UNMANNED AERIAL VEHICLE ASSESSMENT: CHINA

ALSO:
Threat Counterstability Actions

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INSIDE THIS ISSUE
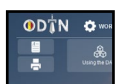
ON THE COVER: Chinese UAV Wing Loong II - MAKS-2017.
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UNMANNED AERIAL VEHICLE ASSESSMENT:
CHINA

by
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This is the final article in a