “the choice between conflicting or competing ends—different needs for different people.”⁵ In most cases, these differences in access to resources lead to tension that is resolved within the existing system or are minor enough that they do not warrant action outside of normal political channels. Importantly, though, this is

not always the case. Sometimes, the resulting advantage of one group over another creates a grievance large enough to motivate organized resistance and, potentially, political violence. Understanding the nature and degree of these economic advantages of one group over another can help the UW planner identify government vulnerabilities that can be exploited using economic activities.

Such cases that create winners and losers illustrate what academics would term grievance-based theories of conflict. Students of insurgency and counterinsurgency are, perhaps, most familiar with these theories. Resistance leaders from William Wallace to Abu Bakr al Baghdadi have championed real or perceived grievance with the existing government to justify and motivate their followers. Similarly, academics across time have attempted to identify the importance of grievances in both the initiation and sustainment of insurrection. Ted Gurr captured these thoughts in his 1970 book *Why Men Rebel*, positing relative deprivation as the primary driver of rebellion. Gurr articulated relative deprivation as the tension that develops from a discrepancy between what a man believes ought to be and what is.⁶ In his construct, the intensity and scope of relative deprivation drives the propensity for collective action or violence. The implications for the economics of resistance, and therefore UW, are significant. Resistant leaders, potentially in partnership with American UW efforts, can influence both elements of the population's relative deprivation function. They might, on one hand, take actions to draw attention to the current economic plight of the people due to government ineptitude, while at the same time agitate the population by highlighting the largesse of wealthy government supporters. Thus, grievance is a byproduct of both real and perceived economic conditions.

Grievance-based theories of conflict underpin both historical and modern understandings of resistance movements. The 18th century counterinsurgency theorist Santa Cruz de Marcendao eloquently stated: "A state rarely rises up without the fault of its governors."⁷ In fact, Santa Cruz's advocacy for winning the "heart and love" of the population resonates closely with the familiar 'hearts and minds' construct in recent counterinsurgency thinking. More modern foundational works such as David Galula's *Counterinsurgency Warfare* (1964) and Roger Trinquier's *Modern Warfare* (1966) also emphasize the importance of legitimizing the existing government through alleviation of popular grievance. Since current U.S. counterinsurgency doctrine is largely based on these and similar works, it, not surprisingly, assumes

grievance as the fundamental motivator of insurrection as well. The Army's current field manual on insurgencies and counterinsurgencies, Field Manual (FM) 3-24, states this assumption explicitly: "The root causes of an insurgency are real or perceived grievances that insurgents use to mobilize a population in support of an insurgency. Insurgents use these grievances to fuel an insurgency."⁸ Similarly, Ted Gurr could have penned the following excerpt from FM 3-24:

Insurgents can use a gap between a population's expectations and the government's capability to meet those expectations as a root cause. The larger the gap, the greater the population's perceived or real sense of deprivation. This allows for the development of a narrative in which the insurgents promise to close the gap.⁹

This understanding of resistance motivation has molded recent U.S. counterinsurgency efforts. Growing emphasis on supporting local development projects assumes increased economic opportunity legitimizes the government and undermines support for the insurgency. It also assumes a government that desires to rule legitimately.

Until recently, grievance-based explanations of insurrection held center stage in the academic literature. Every resistance seemed based on some deep seated injustice against which its members heroically fought. However, recent research in the fields of economics, political science, and sociology highlights additional and potentially more powerful motivations for insurrection. An initial lone voice, economist Herschel Grossman postulated that insurgencies are less about ideology and grievances and more about economic returns to the insurgent.¹⁰ In Grossman's model of insurrections, rebellion occurs not where collective grievances are greatest, but rather where opportunities for profit are most likely realized. Jack Hirshleifer called this the "Machiavelli Theorem" where no one will pass up an opportunity to profit by exploiting another party.¹¹

In 2004, Paul Collier and Anke Hoeffler juxtaposed these competing theories and cast the debate as one between grievance and greed. In their seminal paper *Greed and Grievance in Civil War*, Collier and Hoeffler quantitatively demonstrated that insurrection historically occurred most often in areas with the greatest exportable natural resources rather than where grievance dominated.¹² In other words, the most fighting occurred where there was the most potential for economic profit. In later work Collier and

his associates recognized the importance of grievance, but they asserted that it mattered for propaganda reasons rather than true motivation. Grievance makes for much better strategic communication to the population and the international community than does greed.¹³

Combining both greed and grievance, James Fearon and others have argued for a model of insurgencies that appreciate the economic principle of opportunity costs. Whereas Collier's work emphasized the economic benefits of resistance, opportunity cost models examine the cost of participation in conflict. In general terms, an opportunity cost is the value of the next best opportunity given up by pursuing current activities. For a potential insurgent, the opportunity cost of joining the fight is the best option the he or she forgoes. Thus, conflict increases when either the potential benefit of fighting increases or the cost of not fighting decreases. Local factors such as the labor market, the probability of injury or death, and public perception of the insurgency heavily affect the opportunity cost of resistance. If individuals are unemployed, poor, sick, uneducated, and hungry, they are not losing much by joining the resistance.

The government's security force capabilities also impact the opportunity cost of resistance. In their influential 2003 paper, *Ethnicity, Insurgency, and Civil War*, James Fearon and David Laitin discovered that opportunity for rebellion was more important than the ethnic fractionalization in a region. Most relevantly, they found financially insolvent states and their broken military and policing functions offered little deterrence to would-be recruits for the resistance.¹⁴ Thus, as we look for vulnerabilities to exploit in UW, we must consider the financial viability of the hostile state, particularly as it pertains to its ability to project force.

Although not explicitly cited in current U.S. doctrine, wartime commanders intuitively understand the opportunity cost theory of insurgency. We have used kinetic strikes to deter potential recruits while simultaneously attempting to stimulate the labor market for military-aged males. Both methods increase the opportunity cost of joining the fight.

Economics of Sustaining Resistance Movements

Motivation is necessary, but it will not sustain a resistance movement. Movements generally must have both motivation and financial support—particularly those movements that rise to armed conflict. In the early stages of a

resistance movement, material requirements may be minimal, and the ability to operate underground is relatively uncontested by the local government. However, as the movement progresses from a strictly political enterprise to one involving armed conflict, space to operate and the finances to do so become increasingly important. For this paper, the focus is primarily on the phases of an insurgency that require significant material support, although the same principles apply to early stages as well.

The literature on sustaining an insurrection mainly focuses on financial opportunity and security opportunity. Generally, insurgencies rely on three sources of funding: internal support from the population (voluntary or involuntary), revenue from assets or resources accumulated prior to or during the fighting, and external funding. In the early days of a resistance movement, any of these sources may provide sufficient funding. As the movement grows and develops into an armed conflict, most insurgencies cannot exist solely on the support of the population, particularly since most insurgences develop in poor regions. In areas with easily looted resources, such as diamonds, timber, or even bootleg oil, groups may not need external support. However, in most cases, funding from a sponsor state, non-state actor, or private foreign individuals will be necessary at some point. As discussed in later sections, each of these funding sources offer points of entry for UW practitioners to support an insurgency.

Resistance, Economics, and Dynamic Systems

Before presenting the operational planning framework, the authors must highlight the complexity of a dynamic UW environment. Thus far, the authors have focused on the economic inputs of insurrection, both in the form of motivation and sustainment. This approach, however, potentially obscures the endogenous nature of economics and resistance. Once a resistance movement is underway, the movement itself creates outputs that move society out of its previous equilibrium. In this way, outcomes from one activity can become new inputs for the next. As David Stoll points out, “violence by both sides can easily become the most important factor in recruitment. People may join the revolutionary movement less because they share its ideals than to save their lives ...”¹⁵ One of the architects of modern counterinsurgency doctrine, David Kilcullen, identifies insurgencies as organic systems that are complex and adaptive.¹⁶ They are part of an ecosystem that

consumes inputs from other systems and produces outputs that can impact those around them. As such, UW practitioners must always conceptualize the economics of resistance not in linear terms but rather systems with feedback mechanisms. Just as supply and demand simultaneously determine market prices, outcomes in UW cannot be set *a priori* but will reflect the sum total of actions and reactions of all entities in the theater ecosystem.

2. Operational Planning Framework

By their nature, both resistance movements and the economic environment in which they operate are complex and dynamic systems. This presents the UW planner with significant operational design challenges, particularly in identifying centers of gravity. In conventional warfare, a center of gravity, or system's source of power to act, may be clearly defined and is typically a military unit.¹⁷ In irregular warfare, centers of gravity are usually more ambiguous but no less important. Their identification is foundational to operational success. This section will provide the UW operational planner with a framework that identifies two centers of gravity, highlights five critical economic requirements on which they rely, and provides a value chain model to identify tactical opportunities for economic activities.

For the operational planner, we start with the government's objective of maintaining control over the population and terrain by establishing a monopoly over lethal force. As Max Weber stated in his seminal work *Politics as a Vocation*, the defining feature of a modern state is its ability to monopolize violence within its borders.¹⁸ Given this definition of a state, the existing government and the resistance movement are competing for monopoly power in the 'violence market.' If the UW objective is overthrow, this competition is existential in nature and the winner takes all. However, this need not be the case when the object is coercion or disruption. In those instances, demonstrating the ability to project force (military or otherwise) in limited areas or for limited durations may be sufficient. Thus, a legitimate threat to the state's monopoly of violence may be sufficient to accomplish limited objectives.

The government attempts to establish this monopoly over lethal power by defending two centers of gravity: winning popular support and financing a security force. Undoubtedly, the ability to monopolize violence is driven by more than these two factors, but the scope of this monograph has been intentionally narrowed to address economic sources of power. Winning popular support removes the motivation behind a resistance. A government that effectively addresses the economic needs of the population in a fair manner reduces the likelihood of a grievance that might motivate resistance and increases the opportunity cost of joining a resistance. In the event of a

resistance, the government maintains a monopoly over violence by financing an adequate and effective fighting force capable of defeating any opponent. This combination of removing the motivation for resistance and sustaining a force effective enough to defeat a resistance results in a government’s monopoly over violence.

The five critical requirements for gaining popular support and sustaining a capable fighting force, then, are economic requirements. Specifically, they are the economic activities essential for winning popular support (motivation) and financing the force (sustainment) as depicted in Figure 1.

COG 1: Will of the Population	COG 2: Fighting Force
Humanitarian Aid and Essential Services	Natural Resources
Farming and Food Security	External Funding
Business Opportunities	

Figure 1. Five critical requirements for gaining popular support and sustaining a capable fighting force. Source: Authors

While each operational environment and UW campaign is unique, some or all of the five critical economic requirements listed in Figure 1 are pivotal in motivating or sustaining any resistance movement. In almost every scenario, UW practitioners will encounter concerns with humanitarian assistance and essential services. Most UW operations will occur in rural, agricultural areas where farming dominates society and the local economy. Business opportunities dictate employment levels and income for the population and the amount of tax revenue for the government. As both a cause and enabler of conflict, natural resources can be pivotal in many UW environments. And in today’s globally connected economic environment, external support is critical for successful resistance movements. Systematically analyzing these requirements will allow the UW planner to identify unique vulnerabilities for both enemy and friendly forces. Later sections of this monograph will assist in that analysis.

This operational construct establishes the economic terrain where the contest between the resistance and the government takes place. Both sides compete for popular support and financial resources, using economic activities in conjunction with other forms of power. Each resistance movement

will differ in the means by which it challenges and competes for the state's monopoly of violence, but they will inevitably rely on some combination of a mobilized population and an organized fighting force.¹⁹ The government, too, must vie for the support of the population and maintain a security force. This is essentially a resource allocation challenge for both the government and the resistance. Both adversaries must allocate resources between gaining public support through economic activities and funding their fighting force. The tradeoffs present different risks and imply different conditions. Regardless of how this balance is achieved, the capability to monopolize violence will be determined by some combination of popular support and financing a fighting force. In the general case, these are the centers of gravity in an internal conflict, representing Clausewitz's moral and physical sources of power.²⁰

While this operational planning construct defines the economic terrain and sets the stage for the economic competition between the resistance and the government, it does not provide the specificity required for tactical economic action. To provide this level of specificity, the framework includes a modified value chain analysis that provides a structured way to identify vulnerabilities in the government's delivery of critical economic requirements. These vulnerabilities will present opportunities for a resistance to accomplish one of the following outcomes: gain popular support for the resistance, undermine popular support for the government, raise finances for the resistance, or undermine the government's ability to finance their security force.

Because UW rarely involves direct attack on centers of gravity, the UW practitioner and supporting agencies will most often influence economic outcomes through an indirect approach. This will typically entail attacking a vulnerability of one of the five critical economic requirements. As depicted in Figure 2, the authors identify those tactical vulnerabilities using a modified value chain assessment of inputs-production-distribution. Figure 2 illustrates the linkages between the operational planner and the tactical operator for indirect economic activity that destabilizes the local government's monopoly on violence.

The following section provides the tactical detail necessary for attacking or defending the critical components of an economic requirement. However, before applying the modified value chain assessment, the practitioner should consider two primary concepts when developing a tactical plan for using economics as part of a resistance effort. First, the planner must recognize the

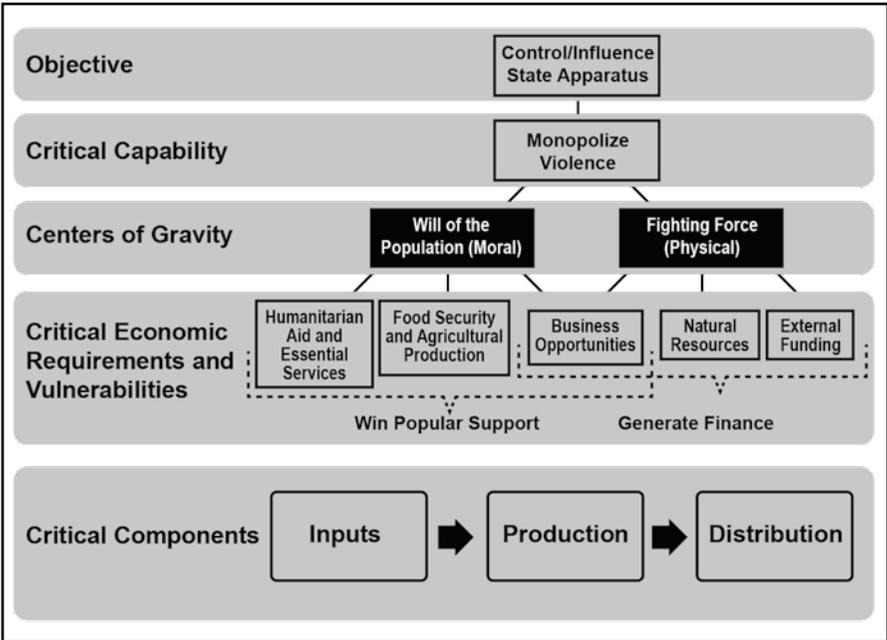


Figure 2. Economic Centers of Gravity in Unconventional Warfare.
 Source: Authors

tradeoff between the government’s effort to win popular support and finance the fight. The government attempts to gain popular support by spending money to provide essential services and to create a robust business environment. However, that money could instead finance the force that enables the government to exert control over society. Generating government revenue requires some combination of external funding and taxation. In the absence of sufficient external funding, the government faces the challenge of finding the right amount of taxation to finance the fight without alienating the population. Tax too much and the government loses support. Tax too little and the government cannot finance the fighting force or essential services.

The resistance movement faces a similar tradeoff. The resistance may undermine popular support of the government by disrupting any of the critical economic factors, but that does not guarantee the resistance force will gain popular support. The resistance might alienate the population by disrupting economic activity or essential services without a viable alternative. Furthermore, disrupting economic activity reduces the opportunity to extort or skim financial resources from viable business operations. In short,

both sides of an unconventional conflict face an important tradeoff between gaining public support and financing the fight. Actions that gain public support may hinder financing the fight. Likewise, actions that finance the fight might undermine public support. The challenge is to find the right balance for the specific context.

Tactical Considerations

With this tradeoff in mind, the UW planner can use a simplified version of a value chain to identify specific vulnerabilities for each of the five critical economic requirements.²¹ As depicted in Figure 3 below, the reduced value chain includes inputs, production, and delivery. Applying this simplified value chain helps the planner and operator understand how goods and services are produced and delivered to the consumer. With this understanding, opportunities to exploit vulnerabilities will become more recognizable. The simplified value chain helps the planner answer three basic questions. First, what is required to produce the product or deliver the service? Second, how is the good or service manufactured? Lastly, how is the product or service delivered to the customer?

The first link in the value chain is the inputs. Production of any good or service involves some combination of labor, capital, and technology. Labor has both a quantity and quality consideration. For example, production may

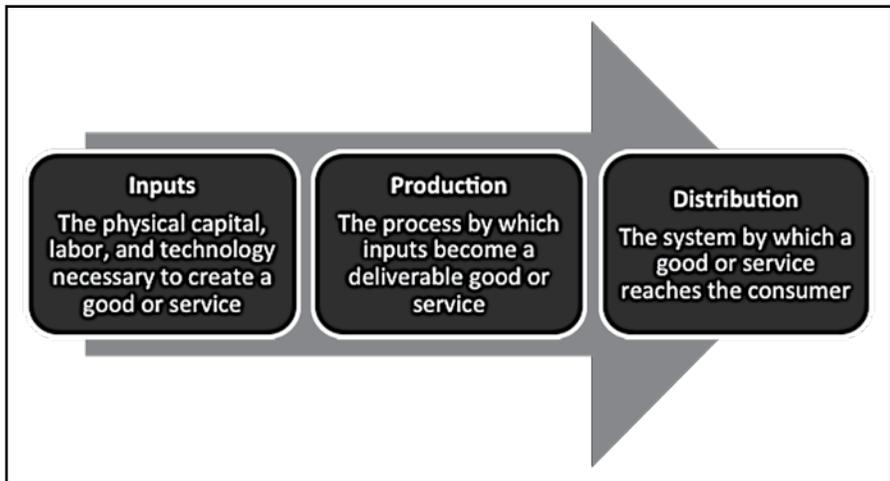


Figure 3. The Critical Components Value Chain. Source: Authors

require a large number of unskilled workers or fewer highly skilled experts. Capital includes two primary categories: the machines that manufacture a product or help provide a service, and the raw material required to make the product or deliver the service. Finally, technology includes the process design, organizational structure, and machine sophistication. These three inputs of labor, capital, and technology are required to produce any good or to provide any service.²²

The essential service of healthcare provides an example for analyzing all three inputs. The labor for health services typically requires some combination of highly skilled medical professionals and lower skilled first responders and administrative workers. The capital includes such items as diagnostic equipment, medical support equipment, and pharmaceutical drugs. The technology can vary from basic first aid treatment to world-class operating rooms and trauma units. An unconventional operator can assess these inputs for the essential service of healthcare and determine exploitable vulnerabilities to undermine effective healthcare services by intimidating or sabotaging these inputs.

Production is the second link in the simplified value chain. Understanding the production process helps explain how a product is manufactured or an essential service is provided. In short, the production facility is where all the inputs are combined to create a good or service. For example, the obvious production facility for food items is the farm. Production of manufactured goods occurs at a factory where the quality and quantity of inputs is determined by the nature of the product. Production of essential services typically takes place in some form of a fixed structure. For example, healthcare is provided at a hospital, which serves as the 'factory' for the production of medical services.

Distribution is the final link in value chain. It is the system by which a good or service reaches the consumer. Distribution of goods requires some form of transportation from the production facility to a marketplace. For example, a farmer needs roads and vehicles to deliver his goods to a market where the customer can purchase the items. Distribution of services can involve a centralized distribution plan where central nodes serve multiple customers. A large hospital is an example of centralized distribution of healthcare. Conversely, the service can be delivered using a decentralized system of small nodes that serve fewer customers. Continuing with

healthcare, small health clinics are decentralized nodes for the provision of preventive medicine and first aid.

Once the unconventional operator understands the basic value chain, he can apply the framework to any of the five critical economic factors. The government's challenge is substantial. In order to deliver a quality product or service, every aspect of the links in the value chain must function properly. Damage to any link in the chain implies diminished quality and quantity of the good or service provided. This erodes value of the product, either as a tool for garnering public support or creating revenue. The resistance's challenge is relatively easy. All they must do is disrupt one or two vulnerabilities in the value chain to deny a critical economic requirement to the government. The nuance is that they must do so in a way that does not turn the population against the resistance movement.

After considering the tradeoff between winning popular support and financing the fight, and examining the simplified value chain to identify vulnerabilities, the unconventional planner should also consider some aspects of the economic context. The value chain exists in an economic environment created by such factors as the rule of law, the financial system, adequate infrastructure, the education system, the regulatory environment, the tax system, and the level of corruption. While examining each of these contextual factors is beyond the scope of this paper, understanding and analyzing these environmental variables could lead to additional, high-payoff vulnerabilities that expose grievances, corruption, and government inefficiencies that could undermine popular support for the government or deny it critical revenue.

The modified value chain assessment provides the UW practitioner a tool to identify specific vulnerabilities susceptible to tactical economic actions. The framework does not replace existing assessment tools. Rather, the UW practitioner should use this framework to incorporate assessment tools such as PMESII-PT (political, military, economic, social, infrastructure, information-physical environment, time) or SWEAT-MSO (sewer, water, electricity, academics, trash, medical, safety, other) to understand the specific tactical context. Often, assessments used for stability operations will provide good checklists for understanding what is necessary for the government to fulfill the critical economic requirements. UW planners should use these as guides for their economic intelligence preparation of the battlefield as they identify potential economic targets for the resistance movement.

With an operational planning and tactical action framework in place, each of the five critical economic requirements using this framework will be examined. The discussion for each critical requirement begins with a justification for defining this economic activity as a critical requirement. The value chain model will then be used to identify some of the key vulnerabilities and use examples to illustrate the concepts. Finally, there will be a discussion of planning considerations that impact the critical economic requirement and challenge the government's monopoly on lethal force.

3. Critical Economic Requirements

Critical Requirement 1: Humanitarian Aid and Essential Services

Of the five economic critical requirements, the provision of humanitarian assistance and essential services is arguably the most important for gaining popular support. In a contest between an established government and a resistance movement, the side that most effectively delivers aid and essential services to the population will prevail. Dominating in this domain, however, is not easy. As America experienced in New Orleans after Hurricane Katrina, effective distribution of critical supplies and rapid restoration of essential services is a challenge even for one of the wealthiest and most innovative nations in the world. President Bush received harsh criticism for a slow and inadequate response to the humanitarian crisis in New Orleans. Since then, governments at every level consider disaster response and humanitarian assistance a crucible event for government credibility. New York and New Jersey's response to Hurricane Sandy is a case in point. The population's view of government effectiveness largely depended on how well each state prepared for and responded to the devastation caused by the storm. But even with focused attention and no conflict, the response was not perfect and political opponents seized the opportunity to criticize incumbents and exploit failure to undermine those in power.

The provision of humanitarian assistance and essential services is critical because it represents the legitimacy of any government. The same is true for organizations that claim to be alternatives to the existing authority. There is, however, a large disparity between the degree of difficulty for government's provision of such services and the resistance's ability to disrupt government activity or provide an alternative that is slightly better than the government. In the early stages of resistance, the movement has a much easier task. The UW planner must look for ways in which American support to a resistance movement can disrupt the ability (or perceived ability) of the hostile government to provide for the immediate needs of its populace and simultaneously position the resistance movement as the best alternative. Winning in this area is critical for the resistance movement's ability to recruit both fighters and, more importantly, auxiliary and underground support. It may also

prove pivotal in garnering support from external sponsors and recognition by the international community.

If delivery of aid and essential services is difficult in the United States, it is even more so in nations with ongoing conflict, broken institutions, and a history of distrust. Unfortunately, this is the most likely the environment in which the U.S. will conduct UW. Importantly, though, measures of success in the area of humanitarian aid and essential services are mostly relative. The UW planners' primary advantage is that they do not need to look for means to build the resistance movement into a full-fledged social welfare state. Rather, their objective is to give the resistance movement an edge relative to the next best alternative, presumably the state. This is precisely the method by which Hezbollah came to power in southern Lebanon and highlights the imbalance between the degree of difficulty between the government's challenge and the resistance movement's challenge.

Humanitarian Assistance vs. Essential Services

In many ways, there is significant overlap between humanitarian assistance and essential service provision. Both concepts center on the notion that the government is providing resources critical for sustaining a productive life. Effective humanitarian relief requires urgent delivery of food, water, shelter, and medicine to alleviate human suffering in the short run. These same resources may also be a subset of essential services in the long run, but long run essential services also include education, healthcare, and electricity. Because of these similarities, the value chain analysis applies to both concepts. There are necessary inputs, production of services, and distribution of services. Examining humanitarian assistance and essential services will help a UW planner identify opportunities to exploit vulnerabilities that benefit the resistance.

There are, however, some important differences between humanitarian assistance and essential services that a UW planner should consider. Because humanitarian crises often arise from significant shocks such as natural or manmade disasters, aid relief requires effectiveness over efficiency. The urgency created from human suffering on display to the world demands an immediate and effective government response. The same shocks that induce mass human suffering also often change political landscapes, temporarily altering balances of power.²⁴ The urgency and complexity of the situation

Prior to the rise of ISIL, the militant Lebanese Shi'a organization, Hezbollah (Party of God), represented the largest and most sophisticated terrorist group in the Middle East. Since its inception in the early 1980s, Hezbollah has relied on a structure composed of three sections: military, political, and social. While the military and political wings garner most attention, its Social Service Section enables all other activities. In 2007, this section received an estimated 50 percent of Hezbollah's total budget. These funds underpin a social welfare system that influences all aspects of Lebanon's Shi'a society. The reconstruction division of the Social Service Section repairs war damage in Shi'a neighborhoods and employs the Shi'a population. In the aftermath of the 2006 war with Israel, the division implemented a reconstruction plan well in advance of any Lebanese government action. The Social Service Section also provides care for wounded fighters and serves as a champion for the family of martyrs. Along with Social Service Section provided education, these functions serve as critical recruiting tools for Hezbollah's military wing. They also serve as a humanitarian shield for the organization and political power for national elections. In short, Hezbollah's ability to provide a viable social welfare alternative to the Lebanese government defines its success.

Box 1. Hezbollah and Social Services.²³

will result in several inefficiencies a resistance could exploit to discredit the government and enhance its reputation with the population. For example, the Nicaraguan government's response to a massive earthquake in 1972 was rife with corruption and ineffectiveness. The Sandista rebels capitalized on this failure, using it as a springboard for their insurrection in 1975.²⁵

In contrast to humanitarian relief, the provision of essential services requires a long-term perspective toward both effectiveness and efficiency. Additionally, the system for delivering the essential service requires significant investment in time, money, and expertise. Failure to deliver sustainable and effective essential services will be a constant reminder to the people of the government's inability to perform. A resistance can exploit vulnerabilities by sabotaging the government's ability to deliver essential services or by providing just enough of the service to provide a better alternative to the government. For example, provision of electricity in Iraq was plagued by government inefficiency, corruption, and insurgent attacks. The resistance could damage an electrical transformer and disrupt the government's delivery of electricity to entire districts of Baghdad. Each night a family could not turn on a light using a national electric source, their support for the government waned. An insurgent with a generator could solve their problem and gain that family's support. As a result, the resistance provided an essential service better than the government.

Value Chain Analysis for Humanitarian Assistance

The value chain analysis highlights vulnerabilities in the provision of humanitarian assistance. The most obvious opportunities for tactical operations involve the inputs and the distribution of aid. In most cases, the inputs include stored or donated supplies of food, water, or medical supplies and the low-skilled workers that deliver them. Based on the situation, distribution of aid typically involves established warehouse distribution points or ad hoc, decentralized distribution points. Both the inputs and distribution have multiple vulnerabilities a resistance can exploit to their advantage. Production of humanitarian assistance is less tangible because it mainly consists of a coordination cell that prioritizes and coordinates distribution requirements. There is no factory that produces humanitarian assistance, but rather coordination offices that determine when, where, and how much aid to deliver based on assessed needs and established criteria. While a resistance movement may have difficulty affecting the actual planning cell, they can create security environments where discerning exact aid requirements and equitable distribution plans becomes difficult. The effect of this uncertainty can create perceptions of inaction or preferential treatment.

UW Considerations for Humanitarian Assistance

Although morally untenable, resistance movements have historically applied these approaches in leveraging the distribution of food aid. Invariably, food aid must travel from a government port of entry to the afflicted area, often through insecure roadways. This provides the resistance movement (or criminal organizations) an opportunity to outright confiscate the food for their purposes or 'tax' its distribution. In total, as much as 80 percent of all food aid never reaches its intended target.²⁶ In such an environment, food becomes power and an immediate mechanism for molding popular sentiment. In fact, a recent study of U.S. food aid found that a 10 percent increase in food aid caused a 4 percent increase in the incidence of conflict.²⁷ Somalia in the early 1990s is the classic example of food aid amplifying conflict as warlords fought each other, and later peacekeepers, for control of food distribution. In essence, food became the currency of power in the face of widespread starvation. That trend continues today with al-Shabaab as the chief culprit of appropriated food aid. The same dynamic has played out in places as geographically diverse as Afghanistan and Thailand.²⁸

While international law prohibits the discriminate distribution or diversion of aid for political purposes, the UW practitioner must still consider how the resistance might use this lever to separate the population from the government. Occasionally, the government will make things easy, such as in Mali. The drought in the Tuareg region of Mali created significant hardship, but it was the government's theft of donated food aid that drove many to take up arms.²⁹ In other situations, the resistance may need to rely more on perception to create the intended effect. Highlighting the government's failure to deliver aid while publicizing the resistance's ability to supply food to the people, possibly with U.S. assistance, would be the general goal.

The UW advisor must also consider the role nonprofit organizations (NPOs) play in the delivery of humanitarian aid.³⁰ NPOs typically distance themselves from all parties of a conflict, seeking the neutrality that affords them access to any population. In practice, however, NPOs and the resources they provide can become powerful tools for either the resistance or the government. This could be as benign as a resistance movement advocating for humanitarian assistance from the international community, effectively steering aid to its supporters. Since aid money is fungible, this allows the resistance to allocate more of its scarce resources to other operational requirements.³¹ More cynically, parties to conflict have often allowed NPOs to operate only in areas that support the party's cause, typically after levying a security 'tax' that guarantees safety for the NPO workers. Again, while the ethics of such actions are questionable, UW advisors should recognize their impact. The resistance should focus on information campaigns to create similar outcomes while avoiding human rights violations.

Value Chain Analysis for Essential Services

The value chain for essential services differs slightly by type of service. However, the production and delivery of education serves as a good example from which to draw broader conclusions. Education is a vitally important essential service for the long-term wellbeing of any nation. Often, provision of education takes high priority during reconstruction and stabilization operations. One needs to look no further than operations in Iraq and Afghanistan for the emphasis on reestablishing educational facilities to gain the support of the people. In Afghanistan alone, United States Agency for International Development (USAID) claims to have assisted the Ministry of Education

in building more than 13,000 schools.³² However, educating people takes much more than a building, and the value chain analysis helps identify all the other requirements.

In addition to a school building, inputs for education include healthy students, engaged teachers, educational materials, furniture, school supplies, secure transportation, utilities, and administrative staff. Production obviously occurs at an educational facility, but distribution can take multiple forms. Large schools can educate hundreds of students, but decentralized small schools can also achieve positive education outcomes. Technological improvements and connectivity have the potential to bypass the school building in many cases.

UW considerations for Essential Services

When UW practitioners consider the entire value chain, there are multiple vulnerabilities that can help a resistance achieve one of its four objectives. For example, the militia in Iraq took multiple steps to disrupt government-provided education and replace it with education from the militia. Teachers were intimidated from teaching at public schools, but paid by militia to teach in classrooms provided by the militia. Militias looted school furniture and supplies and used them to operate militia-provided schools. One rocket launched at a school would deter children from attending a government school, but the militia-provided classroom was safe.³³ All of these actions undermine popular support for the government and provide opportunities for a resistance to gain popular support by providing an alternative essential service.

While some of the methods used by our adversaries in Iraq are ethically questionable, we may achieve similar outcomes through other means. For example, rather than intimidating teachers, U.S.-backed resistance movements could simply offer to pay them to desert government schools for schools under the control of the resistance movement. UW advisors could also rely on a growing body of research that identifies the most cost-effective way to improve educational outcomes. In Kenya, for instance, students who received a \$0.40 deworming pill attended school more days per year than those who did not. Not surprisingly, those students scored higher on exams, completed more years of school, and ultimately earned higher wages.³⁴ These

and similar programs are simple, cost-effective ways a resistance movement could garner the popular support that is critical for its long-term success.

Critical Requirement 1 Summary

The provision of humanitarian assistance and essential services is critical for gaining popular support. To out compete the government in this space, the resistance movement must simultaneously demonstrate government failure and provide at least the prospect of a viable alternative. The UW practitioner can assist the movement in this regard by identifying vulnerabilities in the government's essential services and humanitarian assistance value chains. The practitioner can use a similar approach to grow or protect the resistance movements to provide replacement services.

Critical Requirement 2: Farming and Food Security

Agricultural production and food security are issues of life and death in the poor, rural operational environment in which most UW campaigns begin. In these environments, the majority of the population makes its living from agricultural activity and spends a disproportionate amount of its income on food goods. Often, individuals without farming skills will resort to farming as conflict destroys other forms of employment. Under the direst circumstances, agricultural production is often the only means of feeding one's family. Further compounding such situations, a lack of viable farming options and food insecurity often drive massive migration from rural to urban areas, increasing the strain on the government's ability to provide for its citizens. As such, the government's popular support depends significantly on its ability to control this economic center of gravity.

It is not surprising, then, that threats to agricultural production and food security are highly correlated with civil protest and political violence. This trend was particularly evident in 2007-2008 as record-high food prices triggered protests in 48 countries.³⁵ Several researchers have linked decreased agricultural production during turbulent climatic events to reduced government capability and increased violence.³⁶ For the UW practitioner, the close connection between farm failure, food insecurity, and grievance is vitally important. Rural communities, the most common birthplace of resistance movements, are often disconnected both geographically and politically from the ruling elites.³⁷ Such separation affords UW personnel a physical safe

haven and a ripe field of grievances upon which they can build their movement. This has been true across time and around the globe. In Nigeria, the home of Boko Haram, over 80 percent of the population outside of the major urban areas rely on farming as a primary source of revenue.³⁸ Nomads and semi-pastoralists, the majority employment type, produce approximately 40 percent of Somalia's gross domestic product.³⁹ Even in the United States, the war for independence was led and sustained by its farmers. Few resistance movements have survived, let alone succeeded, without at least the tacit support of the farmer.

As consumers of agricultural production, the entire population is susceptible to issues of food security. At the most basic level, the price of food is a key determinant of economic wellbeing for the poorest members of society. In wealthy economies, the average individual spends approximately 10 percent of his or her income on food.⁴⁰ In fragile and conflict affected areas, that number is closer to 40-50 percent.⁴¹ Among the lower income individuals in those societies, the amount of income spent on basic food items is even greater. The overall economic well-being of the poorest consumers in a society is often directly related to the price of staple foods, such as bread or starches. Spikes in the price of these goods, whether through global trends, government policy, or disaster (manmade or natural), immediately increase the relative deprivation of the population. This relative deprivation has driven resistance movements throughout history, most recently motivating many of the early protests in the Arab Spring. For example, in the winter of 2010-2011, world food prices reached a historic peak.⁴² Not coincidentally, this peak correlated with the initial protests in Tunisia and Libya. The New England Complex Systems Institute illustrated that this connection between food prices and conflict as shown in Figure 4.

Given these realities, the key to winning the support of rural communities is the creation or protection of a profitable farming environment and its related food security. The resistance movement will succeed to the extent that it can provide this to the population or deny the government's ability to do the same. In the areas it controls, profitable farming will create several benefits for the resistance such as increased caloric intake, financial support, and intelligence flows. Similarly, disruption of farming in state-controlled regions may produce significant social upheaval. The most successful UW planners and practitioners will understand the agribusiness value chain and its vulnerabilities, exploiting them to undermine the government and

leverage the population. As highlighted in Box 2, one of our historical adversaries certainly recognized this truth.

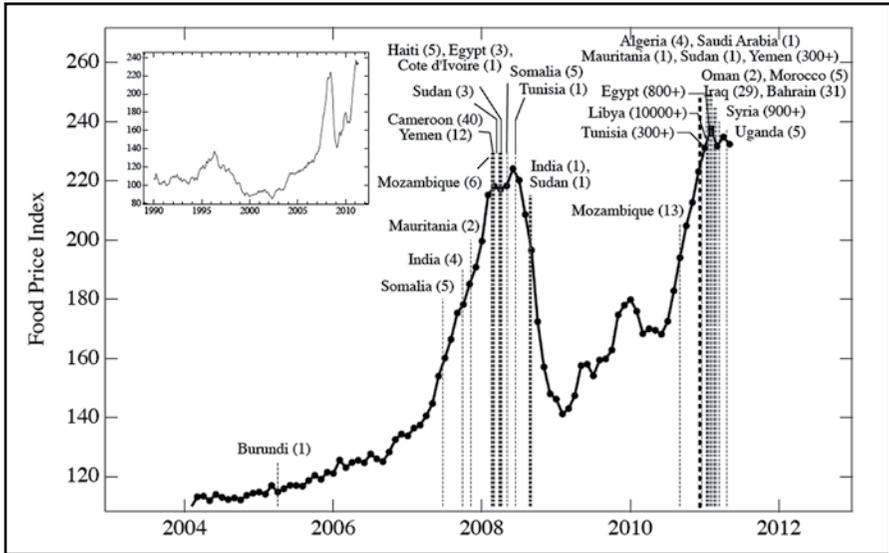


Figure 4. Correlation of conflict and food prices.
 Source: New England Complex Systems Institute⁴³

Agribusiness Value Chain

As important as farming is to many resistance movements, UW planners and practitioners do not need a degree in agribusiness to create or take advantage of shocks to the farming sector. A basic understanding of the value chain that turns initial agricultural inputs into income for farmers and food for the population will suffice. The inputs to agricultural production consist of labor, seed or initial livestock, arable or pastoral land, and the knowledge necessary to combine these inputs. To earn income, farmers must produce marketable goods. This process of production relies on systems of irrigation, fertilization, vaccination, and cultivation. One aspect of the agricultural value chain is the importance of seasonality and weather. Even with sufficient high-quality inputs, significant manmade or natural disruptions during critical periods such as planting or harvesting can damage an otherwise healthy production process. The final component of the agricultural value chain is distribution. For the purposes of this monograph, we consider the storage, intermediate

In the early stages of his career, Fidel Castro understood economics. Or at least he knew enough to use economic operations in support of his broader resistance campaign. By the fall of 1957, the Cuban revolution was over four years old yet Castro and his partisans could point to only modest gains. President Batista and his government, while not exactly popular, largely maintained their governing legitimacy. Life around the country, particularly in the capital of Santiago, remained largely unchanged. That is, until Castro escalated the conflict through dramatic economic operations. Beginning in November of 1957, Fidel ordered the destruction of all sugar cane in Cuba. Valued at more than half a billion dollars and responsible for the employment of over 700,000 workers, the sugar industry was the only industry of significance in the Cuban economy. Simultaneously, the urban underground began attacking major oil refineries, aqueducts, and commercial transportation systems. Through it all, Castro maintained a constant strategic message to his fellow revolutionaries and the swaying population: we will all prosper when Batista leaves. By many accounts, these actions, combined with political and military offensives, eroded Batista's legitimacy enough to influence the population and catalyze the resistance movement. Just over a year later, Fidel Castro and his revolutionary forces expelled Batista from the capital and took control of the country.

Box 2. Castro in Cuba⁴⁴

processing, and transport of farm products as the primary components of the distribution system.

As with any chain, degrading one link threatens the entire system. This presents a significant challenge for the existing government since the resistance movement, particularly with assistance from American UW advisors, can attack any of these areas. Furthermore, the resistance may not need to create such effects itself, but rather may be able to use information operations to capitalize on existing circumstances. While a drought cannot be pinned on the established government, it is a useful shock if the resistance can convince the population that the government's failure to manage water resources compounded the problem. Whether through local agricultural enhancement efforts, subversive action in pro-government regions, or opportunistic messaging in both, UW planners can use their understanding of the agribusiness value chain to dominate this economic center of gravity.

UW Planning Considerations

The quality and quantity of agricultural inputs will significantly impact the profitability and sustainability of farming enterprises. Although historically a low-skilled endeavor, the green revolution of advanced farming techniques increasingly favors farmers with technical knowledge and skills.

Hybrid seeds, genetically modified crops, and new breakthroughs in animal husbandry all offer the high-skilled farmer a distinct advantage over more traditional producers. Using new seeds, fertilizers, and irrigation systems can more than double yields relative to traditional techniques.⁴⁵ Similarly, new technologies can make previously unproductive land profitable. Importantly, these increases in production are not necessarily reliant on significant increases in farm machinery. Access to new technologies in seed, fertilizer, vaccines, and antibiotics may enhance, rather than replace, traditional farming tools that rely on unskilled labor. Where new technologies do reduce demand for unskilled labor, adaptation may free younger males to participate in resistance activities.

As with any other business, high quality inputs are a necessary but not sufficient condition for profitable farming and food security. Farmers must also possess the knowledge and resources to optimally combine those inputs for maximum production and eventually income. While knowledge is easily transferred, the resources to act upon that knowledge are less easily acquired. Often, farmers in poor areas lack access to banking and, therefore, the credit necessary to expand production beyond subsistence farming. For example, more than a decade after the conflict in Rwanda, less than 10 percent of the rural population had access to a formal banking system.⁴⁶ For farmers, this is particularly limiting as they must purchase, or hold back, planting seed or breeding livestock prior to the income they will eventually generate. The resulting need for credit is often exploited by corrupt government officials or loan sharks. These agents facilitate indebtedness and then use the farmers as indentured servants to grow crops that serve the lender's purposes rather than the profitability of the farmer. As cash flow and credit challenges restrict poor farmer's profitability, programs such as farming grants or village lending programs may allow for increased production and income in resistance-friendly areas. Examples of this in Uganda and Rwanda, although in post-conflict environments, indicate the efficacy of such programs.⁴⁷

The UW planner and practitioner can engender support in the resistance movement's area of influence by leveraging these advances in the inputs and production of farm goods. The most obvious point of entry may be high-technology seeds. In many developing nations, the government and its farmers are generally risk averse and hesitant to adopt new technology.⁴⁸ For example, Ethiopia only recently allowed the introduction of genetically modified seed in a limited number of crops. The few farmers willing to plant

these seeds recognized significant increases in yield; today, farmers across Ethiopia are quickly transitioning to the new seed.⁴⁸ New seed types may also bring new land into production, thereby increasing the production potential in a region. Herdsman may realize similar gains through the provision of advanced vaccinations and antibiotics. As with new seed, uptake may be slow initially, but a few small successes will likely build demand for the production enhancing goods.

UW planners and practitioners will likely not be farm experts and therefore must rely on local knowledge and U.S. experts to craft a program that will not inadvertently undermined the credibility of on-the-ground advisors. As a general rule, aiding local farmers by purchasing agricultural inputs within the movement's area of control is preferable to external provision. If high quality inputs exist, providing funds for increased purchases may be sufficient. If inputs are scarce or nonexistent, the UW team may need to provide initial supplies to start the virtuous cycle. The goal, however, should be self-sufficiency as history is replete with examples of local producers failing due to a flood of donated agricultural inputs and final goods.⁵⁰ Similarly, while a properly trained 18D Special Forces medic may need to provide initial veterinarian services for the resistance movement, training and utilizing existing veterinarians from within the population not only lessens the burden on the UW team, but it also leads to increased employment within the supporting population.

The government and its supporters equally rely on readily available, high-quality inputs and means of agricultural production. To the extent that the resistance movement can disrupt the supply or utility of those factors of production it may foment discontent in the population. For example, in arid climates, sabotage of irrigation systems could reduce production by as much as 60 percent.⁵¹ Seed distribution systems represent another potential target. While most subsistence farmers rely on seed held back from the previous year's harvest, larger commercial farms will often buy some portion of their seed from a distributor. The introduction of inert or malicious seed into this distribution system could prove disastrous for not only the commercial farmers but also anyone involved in the distribution system. While effective, such agricultural sabotage requires both the disruptive seed and an individual with access and placement with the distribution system—requirements that may be difficult to achieve. However, crop failure and herd decimation by natural occurrences happens regularly in poor farming areas, and the

resistance can use such a naturally occurring catastrophe to its advantage. Through a targeted information campaign, the resistance may convince the population that the failure arose from the government's inability to provide quality seed, fertilizers, or vaccines.

While shocks to inputs and means of production in the agricultural sector can affect the sentiment of the local population, focusing resistance efforts on the distribution portion of the agribusiness value chain may be the most efficient use of resources. It is during this phase that the farmer connects directly with the population as agricultural goods become either income, food, or both. Because of this, enhancing or disrupting the distribution of farm produce impacts not only the profitability of farmers but also food security for the local population. Facilitating the distribution of farm goods reduces transaction costs, thereby increasing profits for farmers while simultaneously increasing the supply of food to the population. All things equal, increased supply also drives down food costs for the population. Conversely, a disruption in the distribution of agricultural products increases production costs for the farmer. The resulting scarcity of food increases prices for consumers, potentially astronomically. The UW practitioner should proceed with caution in the execution of a plan that creates scarcity. If the public perceives the resistance as the cause of scarcity, popular support will swing toward the government.

Storage and intermediate processing facilities in pro-government regions may represent high-payoff targets for the resistance movement. While direct attack against these facilities may be effective, indirect approaches may be more feasible, particularly early in a resistance movement's development. Since many agricultural products produced in poor nations are consumed internationally, quality assurance is critical for the trade of those products. Undermining consumer confidence abroad through sabotage at domestic storage and processing facilities, even in a limited manner, could effectively paralyze the entire market for a given good. With a properly developed campaign of targeted covert food contamination, the resistance could destroy the profitability of pro-government producers. At the same time, prices for the targeted food product would increase locally, causing discontent among the population. Since export taxes represent a critical revenue stream for the government, such actions also disrupt government finances. A follow-on campaign that assigns blame to government actors for the food quality catastrophe would further undermine support for the government.

The transportation of agricultural goods to markets also presents the resistance movement with opportunities to undermine pro-government support. Most directly, the resistance movement might prevent the transit of movement-controlled roads by producers loyal to the government. Those producers then must either hire armed escorts or divert to other means of transporting their goods. Both of these options increase their costs of production and erode profit. Alternatively, the resistance could instead allow the transit of goods, but charge a 'tax' for such activity, again, increasing costs to those producers. If such taxes are not levied on supporters of the resistance, those producers realize a competitive advantage at the point of sale as their costs of production are comparatively lower than pro-government producers.

Critical Requirement 2 Summary

Whether through proactive measures, capitalizing on natural or manmade catastrophe, or both, UW planners and practitioners must understand and exploit the agribusiness value chain to control the farming and food security economic center of gravity. Particularly in rural societies, popular support for the movement hinges on doing so. Most simply, the resistance accomplishes this by increasing transaction costs for pro-government producers relative to supporters of the resistance movement. The resulting food price and access fluctuations create a cascading effect on popular support.

Critical Requirement 3: Business Opportunities

Formal business operations are the most complex of the five critical economic requirements for several reasons. First, business operations simultaneously affect both centers of gravity. Successful business operations gain popular support by providing jobs with wages that help alleviate grievances. Additionally, good paying jobs increase the opportunity cost of joining a resistance force, which reduces the likelihood of an individual joining a resistance. Business operations also help finance the fight by providing tax revenue, which is critical if external funding or revenue from natural resources is not sufficient for producing an effective security force. Secondly, formal business operations are extremely dependent on the government's ability to establish a healthy business environment. A healthy business environment requires the proper balance of property rights, limited bureaucracy, adequate infrastructure, efficient taxation, rule of law, and security. The government's

challenge is to make sure all these variables work together. The resistance's advantage is that only one disrupted variable can hinder business operations and undermine the government.

Historically, the manner in which a resistance movement approaches the local business environment depends on its relationship to the population and its strength relative to the state.⁵² For nascent movements with little popular support and no control over territory, the relationship is mostly predatory. Often, this takes the form of bank robberies, kidnappings, and other largely criminal activities. Movements in this stage will also typically focus on disrupting the formal economy, which not only weakens the state through lost tax revenue but also begins to enlarge the underground economy. As the movement matures, it begins to take on a more parasitic approach to the local economy. In this stage, the resistance movement begins to assert control over territory and the economic activity therein. The movement will typically begin charging 'revolutionary taxes,' although these are usually levied only against wealthy individuals or those opposed to the cause. Importantly, as a parasite, the resistance must be careful to not extract too much from the host or it will lose its source of income. In the most mature stages of resistance where the movement controls large swaths of land and can rival state security forces, the relationship becomes more symbiotic with the local economy. In this stage, the movement begins to tax systematically and, in return, increases the services it provides. The movement also begins to promote certain economic activities that fill its coffers, win popular support, or both. From an economic perspective, the movement in the symbiotic stage looks more like a surrogate state than a rebel organization.⁵³ Importantly, the economic growth and revenue generated in resistance-controlled areas represents a direct reduction of revenue going to the formal state. The resistance takes all.

Although the resistance movement's interaction with business typically evolves with its maturity, an established resistance can choose to be predatory, parasitic, or symbiotic (or all three) based on specific circumstances. In general, the resistance can pursue two primary approaches. First, the resistance could sabotage businesses to undermine the credibility of the government, reduce employment, reduce tax revenue, and increase the population's grievance against the government. This strategy would undermine the government's ability to win the support of the people and create opportunities for the resistance to garner favor with the local populace. Second, the resistance could take the opposite approach and exploit a thriving business

environment to finance resistance operations. Members of the resistance can extract fees throughout the value chain in exchange for safe passage and local security. Essentially, the fee is a protection tax paid by the business owner. Similar to a natural resource situation, the resistance could loot and sell some fraction of the production to finance resistance operations. Both strategies require the resistance to exercise restraint as they maintain a delicate balance between the advantages of sabotage, collecting protection money, and looting production. Taken too far, either strategy could impose a high cost on businesses and employees that could drive them toward supporting the government.

Before analyzing the value chain of any business operation, a UW planner should understand two important aspects of the business context. Initially, the planner should consider whether a business is formal, informal, or illicit because each type of business presents the resistance with different leverage points. A formal business is a legal entity operating with the full knowledge of the government and subject to all laws, regulations, and taxes imposed by the government. An informal business provides a legal product or service, but operates outside the legal framework established by the government. Often referred to as the shadow economy, the informal sector operates outside the legally sanctioned economy. Finally, an illicit business provides an immoral or illegal product or service and operates outside the legal framework established by the government. The illicit economy is commonly referred to as the black market. The options available to the resistance will vary based on the type of business considered.

Secondly, an unconventional planner should consider that every business owner incurs risks created by various aspects of the business environment. As previously mentioned, the government faces a considerable challenge in establishing a healthy business environment that consists of multiple variables. When the government fails to ensure all the variables are effective, the business faces increased costs and risks that threaten business viability. For example, inadequate property rights increase the risk of not reaping the rewards of a new idea. Inadequate rule of law increases the risk of not receiving payment as determined by contract. Too much bureaucracy or corruption will drive businesses to the informal sector to avoid the costs of formal compliance. Severe taxation will also drive businesses to the informal sector as a tax avoidance strategy. Poorly maintained infrastructure threatens business profits by increasing the costs and risks of production and distribution.

Because these variables impact business risk in many ways, the UW planner can identify multiple opportunities to influence business operations in a manner that is beneficial to the resistance and harmful to the government.

With this understanding of the types of business and the business environment, the UW planner can now apply the value chain analysis used for the other four critical economic requirements. After a brief discussion of the value chain, the subsequent discussion will address the options available to a UW planner.

Business Operations Value Chain Analysis

The value chain analysis is similar for formal, informal, and illicit businesses. Regardless of the business legitimacy, each business operation must consider the inputs, production, and distribution of its product or service. This discussion of the value chain will use the example of a formal business. However, this analysis can be applied to informal and illicit businesses. One example of a formal business is a garment factory, which is a common type of manufacturing for less developed countries where UW is likely to occur. Garment factory inputs include labor, machinery, and raw material. The labor is generally low-skilled and female. Production equipment might include large cutting machines, sewing machines, and ventilation systems. Raw materials include items such as cloth, dye, thread, and buttons. All of these inputs are vulnerable to exploitation or sabotage by a resistance movement. The production usually occurs at a factory building where the inputs are processed and assembled into a final product. Garment factories vary in form and could be a stand-alone building or a single floor of a multi-purpose building. Finally, there is distribution of the finished garment. The factory may need a place to store excess inventory until shipment. Once the garment is ready to leave the factory, the business requires adequate infrastructure to transport the goods to a wholesaler, a retail store, or an exporter location. The distribution process is another part of the value chain that is vulnerable to sabotage, extortion, or looting.

UW Planning Considerations

A UW planner is now equipped to consider how to sabotage or exploit business operations to undermine popular support for the government and/or inhibit the government's ability to finance their security forces. Conversely,

the UW planner can use this framework to gain popular support and to finance resistance operations by exploiting business operations. The following section on planning considerations will include a discussion of the type of business (formal, informal, illicit) and the goal of the UW planner (undermining the government, supporting the resistance).

Large, formal businesses are a lucrative target because of the number of employees affected and the revenue generated. The government can significantly benefit from large, formal businesses whether they be state owned enterprises, foreign direct investments, or private domestic corporations. These large businesses improve employment, generate tax revenue, provide opportunities for patronage, and drive economic growth. If the government can create an effective business environment, then it is more likely to win the support of the people and generate revenue to finance security operations. However, creating the environment that enables sustained formal business operations is not easy, and there are many opportunities for a resistance movement to undermine large, formal businesses.

If the resistance's objective is to undermine popular support for the government and to reduce the government's financial gains, then the resistance should consider a predatory approach. This would entail disrupting business operations by sabotaging the value chain or negatively affecting the business environment. Sabotaging the value chain is the most immediate and potentially the easiest way to undermine formal businesses. For example, intimidating local workers could prevent labor from showing up to manufacture goods. Conducting ambushes against trucks or trains disrupts the sale of goods and reduces profit. In an extreme example, Indonesian rebels of North Aceh seized control of an Exxon-Mobil gas factory in 2001. The seizure cost Indonesia hundreds of millions of dollars in lost foreign investment.⁵⁴ The resistance could also affect the business environment indirectly by bribing judges to rule against firms, by bribing bureaucrats to fine businesses or prevent expansion, and by forcing input suppliers to provide inferior goods. If the resistance increases the difficulty of joining the formal economy, the businesses may join the informal economy where they are more susceptible to the resistance. Because such actions may alienate segments of the population, this predatory approach is most applicable in regions with a pro-government population.

When the resistance's objective is to finance their own operations, it should consider exploiting the value chain and the business environment

through either a parasitic or symbiotic approach. The resistance can exploit the value chain through various means of extortion at any link in the value chain. A small labor tax could ensure that all the workers arrive to work safely and their families remain safe at home. A transportation tax at temporary checkpoints takes advantage of the distribution system. Looting small portions of production can provide sales revenue. The Philippine's New People's Army used a variant of this method, hiring out its soldiers as field laborers in return for a take of the harvest.⁵⁵ Targeted actions against government workers controlling the business context could enhance resistance operations. For example, the resistance could collect a payroll tax from government workers so they can keep their jobs. A small bribe to the right person could speed up or slow down formal business approval that could lead to future business extortion opportunities. The resistance can also benefit by exploiting government contracts aimed at rebuilding war-torn communities. The Provisional Irish Republican Army (IRA) perfected this technique in the 1970s and 1980s. As the British government spent billions of pounds to rebuild burned out neighborhoods in Belfast, the IRA established construction companies that fixed prices and falsified employee rolls. The scheme brought millions of pounds into the Provisional IRA coffers.⁵⁶ The Taliban in Afghanistan has reportedly netted over \$150 million through similar schemes.⁵⁷ All these actions could enhance the resistance's finance operations, while undermining the credibility of the government to establish rule of law. Although not as likely to alienate the population, the resistance must still use caution when using parasitic techniques, ensuring they do not overburden the host economic activities.

While large, formal businesses are tempting targets, they are less common than smaller, informal businesses. In the developing countries where UW campaigns are most likely, the informal sector comprises nearly 50 percent of all economic activity.⁵⁸ These informal businesses are the most vulnerable to influence from the resistance. This vulnerability exists because they are operating outside the protection and support of the government—owners cannot turn to the government for support without compromising their informal status. This standing offers the resistance specific advantages with regard to taxation and extortion. The resistance could also affect popular opinion by exploiting the very existence of the informal sector—it typically exists because of government corruption and onerous policies in the formal

economy. Finally, a mature resistance can undermine the government by serving as the shadow government for the informal shadow economy.

As with the formal business sector, the resistance's options will vary with the resistance's objectives. If the objective is to undermine popular support and financing for the government, the resistance should take predatory actions against the formal economy or enhance the informal business sector. For example, the resistance could bribe government bureaucrats to prevent or delay formal business registration, which would drive more business into the informal sector. For a price, the resistance could provide a business owner the protection necessary to start business operations sooner than possible within the government's approval process. As part of an information campaign, the resistance can highlight the government's inefficiency in contrast to the resistance's ability to provide immediate help.

If the resistance objective is to finance its operations, the informal business sector is vulnerable to extortion (taxation). The resistance can potentially extract a higher percentage of revenue from an informal business because that business is not paying government tax. When extracting money from the business, however, the resistance should be careful not to exceed the cost of joining the formal economy. The resistance tax collection can continue as long as it is symbiotic in nature. The resistance must provide sufficient support for the informal economy and cannot extract too much tax from each business. Managed properly, the informal business sector has the potential to be a high-volume business for the resistance in contrast to the formal business sector with more lucrative individual business targets.

Finally, the UW planner should consider the illicit economy. While U.S. and international law prohibits association with many activities found in the illicit economy, such as human and narcotic trafficking, the illicit economy still offers the resistance critical capabilities. Often, the interests of black market operators and the resistance will align as both exist outside the host nation's legal framework. As such, individuals involved in the illicit economy can provide UW planners and practitioners valuable tools, both functionally and informatively. First, they have demonstrated a willingness and ability to operate outside of the government's purview. Such individuals are valuable for the resistance in a myriad of ways, particularly in the auxiliary network as smugglers. Since these individuals survive on their wits, they are often well informed on pending security force operations in the area. They may also provide valuable information to UW practitioners on the effect of operations.

For example, if a specific sabotage operation intended to disrupt the supply of grain to an area, the price of grain on the open market would be of little interest since it is controlled by the government. However, the black market price of grain, which is impacted by a supply shock, will be a good measure of effect as it is the true price to the consumer.

In some cases, the resistance may benefit directly by participating in the black market. This is particularly true if the product or service has no moral content, but is made illegal to advantage the government over a resistance movement. The black market for benzene in Iraq is an example of an illegal market that is not an immoral product. In an effort to control distribution of benzene, the Government of Iraq set prices and rationed benzene to Iraqi citizens. In the face of increasing demand, massive lines formed to purchase limited amounts of fuel at below market prices. Basic economics would predict the emergence of a black market for fuel as local militias, including Jaysh-al-Madi, recognized an opportunity for profit. From the government's perspective, this black market for benzene was illegal. From an ethical perspective, the sale of gasoline is not immoral and is representative of opportunities for a resistance movement to benefit from the illicit economy.

Critical Requirement 3 Summary

Business operations represent the most complicated critical economic requirement. The resistance movement must consider its relationship with the population and its strength relative to government security forces as it determines how best to navigate this economic terrain. For nascent movements, predatory actions aimed at disrupting the status quo may be appropriate. As the resistance movement matures, however, it should seek to develop symbiotic relationships with the local economy. At every stage, the resistance movement must modify its approach based on the type of firm, the business environment, and the resistance's objectives. With a thorough application of the abbreviated value chain analysis and the business context, the UW planner can discover multiple opportunities to undermine the government and enhance the resistance.

Critical Requirement 4: Natural Resources

Since the end of the Cold War, most conflict-related deaths have occurred in poor, natural resource exporting countries.⁵⁹ These countries are also our most likely UW operational environments. From the UW planner's perspective, natural resources offer two points of economic leverage for the resistance movement: vulnerability of the state and opportunity for the movement.⁶⁰ States with abundant natural resources tend to inordinately depend on that revenue stream. The income generated by these resources drives the provision of essential services, dictates security spending, buys off potential political adversaries, and often influences external intervention by the international community. It is the lifeblood of many of the hostile governments the U.S. is likely to encounter. This makes them particularly susceptible to commodity price shocks and supply chain disruptions. During commodity price spikes, these states often misallocate national assets toward resource extraction and away from other sectors of the economy.⁶¹ When prices drop or supply chains are broken, the state cannot fall back on other sources of revenue as years of neglect left them largely underdeveloped. Such volatility undermines long-run economic growth and, critically, creates short-run destabilizing outcomes such as unemployment, under-provision of essential services, and numerous other grievance-inducing plights.⁶² Resource sectors also provide target-rich environments for graft and corruption within the government where the appointments within certain ministries can be highly lucrative rewards. This fact was not lost on Foday Sankoh, the leader of the Revolutionary United Front rebel organization in Sierra Leone. During the 1999 peace negotiations, Sankoh indicated his group would only stop fighting when he was appointed not only the nation's vice president, but also the Minister of Mines.⁶³ While Sankoh's is an extreme example, it highlights the institutional erosion that renders the government more susceptible to insurrection through increased grievance.

Although these resources may be a curse with regard to state stability and popular support for the government, they can represent a short-term financial boon for the resistance. Most directly, natural resources represent a massive financial opportunity for the movement. The resistance's ability to quickly extract resources and monetize them is critical in building or sustaining the movement.⁶⁴ Resource revenue can dwarf financial support from the local population, and access to it can determine the fate of the

resistance.⁶⁵ Natural resources have proven an excellent source of finance for rebel groups, allowing otherwise ineffective groups to pose an existential threat to the existing government. Used properly, this windfall can fund arms purchases, increase revolutionary salaries, and build robust auxiliary and underground functions. It may also allow the resistance movement to provide services to a fence-sitting population. Finally, the resistance may use information operations to juxtapose the largess of kleptocratic government officials with the plight of the average citizen. Ultimately, whether through increasing grievance, resistance opportunity, or both, natural resource wealth is a critical factor in both initiating and sustaining a resistance movement.⁶⁶ As such, UW planners must understand the economic role of natural resources in the operational environment if they hope to maximize the potential of any campaign plan.

Natural Resource Value Chain

Analyzing the natural resource value chain requires a contextual understanding of the specific natural resource and the resistance movement's stage of development. Specifically, the degree to which natural resources directly fund resistance activities is dependent on two criteria: the 'lootability' of the natural resource and the amount of terrain held by the movement. Natural resources offer the resistance movement the most accessible revenue if they are easily extracted and monetized, or are lootable.⁶⁷ For example, alluvial diamonds may be more useful for funding an immature resistance movement since they can be mined with artesian tools and are often dispersed across a wide geographic area. Conversely, primary diamonds reside in rock formations well below the earth's surface and require significant capital and technology to extract them. Only the organization that controls the mine can extract these diamonds. This leads to the second dimension: terrain held. Unlike some other sources of revenue, natural resources are almost always tied to a specific geographic location. For resources that are more difficult to loot, such as primary diamonds or oil, the resistance movement can more easily monetize those resources if they hold the terrain on which they exist, at least for a period of time. The Kurds in Northern Iraq are exemplars of this reality. Their control of the northern oil fields provides a significant source of revenue for the Kurdish region and fuels much of their autonomy. That revenue, however, is limited by their lack of control over the entire

monetization process since they cannot efficiently bring their oil to market without relying on the Iraqi state-owned oil pipeline.

The monetization of natural resources almost always begins with the inputs necessary to extract the resource. The resources themselves are the first and most obvious input into this value chain. Assuming the presence of the resource and at least temporary control of the point of extraction, harvesting the natural resource requires both human and physical capital. In some instances, this may be an unskilled worker putting a chainsaw to fall old growth timber in Liberia. Or, it may require significant physical infrastructure and technological capability to pull oil from miles below the Iraqi desert. The production component of the value chain also differs significantly by resource type. Where production relies more upon technology or industrial capacity, the extracting party must possess the ability to operate and maintain the equipment. This includes the ability to receive and install replacement parts on a routine basis. Where extraction is more labor intensive and less reliant on physical capital, the party extracting the resource must be able to produce manual laborers on a daily basis. This may take the form of paid work or forced labor.

For many natural resources, the distribution link in the value chain is the most complex. It involves a system of storing, transporting, and trading the extracted resource. Many natural resources such as gas, oil, and timber are voluminous and cannot be transported or traded immediately upon extraction. As such, the owner of the natural resource must possess the ability to securely store the extracted resource. The storage facilities often act as nodes in a transportation network and are critical for connecting extraction to trade. Regardless of the natural resource, the ability to safely and efficiently transport the extracted good to a marketplace is critical. Oil requires pipelines or road networks. Timber relies on roads and waterways. Even precious stones like diamonds require a transport mechanism, albeit a smaller one, to create value for the extracting entity. Most often, the owner of the resource will need to utilize multiple types of transportation infrastructure to get to the point of trade. The quality and security of that infrastructure will directly impact the cost, and therefore profitability, of their resource. Ease of trade also impacts the profitability of natural resources. In some cases, groups within a state exchange natural resources for something of value, usually cash. However, natural resources are often most valuable in the international market. To realize this potential profit, either the buyer or seller must be able

to cross the border with the traded good. This requirement may entail the permanent control of a legitimate transfer point such as a port, railhead, or border crossing point. It could, however, simply require a bribe or coercion of an official at one of those points.

Inputs and Production

The ability to extract natural resources is vulnerable to disruption of both physical and human capital. For resources that are difficult to loot, such as oil or natural gas, extraction equipment is critical. Destruction of or damage to this equipment is potentially disastrous for the owner of the resource. Because of the technical nature of this work, this type of resource extraction is also heavily reliant on highly trained experts. Preventing those experts from providing their knowledge is highly disruptive to this system. Low-technology extraction systems are less susceptible to attacks against physical capital and more vulnerable to labor disruptions. One might consider the diamond mines of western Africa in this case. Because most diamonds are near the surface, mining requires little equipment but significant amounts of low-skill labor. Shutting off the supply of that labor through organized labor strikes or by restricting travel can effectively cease mining operations.

The natural resource value chain is also vulnerable at storage facilities. The longer a resource must be stored, the more vulnerable it is to attacks of various sorts. Storage facilities provide a fixed location against which an adversary may plan an attack. Once delivery and security patterns are established, the problem is simply one of timing and sufficient force. When famous criminal Willie Sutton was once asked why he robbed banks, he glibly stated “because that’s where the money is.”⁶⁸ In the same way, storage facilities are by definition valuable targets because of their valuable content.

The ability to transport natural resources from the point of extraction to the marketplace is possibly the most vulnerable link in the value chain. Most obviously, destruction of ports, railways, airfields, and road systems is likely to significantly increase the cost of bringing natural resources to market. In Iraq, coalition forces spent hundreds of millions of dollars to secure the oil pipeline from Kurdistan to Basrah. Where the resistance movement controls the transportation infrastructure, they may disrupt the trade of government-owned natural resources by interdicting shipments. Alternatively, they may allow products to transit their area, but only for those willing to pay a fee.

The resistance movement faces similar challenges as it attempts to transport resources it extracts. In government-controlled areas, bringing natural resources to their point of sale often requires the payment of bribes to corrupt government officials. A lack of access to traditional transportation infrastructure may also require significant use of smuggling mechanisms, which are inherently less efficient than standard methods. This further increases the cost of the traded goods and reduces profit margins. If smuggling is easy, the impact is minimal. If it is not, the trade of the resource may no longer be a viable funding option. Enhancing and protecting existing smuggling routes is critical for the resistance.

Trade, particularly on the international market, is susceptible to border security issues and international political action. If traded abroad, the natural resource must pass through one or more border crossing points. These form choke points where the government can disrupt resistance movement distribution systems either through preventing sales or requiring significant bribes. The sale of resources during a time of conflict is also vulnerable to international embargos and certification programs. The campaign against ‘blood diamonds’ from Africa and the oil embargo against Saddam Hussein’s regime in Iraq are both examples of this vulnerability. If the international community through collective or hegemonic action is able to dry up demand for a particular resource, the price of that good may drop below the cost of production and ultimately deny any real profits to its owner.

As a final note, both the resistance and the government must secure the natural resource value chain against both external and internal threats. On the government side, this requires monitoring its employees at each stage of the production process to protect against graft and corruption. A recent report by the Nigerian government estimated that it loses more than \$5 billion per year due to corruption and mismanagement in its oil sector.⁶⁹ Resistance movements are not immune from internal threats either. In rebellions of Liberia and Sierra Leone, the organizations took draconian intimidation measures to ensure diamond miners did not expropriate their finds. As a result of both internal and external threats, monetization of natural resources may require significant security measures to ensure effective extraction, storage, transportation, and trade of natural resources.

Critical Requirement 4 Summary

As with every other critical requirement, the resistance and the government compete with each other to monetize natural resources. While present at every stage of the conflict, the manifestation of the competition over natural resources will differ by resource type (lootability) and maturity of the resistance movement (terrain held). In its incipient stages, the resistance movement will likely hold little to no terrain and therefore will not control the monetization process of most natural resources. During these stages, the movement will need to focus on disrupting government revenue derived from non-lootable sources and monetizing only the most lootable resources. The UW practitioner might view these activities as increasing the marginal cost of production for the government, robbing them of the profit margins they previously enjoyed. This is a more indirect form of competition. However, as it matures and develops the support networks necessary to extract less lootable resources, the movement can compete more directly with the government for control of the natural resource value chain. In this stage, the resistance may control the point of extraction as well as the means to bring the resources to the market. With any resource and at any stage of the movement's development, UW practitioners can assist the resistance movement in navigating this critical economic requirement.

Critical Requirement 5: External Finance

As wide ranging as some resistance revenue-generating activities may be, few movements can survive on internal resources alone. In part, this is due to the relative privation in which most movements originate. The local population may have little to offer the movement and, other than natural resource extraction, internal revenue generation potential may be limited. Not surprisingly, then, today's most successful movements—from the Islamic State to the Ukrainian separatists—rely on a diverse portfolio of both internal and external revenue streams.⁷⁰ In essence, these mature movements have mirrored trends in global business—risk mitigation through diversification.⁷¹ These highly effective resistance groups are also diversified *within* their external revenue streams. While state sponsorship remains a viable funding option, it is no longer the only, or even primary, source of external finance for many movements. Increased social and economic connectivity layered on a globalized financial system facilitates increased private external support.

Almost by definition, every U.S. UW campaign will entail state sponsorship; U.S. advisors will always bring U.S. dollars. This method of acquisition is beneficial for the sponsoring state and the resistance for a number of reasons. From the sponsor's perspective, covertly financing the destabilization of an adversary is often more cost effective and politically palatable than overt military confrontation. Should such an effort fail, the sponsor retains some measure of deniability both internationally and domestically. State sponsorship also provides the sponsor with significant leverage over the movement. Resistance movements are unlikely to bite the hand that feeds them.

State sponsorship is also appealing to a resistance movement. Particularly for emerging movements, infusions of relatively easy money can significantly increase chances of survival. Early aid tends to help establish viability and legitimacy of nascent organizations.⁷² Although non-state actors and wealthy individuals play an increasing role in external support, nation-state budgets dwarf those sources, often by factors of 10. Hezbollah would find replacing Iran's assistance, estimated at over \$100 million annually, nearly impossible.⁷³ A state's access to the international financial system offers the resistance simple money movement and storage options. Since the money is 'clean' as it belongs to a sovereign state, many of the laundering actions necessary with illicit business operations are unnecessary.

Despite the obvious advantages of state sponsorship for both the state and the resistance movement, UW planners and practitioners should consider diversifying the movement's external support portfolio for several reasons. First, few resistance movements benefit from the perception of reliance of external masters. It undermines the authenticity of the cause and can poison public perception.⁷⁴ Rather than being a tool of a foreign power, a resistance movement financed through donations can claim to speak for the local and displaced population. This serves to not only bolster the movement but also undermine the legitimacy of the state. Reliance on a single stream of income, even from a seemingly reliable source like the U.S. Government, also makes a resistance movement more centralized and fragile. Should America's domestic or international political winds shift, the amount of funds available for a given UW campaign may shift with them. Building resiliency into the resistance movement's external support system can help it withstand short-term fluctuations while maintaining capability. Finally, many UW campaigns will seek to replace the hostile regime and place the resistance movement into

government. Building institutions within the movement that rely on finance from private citizens will assist in that transition.

External Finance Value Chain Analysis

To effectively navigate the external finance terrain, the resistance must generally protect three capabilities to finance its activities: acquisition, transfer, and storage of financial assets.⁷⁵ These requirements, as depicted in Figure 5, are similar to the inputs-production-distribution critical components described in previous sections. Think of acquisition as ‘earning’ the money. Non-state acquisition methods, such as remittances, private donations, or charities are similar to nonprofit fundraising where individuals or organizations donate out of a sense of allegiance, altruism, or ideology. The resistance movement must manage its brand to appeal to its donor base. Transfer refers to resistance’s ability take possession of donations from external benefactors. This capability could be as traditional as *Hawala* networks or as modern as Bitcoin transfers. The transfer capability also refers to the movement’s ability to disperse its funds throughout the organization. Unlike states, resistance movements cannot operate on a deficit spending model—their credit ratings are a bit low. This implies that movements must finance current operations either out of current income or funds stored from previous revenue. For some movements, cash or tradable commodities like diamonds or gold are most effective. Others will utilize more sophisticated options such as stored-value cards or virtual currencies.

Compared to other critical requirements, the competition for external support between the resistance movement and the state is less direct. While states, particularly the more unstable ones, do receive foreign support (think Iranian support to Syria), most movements and governments appeal to different external audiences. They are not competing directly for the same funds. As such, the interplay is more of a cat-and-mouse interaction, with the hostile government seeking to deny external funding to the movement and the movement attempting to circumvent those efforts. This is essentially a unidirectional relationship; the resistance has little ability to deny external funding to the existing government. U.S. UW planners and practitioners can assist resistance movements in this critical requirement by not only providing U.S. Government funds but also by increasing the efficiency and resiliency with which it stores and transfers those resources.

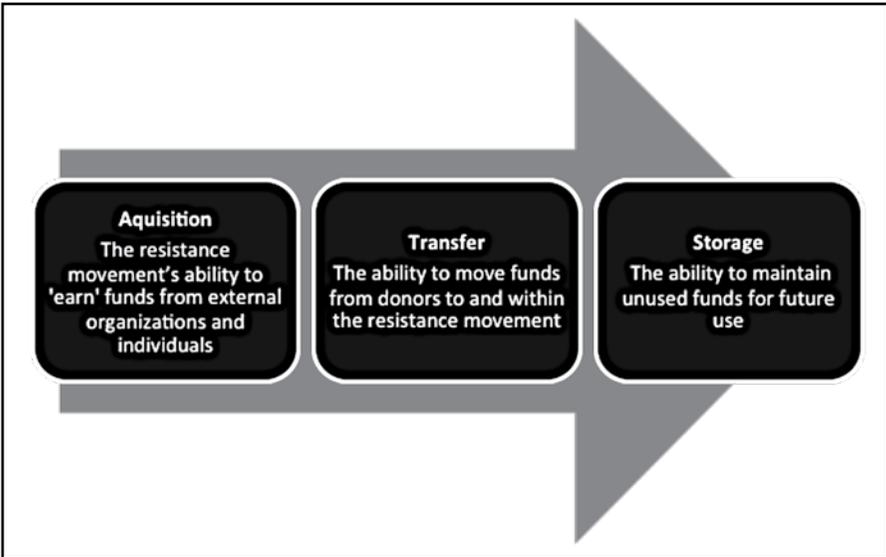


Figure 5. External Finance Value Chain. Source: Authors

The remainder of this section will examine requirements necessary for the resistance movement to acquire, transfer, and store external financial support. Along the way, there will be a discussion of opportunities and vulnerabilities for the UW planner and practitioner to exploit and mitigate, respectively.

UW Planning Considerations

Of the three links in the external finance value chain, UW planners and practitioners will be least involved with acquisition. The U.S. Government will have already deemed the resistance movement worthy of support, and in this sense the movement performed well enough to 'earn' U.S. taxpayer dollars. But as discussed earlier, UW advisors should also assist the movement in expanding its donor base. As with any fundraising activity, the resistance must manage its image, or brand, and strategically communicate with potential donors. The rise of the Internet and cellular communication facilitates these efforts and means that collecting small donations from thousands of donors is now a viable funding strategy. Much like entrepreneurs use crowd-funding for startups, resistance movements today can quickly mobilize a diaspora or group of like-minded individuals into a powerful

funding source. ISIL has mastered this technique over the past two years and, as will be discussed later, now has tens of thousands of individuals from around the world donating to its cause. The sheer number of supporters reinforces ISIL's pursuit of legitimacy. While many of ISIL's tactics are morally indefensible, UW planners and practitioners can learn from their ability to establish a brand and leverage that brand for financial gain. In this regard, U.S.-backed resistance movements can and should follow ISIL's lead as they seek to acquire diverse funding streams.

Raising external financial support is meaningless if the resistance movement lacks the means to take possession of that support. Secure methods of transferring funds from the point of collection to the coffers of the movement are critical. As in most value chains, the transfer link is often the most complex and vulnerable to disruption. The multiple intermediary entities, from witting cash smugglers to unwitting bank tellers, represent potential points of compromise in this process. And funds do not need to physically change hands to risk seizure. Increasing financial forensic capabilities in the global financial system place all digital transfers at risk. Yet, resistance movements around the world receive and disperse billions of donated dollars every year. They do so through a combination of some of the oldest and some of the newest techniques available. UW planners and practitioners can combine their knowledge of new financial technologies with the resistance movement's local area knowledge to develop secure and resilient financial transfer and storage capabilities. Importantly, many of these capabilities apply to any funds the movement manages. Both old and new financial technologies that connect the resistance to external donors will also allow the movement to transfer funds within its organization.

Despite these advances, smuggling bulk cash remains a staple of financial transfers to resistance organizations. Cash smuggling offers several attractive features for the resistance movement. First, dealing in cash mostly avoids the established financial system and its associated evidence trail. This is particularly useful in areas with a more developed regulatory system. Cash smuggling also affords greater control to the resistance movement. Moving money electronically through unwitting banks not only leaves identifiable patterns, but it also increases the likelihood of a third party, such as a bank manager, noticing unusual activity. Smuggling large amounts of cash, however, suffers from many obvious drawbacks. Smugglers, like all businessmen, expect compensation for the risk they assume. Accordingly, maintaining a

network of reliable carriers and smuggling infrastructure can, therefore, be expensive. And, while risk of electronic detection is minimal, traditional border security measures and informants in the network remain a direct threat to this method. Well-trained and prepared UW teams will be able to assist the resistance movement with best practices to overcome some of these challenges.

Where transferring cash or cash-like items is not feasible for security or other reasons, the resistance movement must instead rely on a money value transfer system (MVTs).⁷⁶ Most simply, an MVTs is a method of money transfer without cash physically moving. These systems can be modern, such as global banks, or traditional, such as the centuries-old *Hawala* system. Traditional systems like *Hawala* often dominate in underdeveloped nations. Afghanistan, where the majority of licit and illicit money transfers transit the *Hawala* system, is perhaps the most familiar example. Experts estimate up to 90 percent of the economy relies on this traditional MVTs.⁷⁷ *Hawala*—and systems like it around the world—provides the resistance with a compromise between dealing with cash and relying on the highly regulated global financial system. For example, numerous groups from organized crime to freedom fighters have used import-export laundering schemes to transfer funds. In this scenario, an individual who wishes to transfer funds to an organization ‘sells’ a basket of goods to the organization at significantly discounted prices. The receiving organization pays the reduced price via a traditional MVTs, provides the seller a receipt, and then resells the goods for a substantial profit. This transfer of wealth is essentially impossible to detect in traditional MVTs, particularly if the MVTs conducts a high volume of transactions.

Across the value transfer spectrum from traditional MVTs stands a group of emerging transfer capabilities. Most, if not all, of these emerging capabilities rely on ever growing Internet and cellular phone connectivity around the world. Mobile payments via smart phones illustrates this trend. Over the past decade, companies such as mPesa in Kenya have grown to provide financial services for previously unreached poor communities. Using their technology, two individuals with mPesa accounts can transfer money via text messages, with the cash available for distribution at any one of the hundreds of mPesa carts in the area. Users can establish an account with minimal identification, and the transactions are largely untraceable. Appropriately, one expert labeled mobile payments as the “Wild West” of money transfers for savvy organizations.⁷⁸ The Internet, where anything of value

may be traded, may offer even more potential for innovative resistance movements. For example, E-Gold Ltd. provides a mechanism for individuals to hold accounts denominated in gold and, most relevantly, electronically transfer the value of those accounts to any other account holder. Initially, users only needed to provide an email to establish an account.⁷⁹ While E-Gold eventually increased its security measures under pressure from the U.S. Department of Justice, it represents the realm of the possible for resistance movements of the future.

While traditional storage vehicles such as cash and banks remain vital to today's resistance movements, they represent a shrinking portion of most movements' portfolios. Emerging vehicles such as prepaid cards and virtual currencies are beginning to crowd them out. Once the domain of parents attempting to reign in their college student's spending, prepaid cards are increasingly used by resistance movements as stores of value.⁸⁰ These instruments offer the portability of bank accounts and the security of cash. Consider the case of a border crossing. While states limit the amount of cash an individual may bring into the country, no such limits exist for prepaid cards. And the cards create no signature for the carrier. Illicit organizations from Colombian drug cartels to Eastern European hackers demonstrated the viability of this method.⁸¹ While prepaid instruments offer attractive capabilities to a resistance movement, they pale in comparison to the potential of virtual currencies such as Bitcoin. Un- or under-regulated, largely anonymous, and decentralized, this innovation in value storage is highly appealing to those who wish to remain outside the formal banking system. Combined with access to the 'black' Internet via anonymity programs like The Onion Router, Bitcoin transfers are essentially untraceable. If resistance finance is indeed a cat-and-mouse game with the host government, virtual currencies represent the smartest, fastest mice out there. UW planners and practitioners trained in the latest financial storage instruments could offer invaluable capabilities to the resistance movement.

Critical Requirement 5 Summary

While the landscape of external support to resistance movements is changing, the basic capabilities of finance acquisition, transfer, and storage remain unchanged. Even movements supported by the United States, the wealthiest nation in the world, must protect these capabilities. Across each, movements

increase their survivability by diversifying. Multiple funding sources, redundant transfer channels, and a variety of storage vehicles all underpin financial stability. But, just like any effective organization, resistance movements cannot rely on a static portfolio. Rather, they must constantly adapt to changing threats from external parties and exist on the technological edge of the financial domain. The UW planner and practitioners may be able to assist in this area. Combined with the movement's local knowledge, the introduction of the latest technologies for acquiring, transferring, and storing funds could elevate the movement into new levels of effectiveness.

4. Applying the Framework to the Islamic State

Throughout this monograph, the authors have used polarizing organizations to illuminate components of their framework: Hezbollah provided essential services, Jaysh-al-Madi harnessed the black market, the Revolutionary United Front mastered the use of natural resources to fund operations. The authors will conclude by applying the entire framework to the most dramatic of these exemplars: ISIL. Since its inexorable rise in 2014, ISIL has captured the world's attention. Many young Muslims want to join them, military commanders from the U.S. and its allies want to stop them, and nearly everyone wants to understand them. The latter seems imperative to stopping the first and assisting with the second. By applying our framework, we hope to understand how ISIL came to monopolize violence across wide swaths of land in Syria and Iraq. The authors will demonstrate how ISIL has navigated the economic terrain to finance its operations and win popular support, while hoping to identify opportunities for the U.S. and its allies to join UW and economics with ongoing efforts to defeat ISIL.

Applying the operational planning framework to ISIL presents several challenges. While the body of knowledge on this group is growing rapidly, it suffers from the immediacy of the movement. What we thought we knew about ISIL yesterday may not be what we think we know today. This is partly misunderstanding and partly a consequence of analyzing an amorphous and evolutionary group. But this is often true of today's operational environment, so any proposed framework must be sufficiently robust to explain enigmatic and fluid organizations. Additionally, the ISIL case study relies entirely on open-source information. Undoubtedly, the vast intelligence resources of the anti-ISIL coalition could paint a clearer picture. Using strictly open-source information, though, illustrates the validity of the framework. The economic terrain of a potential UW operational environment should be discernible without significant intelligence requirements—after all, one of the centers of gravity is popular support, which depends on open information. Reports from organizations like the United Nations (UN), the World Bank, and political economy think tanks combined with quality journalism and field research should suffice.

By summer of 2015, ISIL controlled approximately 35,000 square miles of ground in northeastern Syria and northwestern Iraq.⁸² Politicians and military leaders continue to search for immediate military actions to stem the organization's push toward Baghdad. While such actions are necessary, they are not the focus of this application. Rather, we center on the economic aspects of the anti-ISIL effort and apply a longer time horizon. Some operations targeting economic critical requirements such as the sale of oil or external financial support may introduce both short- and long-run outcomes. Others, particularly those focused on business opportunities, agricultural production, and essential services, primarily manifest outcomes months and years in the future. The long view of economics is critical, particularly with an adversary as resilient as ISIL. Our analysis shows that the neglect of critical economic requirements over time partially precipitated the rise of ISIL in Syria and allowed its rapid expansion into Northern Iraq. Recognizing this, any hope of long-run stability in the region is predicated on building a solid political and economic foundation. Done properly, UW applications of economic levers can begin that process.

This application will use our economic framework to understand two primary questions. First, what economic factors allowed ISIL to monopolize violence in large portions of Syria and Iraq? Answering that question allows us to better address the second: How can we use UW to attack ISIL's critical economic requirements and disrupt both their popular support and ability to finance their fight? Although traditionally applied against state actors, the authors will demonstrate that UW is a viable tool against non-state actors as well. This point will be argued, while also recognizing that ISIL's increasing surrogate state requirements make it an ever more appealing UW target. As the organization becomes more centralized and state-like, it becomes easier to disrupt its critical economic requirements. Finally, the authors recognize that the international community is split on the proper understanding of ISIL. Some argue it is a terrorist organization possessing some insurgency-like characteristics. Others believe it is an insurgency that uses terrorist tactics. ISIL's name implies it is a state, but they call themselves a caliphate. No specific label is particularly useful; ISIL is a resistance movement in full maturity, requiring it to perform state-like functions in the territory it holds while relying on classic insurgent behavior on its periphery. It is more useful to think about ISIL's areas of control and areas of expansion as it faces different challenges in monopolizing violence in each area. While it can act as

a disrupting predator in areas of expansion, it must develop symbiotic, or at least parasitic, economic relationships in its areas of control if it desires legitimacy as a state. UW attacks against its critical economic requirements should aim at disrupting those relationships.

For the purposes of this paper, the authors will not designate a specific group to represent the indigenous resistance movement necessary for UW. In reality, multiple sub-groups of Iraqi and Syrian society could fill this role, from Syrian Kurds to Sunni tribes of northern Iraq. Each group offers different advantages and risks to the UW team and the U.S. Government as a whole. Regardless of the UW partner, building the movement should be done carefully over time. ISIL is likely to threaten U.S. interests well into the future, and a correctly built resistance movement will be an asset for years to come. Given ISIL's level of control and demonstrated brutality, early UW efforts should most often take an indirect approach, likely executed by the resistance movement's auxiliary arm. Premature direct attacks against an organization as capable and ruthless as ISIL could bring a swift death to the movement. This chapter will recommend several activities a fledgling movement might use against ISIL to disrupt its critical economic requirements. But before discussing UW options, the authors turn first to the rise of ISIL.

Understanding the Economics of ISIL's Rise

Historical examples provide little insight into the rise of ISIL—its rapid growth from a disorganized band of zealots to a multiple state-consuming machine with global reach is largely without precedent. Such a rise cannot be explained in one dimension; it is not presumed that economic factors were the only, or even primary, driver of their ascendancy. However, the story of ISIL also cannot be understood outside the economic context in which the organization crystallized. Similarly, ISIL's continued warfighting and efforts to win popular support rely on the organization's interaction with its surrounding economic environment. Deftness in securing their critical economic requirements defines ISIL's success.

ISIL and the Will of the Population

By late 2007, al-Qaeda in Iraq (AQI), the precursor to ISIL, was on its deathbed. Undoubtedly, the efforts of American and Iraqi SOF explain part of that demise. However, foreign forces and Shi'a dominated Iraqi units had

been pressuring this group for years. It was not until the Sunni tribes of northern Iraq joined the fight that AQI ceased to destabilize the region. Ultimately, AQI's brutal tactics and disregard for the population was their undoing. But AQI did not die altogether, and its leadership learned from their mistakes in Iraq. When presented with favorable political, military, and economic conditions in Syria a few years later, it reinvented itself as ISIL and became the juggernaut it is today. In large part, they did this through recognizing and ameliorating intense grievances of the population. Seen through an economic lens, ISIL rose by taking advantage of shocks in the regional agricultural sector and the Syrian and Iraqi regimes' inability (or unwillingness) to deal with the follow-on humanitarian crisis. Today, ISIL faces similar challenges in the areas it claims to govern. It relies heavily on controlling agricultural production and providing state-like services to influence popular support throughout its territory.

Humanitarian Aid and Essential Services (Critical Requirement #1)

The provision of basic life necessities is a core function of any state. States that do it well tend to receive popular support from their citizens. Those that do not are ripe for civil strife and eventually violent conflict. Such was the case in Syria—and to a lesser extent northern Iraq—in 2011. In Syria, the devastating drought forced an estimated 1 million people to migrate to the periphery of the major urban areas of Damascus, Aleppo, Homs, and Latakia.⁸³ Combined with the approximately 1.2-1.5 million Iraqi refugees that arrived between 2003 and 2007, such migration resulted in 50 percent urban population growth in less than eight years.⁸⁴ Most of these new urbanites settled in slums on the periphery of the cities, settlements defined by a general lack of infrastructure, employment, and security. The population shock exacerbated significant failures in the provision of essential services in these areas, and rising food and fuel prices only made matters worse. Where Assad's Alawite minority had previously maintained control by redistributing wealth among various ethnic groups, it was unable, or unwilling, to meet the increasing needs of the poor, urban Sunnis.⁸⁵ Once the Arab Spring reached Syria and Assad responded with force, ISIL and numerous other groups channeled this economic grievance into popular support for the rebellion.

ISIL is not unique in its ability to use a state's failures to motivate rebellion. Where ISIL joins rare company is in its commitment of significant money and personnel to provide essential services in its territory. This is in keeping with its June 2014 announcement of a caliphate and supports the organization's strategy to conquer and govern ever increasing territory. Taking a page out of Hezbollah's playbook, ISIL is intent on maintaining existing infrastructure and building new capacities where possible. U.S. officials report that ISIL is opening new hospitals and building new roads, maintaining traffic police in Raqqa, and even operating a postal system.⁸⁶ ISIL has also attempted to manage complex infrastructure such as dams and power plants in Aleppo. Recognizing a shortage of high-skilled labor, ISIL leader Abu Bakr al-Baghdadi called for scientists, technical experts, and doctors to join the organization. Many answered the call, including a Tunisian with a Ph.D. who now runs Raqqa's telecoms.⁸⁷

But running a government is difficult, and it is not surprising that ISIL's effectiveness in providing state functions is uneven. Reports of soaring prices, undrinkable water, and spreading disease in Mosul highlight some shortcomings.⁸⁸ Other reports indicate that while imperfect, the ISIL solution is preferable to previous regimes.⁸⁹ The reports highlight the importance of relative deprivation and the role of ISIL as a viable alternative in the provision of social welfare. Given the relative immaturity of ISIL as a 'state,' the sustainability of any short-run successes are unknown. At a minimum, their shortage of government expertise ensures their provision of essential services will be a target-rich environment for UW teams.

What is known, however, is the presence of widespread humanitarian crises in ISIL's territory. Decades of poor governance combined with years of fighting has left millions of Syrians and Iraqis without shelter, food, clean water, and access to life-saving medical care. In some areas, ISIL is attempting to meet these needs internally to build good will with the local population. Their Muslim Services division often provides food, clothing, gasoline, or medical services soon after taking new territory.⁹⁰ Such actions not only win popular support but also create dependency on the organization as they monopolize the provision of aid. Where ISIL cannot or will not provide humanitarian assistance, they often co-opt efforts by external aid organizations to further legitimize the ISIL cause. Aid organizations report ISIL militants seizing foreign aid intended for Syrian civilians to redistribute as ISIL provided assistance.⁹¹ Stealing and redistributing German-donated

generators worth \$300,000 and a 30-day supply of food for 600 families from a large American relief group are just a couple examples of what is believed to be a common occurrence.⁹² Even donations from the USAID and UN World Food Program have reportedly been distributed under the black flag of ISIL.⁹³ To the extent that it can, ISIL is co-opting these organizations to ameliorate grievances and make a profit, simultaneously winning popular support and financing its fight.

Agriculture (Critical Requirement #2)

Recent research indicates a strong link between failing agricultural production in Syria and Iraq and the rise of ISIL. In Syria, the conditions for this ascendancy actually began prior to the current regime. In the 1980s and 1990s, President Hafez al-Assad instituted policies to increase agricultural production, in part by introducing irrigation to previously unusable land.⁹⁴ While the policies did increase production, they also significantly lowered the water table in Syria. As a result, when the worst drought in Syrian history hit in 2006, the agricultural system in northeastern Syria's wheat growing region collapsed. The ensuing shortage spiked food prices and made herding, which relied on cheap sources of grain, untenable.⁹⁵ Because Syrian farmers relied heavily on the previous year's yield to seed the next year's crops, most small to medium farms failed. While not as dramatic, the Sunni farmers of northern Iraq faced increasing threats to their livelihood during this same time period. Since 2003, Iraq has been in a near constant state of drought and conflict. As a result, agricultural productivity has decreased by 90 percent nationwide, with the rural areas surrounding Mosul being the hardest hit.⁹⁶ The contrast of the poor Sunni north with the perceived largess of the Shi'a government in Baghdad only exacerbated the growing sectarian tensions. While ISIL did not create the droughts in Iraq and Syria, it capitalized on the grievances it produced. Both in Syria and Iraq, failure in the agricultural sector sowed the seeds of discontent that ISIL would later harvest.

Since taking control of northeastern Syria and northwestern Iraq, ISIL has continued to use agricultural production and food as weapons to control the population. According to the UN Food and Agriculture Organization (FAO), ISIL-held territory represents 33 percent of Iraq's wheat producing capacity and 38 percent of its barley production capacity.⁹⁷ ISIL has intermittently controlled over a dozen of Iraq's wheat silos, including the massive

Makhmur silo, capable of holding 250,000 metric tons of wheat—approximately 8 percent of Iraq’s annual production.⁹⁸ And just as it did with oil fields, ISIL avoided damaging the silos they captured, ensuring ISIL’s ability to profit from their seizure. They even established a wheat bureau to manage the wheat supply chain from harvest to distribution of flour.⁹⁹ This has allowed ISIL to not only profit from the sale of wheat and flour, but also control who has access to food, punishing opponents and winning over the Sunni Arab population. In effect, they are gaining support from their target population, Sunni Arabs, while controlling the rest of the population through hunger and intimidation. Such tactics have become increasingly important as crop failure across ISIL territory has increased. In Raqqa, a region ISIL has controlled since May 2013, the UN FAO estimates wheat production has fallen by 70 percent.¹⁰⁰ ISIL responded by reportedly moving 1 million metric tons of wheat and barley from Iraq to Raqqa.¹⁰¹ Food is now a strategic tool for ISIL that allows them to maintain control over the two economic centers of gravity.

ISIL Finance

ISIL’s efforts to win popular support are only possible because of its highly developed funding strategy. Estimates of ISIL’s assets vary, but RAND researchers estimated the organization held approximately \$875 million in assets before it took Mosul in June 2014,¹⁰² and that was before they seized the banks of Mosul and their \$500 million in deposits. ISIL’s robust coffers are a result of both savvy financing operations and opportunistic behavior. Decentralized and highly adaptable, ISIL does not rely on a single source of income. Rather it maintains a diverse portfolio, tapping into its various revenue streams based on the current operational environment. These varied sources include revenue generated from gas and oil, profits from licit and illicit businesses, and external funding, primarily in the form of grassroots funding strategies and abuse of NPOs.

Business Opportunities (Critical Economic Requirement #3)

As ISIL has matured and occupied more territory, the organization has evolved from predatory economic activity to developing parasitic and symbiotic economic relationships. In areas they control, they have developed robust business endeavors as viable alternatives to natural resource revenue.

Today, most experts believe those alternative sources represent the majority of their income generation.¹⁰³ Much like organized crime syndicates, most of ISIL business ventures are illicit and include bank robbery, trafficking of illicit goods, and extortion. Estimates of the economic value of such activities are fraught with uncertainty, but some believe ISIL generated as much as \$1 billion from illicit activities in 2014.^{104, 105}

If robbing banks is predatory business activity, business has been good for ISIL in Syria and northern Iraq. The U.S. Department of the Treasury estimates the organization acquired access to at least \$500 million when it seized control of banks in Iraq's northern provinces.¹⁰⁶ Similar bank takeovers in Syrian cities such as Raqqa and Aleppo have also contributed significantly to ISIL coffers. But ISIL is not simply preying on these banks and stealing their deposits. Rather, they used them to establish parasitic and symbiotic relationships with the local economy. They replaced bank managers with ISIL-friendly employees, allowing the organization to levy up to 10 percent taxes on cash withdrawals.¹⁰⁷ While burdensome to the population, such an approach allows ISIL to profit while maintaining some modicum of a functioning local economy.

Along with the sale of illicit oil, ISIL has developed a robust black market trade in numerous other 'goods' ranging from antiquities to human beings. While ISIL gained notoriety for their destruction of ancient artifacts from Nimrud and Khorsabad, they have created enormous profits by selling more than they destroy. This pragmatic approach is believed to have netted the organization tens of millions of dollars.¹⁰⁸ Experts believe most of these antiquities have been purchased by Turkish middlemen and exited Syria and Iraq via the same smuggling networks used to move black market oil. ISIL's willingness to commoditize antiquities is exceeded in audacity only by its trafficking and ransoming of human beings. ISIL has executed scores of kidnapped individuals, generating enormous international attention. However, ISIL ransoms far more kidnap victims than it kills. Because ransom payments are by their nature secretive, precise estimates are elusive. However, experts estimate ISIL has ransomed hundreds of individuals, generating as much as \$100 million.¹⁰⁹ Even less is known about ISIL's profits from more traditional human trafficking, despite ISIL's brazen statements about its participation in this trade.¹¹⁰ Based on reports of women and children being auctioned to ISIL fighters for as little as \$13, it is unlikely that such trade provides ISIL with significant operating funds.¹¹¹ However, it may serve as an

important recruiting tool and non-pecuniary compensation for its fighters. It also intimidates the minority populations from which most of the kidnap victims originated.

As ISIL expanded across wide swaths of land, it did not simply create new business opportunities. As this framework would expect, it also established parasitic mechanisms to profit from pre-existing economic activity by interjecting the organization into the production and distribution links of the value chain. Primarily, this has taken the form of extortion and taxation of the roughly 8 million people living in its territory. According to the U.S. Treasury, ISIL extorts “protection” fees for activities ranging from fuel sales to school attendance for children.¹¹² Transit taxes, fees paid for the safe transport of goods through ISIL-held territory, are believed to create significant revenue for ISIL. Even crossing the border from ISIL-controlled Syria to ISIL-controlled Iraq can cost as much as \$800 per vehicle.¹¹³ Given the agrarian population under its control, it is not surprising that ISIL focuses much of its extortion efforts on the production of agricultural goods. In ISIL’s Syrian capital of Raqqa, the organization demands portions of every farmer’s yield as alms, also known as zakat.¹¹⁴ ISIL also reportedly confiscates farm machinery and then rents them back to the farmers from which they were appropriated.¹¹⁵ Ironically, ISIL has also benefited from salaries paid by both the Syrian and Iraqi governments. In Iraq, for example, the government has continued to pay state employees in ISIL-held territories. In turn, ISIL reportedly levies a 50 percent tax on these salaries.¹¹⁶

Natural Resources (Critical Economic Requirement # 4)

Early in ISIL’s rise, revenue from natural resources, primarily oil, provided the foundation of its operating funds. From March 2011 to June 2014, ISIL took control of the majority of Syria’s northeastern oil fields, as well as a number of fields in northern Iraq. These seizures represent 60 percent of Syria’s oil production capacity and 10 percent of Iraq’s capacity.¹¹⁷ Recognizing the relatively low ‘lootability’ of oil, ISIL took the oil and gas fields largely intact.¹¹⁸ The organization then managed, through coercion at times, the continued extraction of these resources, albeit at diminished rates. At its peak, one U.S. official estimated ISIL-held oil fields produced as much as 55,000 barrels of petroleum per day.¹¹⁹ Importantly, ISIL’s oil production also represents decreased revenue for the states it opposed. The Syrian regime

suffered the most in this regard, losing approximately half of their pre-war annual oil sales.

Of course, ISIL cannot sell oil at market prices. To monetize the extracted oil, ISIL must affect its transfer to a black market point of sale. ISIL does so by exploiting a well-established and sophisticated smuggling network that reaches into Turkey, Jordan, Iraq, and beyond. Reports from 2014 indicated ISIL sold crude oil for about \$25 per barrel to smugglers who, in turn, would sell the oil for \$60-100 per barrel upon crossing into a neighboring country.¹²⁰ One trader estimated that at its height, over 25,000 barrels a day passed into Kurdistan alone.¹²¹ Since the beginning of the Syrian civil war in 2011, Turkey claims to have seized 300 percent more smuggled oil than in pre-war years.¹²² While U.S. airstrikes and increased anti-smuggling efforts seem to have slowed the flow of illicit oil, U.S. Central Command still estimated ISIL's daily oil revenue at \$2 million in the fall of 2014.¹²³ Many experts believe this is a lower-bound estimate.

External Support (Critical Economic Requirement #5)

As a fully mature resistance movement, ISIL is a historical anomaly in that it is largely self-funded. That does not imply, however, that ISIL receives no external support. This form of revenue generation is likely to increase in importance as the anti-ISIL coalition degrades the organization's oil revenue systems and as slowing territorial expansion reduces illicit business opportunities. Based on open-source research, the authors find little evidence of state sponsorship of ISIL. Instead, ISIL appears to rely on wealthy donors, emerging grassroots collections, and manipulation of NPOs as their primary sources of external financial support.

Most experts agree that ISIL's primary source of external financial support comes from wealthy donors in the Middle East, particularly Saudi Arabia and Qatar. Despite efforts by both governments, their citizens are believed to have funneled hundreds of millions of dollars to Syrian rebel groups in recent years, including ISIL.¹²⁴ Not surprisingly, ISIL directly targets these primarily Sunni populations with direct fundraising campaigns in search of investors. Former NATO Supreme Commander James Stavridis claimed that these "angel investors" were of particular importance in ISIL's early fundraising efforts.¹²⁵ These investors provided the equivalent of seed

money for the ISIL start-up, providing it the operating capital to establish self-sufficiency.

While “angel investors” were critical early in its existence, ISIL’s explosion onto the international media scene has facilitated the rise of grassroots donors through social media and emerging technologies. ISIL’s social media savvy is well-documented. Through its media department, Al Hayat Media Center, the organization deftly utilizes platforms such as Twitter and diaspora to recruit and fundraise. A recent report by the Financial Action Task Force describes a sophisticated ISIL fundraising campaign that illustrates the point. According to the report, individuals associated with ISIL used Twitter to call for donations, directing interested individuals to contact them via Skype. The donor was then instructed to purchase an international pre-paid card and send the card’s number to the fundraiser. From there, the fundraiser would send the number to an accomplice in a country close to Syria that would cash out the card. At that point, it was simply a matter of smuggling the money across the border to an ISIL recipient.¹²⁶ ISIL supporters have also used crowd-funding platforms such as Kickstarter to fund projects related to the organization.¹²⁷ While these methods are unlikely to net massive single donations, their efficacy lies in their expansive reach and difficulty to stop.

Witting donors are not the only source of external support to ISIL. Since the onset of conflict in Syria, ISIL and other rebel groups have used NPOs to divert charitable donations into their coffers. Often, the original donors are unwitting to the final destination of their gifts. One report estimates over half of all United Kingdom humanitarian donations to Syria via smaller charities ended up funding rebel groups, including ISIL.¹²⁸ ISIL has also proven adept at profiting from food and medical aid provided by anti-ISIL coalition members. Several reports indicate that aid intended for displaced persons in Syria and funded by USAID and other European donors often directly benefits ISIL. Aid convoys into ISIL strongholds of Raqqa and Deir ez-Zor require ISIL approval and bribes paid to ISIL emirs.¹²⁹ ISIL also mandates that these organizations employ ISIL-approved individuals on their Syrian staffs.

ISIL's Economic Vulnerabilities and UW

To fully assess opportunities to join economics and UW into the broader fight against ISIL, we must first step back and identify the organization's economic vulnerabilities in light of objectives and associated strategy. As articulated in their publication *Dabiq*, ISIL seeks to establish a caliphate by taking territory through military campaigns and controlling that territory with legitimate governance.¹³⁰ ISIL sees this less as a goal and more as a mandate derived from Koranic verses and hadiths. Therefore, ISIL achieves legitimacy by maintaining an advancing army and a system of governance that provides for its citizens. Failure in either of these domains undermines their credibility and erodes their strategic messaging. An effective counter-ISIL strategy, then, must seek to degrade their ability to project force and maintain state-like functions within their zone of control. From an economic perspective, these represent this framework's centers of gravity: the fighting force and the will of the population.

Generating Finance

As was articulated in this framework, maintaining a fighting force and providing for the wellbeing of a population require significant financial resources. ISIL may not be a state in the conventional sense, but it is vulnerable in many of the same ways. It must pay its fighters and maintain military equipment while also providing clean drinking water and trash removal services to its constituents. Unlike al-Qaeda and other traditional terrorist organizations, ISIL must pay for warfighting and governing functions every day. And they cannot run on a deficit like most modern states—they must fund current activities out of pocket. Operating on current income and/or previous savings makes the organization more sensitive to revenue disruptions. Current U.S. strategy recognizes the importance of ISIL finance, and multiple government agencies, including the Department of Defense, have taken measures to erode the base of ISIL's power. A well-trained resistance movement could help.

Denying Profit from Natural Resources

Of ISIL's revenue sources, its sale of oil seems to be the most easily disrupted through UW. The U.S.-led coalition has been attempting to do this via air

strikes and increased border security in the region. A capable resistance movement could be a valuable addition to this line of effort. To identify how, we will consider the value chain for oil production in ISIL-controlled territory. As we apply the value chain analysis to their oil production, various vulnerabilities become apparent. First, ISIL's production of oil relies heavily on skilled labor and technologically advanced extraction equipment. UW efforts focused on denying either of these critical components would weaken the value chain. For example, the resistance force may be able to convince skilled laborers, through bribery or intimidation, to abandon their positions. Given ISIL's brutal control methods, such overt resistance may be difficult to achieve. It may be more feasible to convince skilled workers to remain in their positions but work less effectively, or quietly sabotage the extracting equipment. Alternatively, the resistance, with time, could work to place a complicit worker in the facility that could accomplish the same objective. Even gaining information on the delivery of maintenance parts may facilitate interdiction by kinetic operations of the resistance or U.S. airstrikes.

The resistance could also disrupt ISIL's distribution of the oil it does extract. Because of its belligerent status, ISIL cannot profit from oil without relying on the black market and its associated smuggling network. With properly placed individuals, the resistance movement could gain access to the network and disrupt ISIL oil sales in a number of ways. First, it could simply gain knowledge to map the network, enabling other entities to interdict oil en route from ISIL's production points or at border crossing points. Smugglers make money by taking risk, and their prices reflect that risk. Increasing the risk of death or imprisonment increases the smuggler's costs and, therefore, the prices they charge. Smuggling prices, just like any other good or service, are also information sensitive. If the resistance could run an information campaign that highlights an increasing number of smuggling arrests, remaining smugglers would perceive higher risk and increase their prices. While this would not stop the smuggling, it would erode its profitability for ISIL. Alternatively, the resistance could directly impact the smuggling of oil by attacking the smugglers themselves. This is a more direct approach and is riskier for the movement. However, such tactics would require ISIL to reallocate resources away from other activities to protect the smuggling routes.

Disrupting Business Opportunities

Similar to cutting off ISIL's oil revenue, the resistance can adversely affect other ISIL business opportunities. Because the resistance does not control territory and is weak relative to ISIL, it must, at least initially, use predatory tactics rather than seek to establish more symbiotic economic relationships. The methods could be kinetic but most often will be more indirect. The value chain analysis for ISIL's human and antiquities trafficking businesses differs somewhat from that of its oil sales. The primary differences arise in the inputs and production methods. There is no requirement for high-skilled labor or technical equipment in these businesses. Also, unlike oil, their production is decentralized and more difficult to affect. The distribution link, however, bears resemblance to the distribution of oil in that it relies on smuggling networks. Other than the use of kinetic strikes, most of the tactics used for disrupting oil smuggling systems would work against human and antiquity trafficking. Primarily, the resistance would be used to gather intelligence on smuggling routes and border crossing points to facilitate their interdiction.

In ISIL's other business activities such as bank seizure and extortion, the resistance movement should seek to exploit the areas where ISIL is most parasitic and least symbiotic with the local economy. ISIL is most vulnerable in those parasitic relationships because the population receives little benefit for the fees they pay. For example, ISIL often applies taxes at the distribution stage of the value chain, requiring a fee for any commercial vehicles that transit its territory. In return, ISIL promises safe passage. The resistance could exploit this parasitic relationship in a number of ways. First, it could seek to interdict commercial vehicles in ISIL territory. By destroying or stealing the contents of the vehicle, the resistance would undermine ISIL's image of control and encourage businessmen to avoid paying the extortion fees. A variant of this tactic could be even more effective. If the resistance posed as members of ISIL when they stopped vehicles, they could charge additional fees rather than destroying or stealing the vehicle's contents. This strategy is beneficial for several reasons. It would decrease popular support for ISIL, discourage the business activity from which ISIL profits, and provide economic incentives for the resistance movement. Similar approaches could be used against almost any ISIL extortion scheme that focuses on the distribution link in the value chain.

While more difficult, the resistance movement could also disrupt ISIL's business revenue by placing individuals within ISIL-controlled enterprises. Businesses that require more high-skilled labor inputs would be the highest priority target. Given Abu Bakr al-Baghdadi's call for such labor, ISIL is vulnerable to such insider attacks by high-skilled labor. The banking sector provides a useful example. Banking today is a sophisticated field, relying on knowledge of global financial institutions, risk management, and information technology. Because of its technical nature, oversight of banking activities by non-experts is difficult at best. If the resistance movement could insert a member of its underground or auxiliary into ISIL's banking system, that single individual could create havoc with minimal risk of detection. For example, he or she could intentionally leave electronic evidence trails of ISIL's international transactions for U.S. threat finance cells to exploit. Or, properly trained, the individual could embezzle money for the benefit of the resistance. Even simple procedural changes that make banking more difficult or costly for the population could undermine ISIL's popular support. Other industries that rely on high-skill labor, such as healthcare and telecommunication, would be similarly appealing targets.

Impacting External Finance

In the case of ISIL, a resistance movement would offer little direct benefit to U.S. attempts to limit the flow of external finance to the group. ISIL uses a decentralized approach to external funding and is not overly reliant on one source. Additionally, U.S. threat finance capabilities are some of the best in the world, and a resistance movement is not likely to help in that regard. However, UW efforts may still be of some value. One area where a resistance force might affect ISIL's external funding network is through muddying the ISIL brand. ISIL's grassroots external funding relies on a belief that it is fulfilling the predetermined will of Allah. As mentioned earlier, this requires ISIL to continue its military advance and provide governance for residents within its territory. If the resistance movement can cause potential donors to view ISIL as failing in either of those endeavors, it may adversely affect ISIL's funding from abroad. Information campaigns from within Iraq and Syria that highlight ISIL failures, particularly related to governance, could be effective. The resistance movement could film these failures and distribute

them via social media. Avoiding the appearance of influence from external backers would be critical.

Using Essential Services and Humanitarian Assistance against ISIL

Disrupting ISIL's revenue stream will most immediately impact its ability to make war. Because military defeat represents an existential threat to their existence, the organization is likely to respond by prioritizing funding its army over any other activity. Governance capacity will almost certainly suffer because of this reallocation of financial resources. But simple atrophy is not likely enough to separate the population from ISIL's grip. The U.S. should also focus efforts on directly undermining ISIL's popular support by disrupting its governance efforts. Working through a resistance movement may be the only way for the U.S. to do this—U.S. bombs and foreign or sectarian armies are not likely to succeed here. Because of their lack of experience in social provision, ISIL is highly vulnerable today to resistance activity in this domain.

The value chain analysis for essential services and humanitarian assistance is similar to that of natural resources and business opportunities. We can identify ISIL's vulnerabilities by examining the inputs necessary for producing those services, the manner in which they are produced, and the methods by which they are distributed to the population. ISIL's production of essential services relies on a combination of high-skilled and low-skilled labor as well as physical infrastructure, each of which varies based on the service provided. Essential services that depend on high-skilled labor or significant physical infrastructure represent the most attractive UW targets.

Electricity is a good example. In both eastern Syria and northern Iraq, hydroelectricity produced at a few key dams dominates the electrical production system. Power generation at these sites relies on significant physical infrastructure such as the dam itself, turbine generators, and transformers. This infrastructure is useless, however, without engineers capable of operating and maintaining it. Just as with the production of oil, upsetting the quality or availability of these inputs can jeopardize the entire system. The high-skilled labor necessary for production is susceptible to intimidation or bribery. The physical capital is vulnerable to direct attack on the infrastructure itself or the parts needed to maintain it. A resistance movement

with access to either of these inputs could directly or indirectly sabotage significant portions of ISIL's ability to provide electricity to residents within its territory. Such actions, however, would affect the entire population when more selective disruption might be more appropriate. The resistance could be more discriminate in its denial of this service by attacking the electrical distribution system. For example, it could attack specific transformers or power lines that provide electricity to ISIL's most ardent supporters while leaving intact the distribution systems in more contentious areas. Regardless of the approach, these tactics are enhanced if the resistance can also provide generators as an alternative to ISIL-provided electricity. Where possible, this not only undermines ISIL's legitimacy but also garners popular support for the resistance.

Disrupting essential services is fraught with ethical concerns, and the benefit of each action should be weighed against the likelihood of increasing human suffering. This is even truer when considering ways to use humanitarian assistance to undermine ISIL's popular support. As discussed earlier, ISIL has used its Muslim services division to address humanitarian crises and its associated grievances in its strongholds like Raqqa. It has also co-opted NPOs and Western government aid agencies to build popular support. While the authors cannot advocate denying this humanitarian assistance to the people of Syria and Iraq, the resistance movement may be useful for denying ISIL the popular support it seeks from its distribution. Primarily, this would take the form of information operations and would consist of filming and documenting areas where ISIL's aid delivery fails. Capturing those failures in Sunni Arab neighborhoods, the population ISIL claims to champion, would be most effective. Displaying ISIL's failure on social media would undermine both its local and international credibility. Publicizing ISIL's reliance on co-opted aid would also erode its legitimacy. In fact, the organization inadvertently did this to itself when photographs surfaced of them delivering food aid emblazed with the UN World Food Program designations carelessly covered with ISIL placards.¹³¹ Properly publicized by individuals with no apparent connection to anti-ISIL forces, publicizing such evidence would undermine ISIL's claims to statehood and the responsibilities associated with it.

Agricultural Production and Food Security

ISIL's rise and continued success are both rooted in the organization's ability to turn agricultural production and food into sources of power. Today, they generate significant profit from agriculture and manage the distribution of food to control the population. Eroding the power they draw from this critical economic requirement would destabilize both their funding and popular support. From a humanitarian perspective, disrupting their distribution of food is untenable. However, as articulated in the previous paragraph, information operations highlighting their pernicious use of food as a weapon could undermine their legitimacy and popular support. The resistance would use similar approaches to documenting and publicizing ISIL's failures.

The resistance may be able to take a more active role in denying ISIL the revenue it gains from agricultural production. While millions of Syrians and Iraqis are going hungry, ISIL is reportedly selling wheat and barley on the black market, potentially generating tens of millions of dollars.¹³² For ISIL to realize this profit, it must protect the agricultural value chain. The first vulnerability in this chain comes from the low-skilled laborers necessary to plant, cultivate, and harvest these grains. Because these laborers typically live in poverty, the resistance may be able to bribe them into either abandoning the fields or sabotaging crops at various stages of production. Irrigation systems would represent high-value targets in drought stricken areas. Similar measures might be taken at intermediate processing and storage facilities, such as the massive grain silos in northern Iraq. A complicit worker could induce widespread wheat rot by simply spraying water into the silos. The resistance could also disrupt ISIL's system of bringing the wheat and barley to the black market. This could entail similar counter-smuggling efforts described in the previous sections on oil sales. Or the resistance could take a more direct approach and attack the grain transporting vehicles after their departure from the silo. While more overt and therefore riskier, success would offer multiple benefits to the movement, as it would deny revenue to ISIL while offering the resistance the opportunity to provide food to the population, undermining ISIL's popular support.

Summary

ISIL's current monopoly on violence in wide swaths of Syria and Iraq is rooted in and sustained by its ability to win popular support and finance its

fighting force. They have secured these centers of gravity by navigating the economic terrain better than any other organization in the region. Their revenue generation mechanisms are diverse with black market sales of oil and increasingly robust business endeavors fueling both their warfare and welfare initiatives. Although uneven at times, ISIL's growing focus on provision of essential services, humanitarian assistance, and food security belie its maturation as a movement. However, as ISIL has assumed more state-like attributes, it has become more vulnerable to a UW campaign. Its expansive military and governance requirements make it particularly susceptible to disruptions of its revenue generation system. By indirectly or directly attacking links in the value chains of each critical economic requirement, a resistance movement could begin hollowing out ISIL's core functions of fighting and governing. Combined with ongoing direct military action and political initiatives, a UW campaign could lead to the undoing of ISIL.

5. Recommendations for Educating SOF

Many of the ideas put forth in this monograph are not new—the Army Special Forces community has wrestled with them for decades. What had been lacking, however, was a framework for systematically understanding and planning for the economic terrain in a UW campaign. This monograph built that framework and gave a practical application of its use. The next step is educating SOF leaders, planners, and operators in a manner that makes them more effective in UW, which can be accomplished through a combination of classroom education, planning exercises, and operator-level training.

This monograph's primary recommendation is the development of a course focused on the economics of UW. The Joint Special Operations University and the United States John F. Kennedy Special Warfare Center and School would be appropriate hosts for such a course. The curriculum should roughly follow the structure of this paper with blocks of instruction dedicated to economic theories of resistance, center of gravity analysis, and the five critical economic requirements. The course should rely heavily on case studies and application to historical resistance movements. To make the experience impactful, students in the course should be required to apply the framework to a current scenario, hopefully in their current regional area of responsibility. Although the instruction could be open to anyone, it would likely be most applicable to SOF leaders and theater special operations command planners.

While classroom education would provide a good foundation for SOF leaders and planners, it should only be the first step in building economic considerations into UW campaigns. The next logical evolution is incorporating the lessons learned in the classroom into theater campaign plans. As these plans are tested in wargaming and simulations, part of their evaluation should include measures of effectiveness and performance in the economic domain. The process of planning and evaluating operations in light of economic considerations is not a new concept, but the plans and evaluations often lack the specificity this framework suggests. Such an in-depth evaluation may require assistance from economists and political scientists from outside the command.

For SOF operators, UW education and training should grow both their understanding of economic terrain in their operational environment and the skills necessary to navigate that terrain. On-the-ground advisors must possess a basic understanding of the critical economic requirements that pertain to their partner resistance force. SOF leaders can facilitate this understanding by incorporating subject matter experts into pre-mission planning and training. For example, UW teams preparing for operations in agrarian societies would benefit from discussions with experts from the Department of Agriculture, USAID, or professors at agricultural institutions like Texas Tech University. Similarly, marketing professionals may provide insights into branding and strategic communications for startup organizations that would be valuable for creating legitimacy for the resistance movement. Regardless of the focus, these experts must assist the team in understanding the economic terrain specific to the culture in which they will operate.

Preparation for UW teams should, however, go beyond contextual understanding by including training in specific skills that will allow the teams to bring tangible benefits to the resistance movement. This monograph has highlighted several skills, ranging from vaccinating animals to cutting-edge money transfer techniques, which may be applicable. Again, subject matter experts from both the public and private sectors could be used in this capacity. One such example could include bringing experts from threat finance teams to educate UW operators on emerging money transfer techniques. Since the Internet and cellphones are nearly ubiquitous throughout the world, teams may be able to assist the resistance movement with untraceable electronic dispersion of funds throughout their organization, immediately increasing their financial management capabilities. Another method for understanding the value chain is to visit government agencies and businesses responsible for delivering products and services. Leaders from these organizations would be able to explain their value chain, identify areas of vulnerability, and describe the challenges they face while providing their product. Once identified, SOF leaders should require use of these newly developed skills in UW training exercises.

Conclusion

When the United States launches SOF into UW environments, the teams must be prepared for navigating more than just physical terrain. UW is

fought on economic terrain as much as any other. In this monograph, the authors have developed a framework for systematically building economic terrain considerations into the planning and execution of UW. In doing so, they made simplifications where necessary and hopefully nowhere else. The reality is that, unlike the physical environment, the economic environment will change throughout the UW campaign. Such a dynamic environment requires leaders, planners, and practitioners to fall back on the economic foundations of any successful resistance movement: winning the support of the population and financing the fighting force. Denying this to the government or securing it for the resistance movement will determine success in the UW campaign.

Becoming a renaissance man requires the intense study of many subjects that provide perspective and expertise for solving difficult, complex problems. Understanding the economic terrain and knowing how to seize that terrain in support of a resistance movement is yet another important skill for the renaissance man we call a special operator. When the United States launches SOF teams into UW environments, the teams must be prepared to navigate the physical terrain, and—perhaps now more than ever—they must also navigate the economic terrain. This ever-changing economic terrain provides tactical opportunities to achieve strategic outcomes using different techniques. The good news is operators don't have to be economists to exploit the economic terrain in their favor. This monograph provides a relatively straightforward way to think about the economic dimension of UW. The framework is robust enough to be used by strategic planners, specific enough to be used by tactical operators, and flexible enough to adapt to the inevitable changes with the economic terrain. The reality is our adversaries recognize and exploit the economic terrain to their advantage. Now is the time for our UW planners and SOF to do the same. Hopefully this monograph is a step in that direction.↑

Appendix A: Acronym List

AQI	al-Qaeda in Iraq
FAO	Food and Agriculture Organization (United Nations)
FM	Field Manual
IRA	Irish Republican Army
ISIL	Islamic State in Iraq and the Levant
MVTS	money value transfer system
NPO	nonprofit organization
PMESII-PT	political, military, economic, social, infrastructure, information-physical environment, time
SOF	Special Operations Forces
SWEAT-MSO	sewer, water, electricity, academics, trash-medical, safety, other
UN	United Nations
USAID	United States Agency for International Development
UW	unconventional warfare

Endnotes

1. The latest draft of JP 3-05.1, *Unconventional Warfare*, opens with this quote but gives little attention to the role of economics in UW.
2. Supporting a nation-state against an insurgency, resistance movement, or terrorists may take the form of foreign internal defense, counterinsurgency operations, counterterrorism operations, or stability operations.
3. U.S. Joint Chiefs of Staff, *Unconventional Warfare Joint Publication 3-05.1* (Washington DC: U.S. Joint Chiefs of Staff, 24 March 2014), I-1.
4. *Ibid.*, I-2.
5. Friedrich Hayek, *Road to Serfdom* (Chicago: Chicago University Press, 1944), 2631.
6. Ted Gurr, *Why Men Rebel* (Princeton: Princeton University Press, 1970), 24.
7. Quoted in Beatrice Heuser, *The Strategy Makers: Thoughts on War and Society from Machiavelli to Clausewitz* (Santa Monica, CA: Greenwood/Praeger, 2010), 126.
8. Headquarters, Department of the Army, *Insurgencies and Counterinsurgencies Field Manual 3-24* (Washington, DC: Department of the Army, 2014), 4-3.
9. *Ibid.*, 4-4.
10. Herschel Grossman, "A general equilibrium model of insurrections," *The American Economic Review* (1991), 912.
11. Jack Hirshleifer, *The Dark Side of the Force: Economic Foundations of Conflict Theory* (Cambridge: Cambridge University Press, 2001), 10-11.
12. Paul Collier and Anke Hoefler, "Greed and grievance in civil war," *Oxford Economic Papers* 56, no. 4 (2004), 588.
13. Paul Collier, Anke Hoefler, and Dominic Rohner, "Beyond greed and grievance: feasibility and civil war," *Oxford Economic Papers* 61, no. 1 (2009), 6.
14. James Fearon and David D. Laitin, "Ethnicity, insurgency, and civil war," *American Political Science Review* 97, no. 1 (2003), 76.
15. David Stoll, *Between Two Armies in the Ixil Towns of Guatemala* (New York: Columbia University Press, 1993), 20.
16. David Kilcullen, *Counterinsurgency* (Oxford: Oxford University Press, 2010), 194.
17. Dale Eikmeier, "Redefining the Center of Gravity," *Joint Forces Quarterly* 59, no. 4 (2010), 157.
18. Max Weber, *Politics as a Vocation* (Philadelphia, PA: Fortress Press, 1965), 1.
19. For a resistance movement, this fighting force need not be, and often is not, the actual guerilla fighters. Rather, the force may be underground workers that are conducting sabotage, information, or similar non-kinetic operations. For the government, the fighting force is essentially all security forces to include police,

- military, and troops used for protection of the ruling party (i.e., the Saddam's Republican Guard).
20. Joseph Strange and Richard Iron, *Center of Gravity: What Clausewitz Really Meant* (Marine Corps War College: Quantico, VA, 2004), 26.
 21. Business value chains are a widely used concept to understand business operations, but are typically more robust and complicated than the simplified version used in this discussion. The authors felt it more important to reduce the value chain analysis to the concepts relevant to UW to more easily identify tactical opportunities during operations.
 22. Robert M. Solow, "A contribution to the theory of economic growth," *The Quarterly Journal of Economics* (1956), 65-94.
 23. James Love, *Hezbollah: Social Services as a Source of Power* (Hurlburt Field, FL: Joint Special Operations University Press, 2010).
 24. Philip Nel and Marjolein Righarts, "Natural disasters and the risk of violent civil conflict," *International Studies Quarterly* 52, no. 1 (2008), 159.
 25. Richard Stuart Olson and Vincent T. Gawronski, "Disasters as Critical Junctures? Managua, Nicaragua 1972 and Mexico City 1985," *International Journal of Mass Emergencies and Disasters* 21, no. 1 (2003), 3-35.
 26. Linda Polman, *The Crisis Caravan: What's Wrong with Humanitarian Aid?* (New York: Henry Holt and Co, 2010), 121.
 27. Nathan Nunn and Nancy Qian, "US food aid and civil conflict," *The American Economic Review* 104, no. 6 (2014), 1660.
 28. Polman, *The Crisis Caravan*, 122.
 29. Tor Benjaminsen, "Does supply-induced scarcity drive violent conflicts in the African Sahel? The case of the Tuareg rebellion in northern Mali," *Journal of Peace Research* 45, no. 6 (2008), 830.
 30. 'Nonprofit organizations' is an umbrella term that includes both charitable organizations and nongovernmental organizations.
 31. Financial Action Task Force, "Risk of Terrorist Abuse in Non-Profit Organizations," *FATF Report*, June 2014, 37.
 32. United States Agency for International Development, "Afghanistan: Education," accessed at: <http://www.usaid.gov/afghanistan/education>.
 33. The events described here occurred in East Rasheed District, Baghdad, Iraq, during Colonel (retired) Peterson's deployment as commander of 1-14 Cavalry, 3-2 SBCT from July 2006 to March 2007.
 34. J-PAL Policy Bulletin, "Deworming: A Best Buy for Development," *Abdul Latif Jameel Poverty Action Lab* (2012), 4.
 35. Henk-Jan Brinkman and Cullen S. Hendrix, "Food insecurity and violent conflict: Causes, consequences, and addressing the challenges," *Occasional Paper* 24 (2011), 515.

36. For example, see: Sylvain Chassang and Gerard Padro-i-Miquel. "Economic shocks and civil war," *Quarterly Journal of Political Science* 4, no. 3 (2009), 211-228; and Qeindrila Dube and Juan F. Vargas, "Commodity price shocks and civil conflict: Evidence from Colombia," *The Review of Economic Studies* 80, no. 4 (2013), 1384-1421.
37. While global demographic trends point toward a general urbanization of resistance movements, American UW practitioners will most often find themselves operating in rural environments. Security concerns largely prohibit foreigners from operating in an urban UW environment until the last stages of a full-blown insurrection. For an excellent discussion of global trends driving the urbanization of resistance movements, see Kilcullen, *Out of the Mountains: The Coming Age of Urban Guerrillas* (Oxford: Oxford University Press, 2013).
38. World Bank Data indicates that 54 percent of the Nigerian population lives in rural areas, and UN data estimates that 44.6 percent of those employed work in the agriculture field. Assuming all agriculture is rural, that indicates 82.5 percent of employment in rural areas is agricultural in nature.
39. "Somalia," *CIA World Factbook*, Central Intelligence Agency, accessed at: <https://www.cia.gov/library/publications/the-world-factbook/geos/so.html>.
40. U.S. Department of Agriculture, Food Expenditures Data, accessed at: <http://www.ers.usda.gov/data-products/food-expenditures.aspx>.
41. Ibid.
42. Ibid.
43. Marco Lagi, Karla Z. Bertrand, and Yaneer Bar-Yam, "The food crises and political instability in North Africa and the Middle East," New England Complex Systems Institute (2011), 3, accessed at: http://necsi.edu/research/social/food_crises.pdf.
44. Robert Taber, M-26, *Biography of a Revolution* (New York: L. Stuart, 1961), 195. See also: Siegfried Hildebrandt, *Cuba: The Successful Insurgency* (Carlisle Barracks, PA: U.S. Army War College, 1991), 39.
45. U.S. Department of Agriculture, "Agricultural Productivity in the US," accessed at: <http://www.ers.usda.gov/data-products/agricultural-productivity-in-the-us.aspx>.
46. U.S. Agency for International Development, "A guide to Economic Growth in Post-Conflict Countries," USAID Office of Economic Growth, 69.
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48. Gershon Feder, "Farm size, risk aversion and the adoption of new technology under uncertainty," *Oxford Economic Papers* (1980), 263.
49. These observations are based on personal interviews with farmers in eastern Ethiopia in June 2014.
50. See, for example, Richard Jones, Paula Bramel, Catherine Longley, and Tom Remington, "The Need to Look Beyond the Production and Provision of Relief Seed: Experiences from Southern Sudan," *Disasters* 26, 4.

51. Darren Hudson, interview with authors, West Point, NY, 8 April 2015.
52. The framework depicting economic relationships as predatory, parasitic, or symbiotic was first articulated in 1988 by Peter Lupsha as described by R.T. Naylor, *Wages of Crime: Black Markets, Illegal Finance and the Underworld Economy* (Montreal, QC, McGill-Queen's University Press, 2002), 53.
53. *Ibid.*, 53-54.
54. BBC Business, "ExxonMobil closes Indonesia fields," 12 March 2001, accessed at: <http://news.bbc.co.uk/2/hi/business/1216059.stm>.
55. James Goodno, *The Philippines: Land of Broken Promises* (London: Zed Books, 1991).
56. Naylor, *Wages of Crime*, 63.
57. Matthew Rosenberg, "Afghan Companies with Insurgent Ties Still Receive US Contracts," *The New York Times*, 12 November 2013, accessed at: <http://www.nytimes.com/2013/11/13/world/asia/afghan-companies-with-insurgent-ties-still-receive-us-contracts.html>.
58. Friedrich Schneider, "Size and measurement of the informal economy in 110 countries," Workshop of Australian National Tax Centre, Australian National University, Canberra (2002), 1.
59. Philippe Le Billon, *Wars of Plunder: Conflicts, Profits and the Politics of Resources* (New York: Columbia University Press, 2012), 1.
60. *Ibid.*, 17.
61. George Mavrotas, Syed Mansoob Murshed, and Sebastian Torres, "Natural resource dependence and economic performance in the 1970-2000 period," *Review of Development Economics* 15, no. 1 (2011), 125.
62. Economists and political scientists have labeled this paradox the "resource curse." The resource curse has both economic and political components. Economically, some equate the curse to the so-called Dutch Disease where rapid increases in commodity exports leads to an inflation of the local currency, making other exporting industries less competitive. It also leads to a general neglect of other non-resource related industries, resulting in decreased employment nationwide. Politically, the government becomes detached from the population since revenue is not tax-based but rather resource-based. Additionally, the massive increases in revenue incentivize corruption and graft further disenfranchising the population. Paul Collier labeled this curse as a trap that keeps nations from development.
63. Paul Collier, *The Bottom Billion: Why the poorest countries are failing and what can be done about it* (Oxford: Oxford University Press, 2008), 146.
64. Jonathan Winer and Trifin Roule, "Follow the Money: The finance of illicit resource extraction," in Ian Bannon and Paul Collier, eds., *Natural resources and violent conflict: options and actions* (World Bank Publications, 2003), 163.
65. It is worth noting that as a resistance movement matures, it faces many of the same resource-induced challenges that a state faces. The movement must protect

against corruption, sole reliance on resource revenue, and disconnect with the population.

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67. Päivi Lujala, Nils Petter Gleditsch, and Elisabeth Gilmore, "A diamond curse? Civil war and a lootable resource," *Journal of Conflict Resolution* 49, no. 4 (2005), 559.
68. Encyclopedia Britannica Online, "Willie Sutton," accessed at: <http://www.britannica.com/biography/Willie-Sutton>.
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70. For the purposes of this paper, the authors consider external finances to be those which source is not entirely controlled by the resistance movement.
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73. Scott Wilson, "Lebanese Wary of a Rising Hezbollah," *The Washington Post*, 20 December 2004, accessed at: <http://www.washingtonpost.com/wp-dyn/articles/A12336-2004Dec19.html>.
74. Michael Freeman, "The Sources of Terrorist Financing: Theory and Typology," *Studies in Conflict & Terrorism*, 34:6, 470.
75. Stephen Kiser identified the three requirements of earning, moving, and storing as they apply to terrorist funding in: Stephen Kiser, *Financing terror: an analysis and simulation for affecting al Qaeda's financial infrastructures*, Rand Corporation (2005), 30. Jodi Vittori modified the framework from "earning" to "acquiring," which is a more useful construct when considering only external support. Jodi Vittori, *Terrorist Financing and Resourcing* (New York, NY: Palgrave Macmillan, 2011), 26.
76. While we focus on the physical transfer of cash, the same logic applies to other physical stores of value such as diamonds or gold. Many of the advantages and vulnerabilities remain the same. The primary difference is the reduced liquidity of these alternate stores of value.
77. Mary Beth Goodman and Trevor Sutton, "To Stem the Flow of Illicit Drugs from Afghanistan, Follow the Money," *Center for American Progress*, 17 March 2015, accessed at: <https://www.americanprogress.org/issues/security/report/2015/03/17/108943/to-stem-the-flow-of-illicit-drugs-from-afghanistan-follow-the-money/>.
78. Danielle Camner Lindholm, and Celina B. Realuyo. "Threat Finance: A Critical Enabler for Illicit Networks," *Convergence: Illicit Networks and National Security in the Age of Globalization* (2013), 119.
79. Vittori, *Terrorist Financing and Resourcing*, 48.

80. Lindholm and Realuyo, "Threat Finance: A Critical Enabler for Illicit Networks," 118.
81. Ibid.
82. Estimates on the amount of land under ISIL's control vary based on the definition of "control." The estimate listed includes areas where ISIL exerts physical control over behavior as well as areas free of significant action against ISIL's support activities. For a map reflecting the current span of ISIL control, see Institute for the Study of War, "ISIS Sanctuary: June 19, 2015," accessed at: http://understandingwar.org/sites/default/files/ISIS%20Sanctuary%20061915_1.pdf.
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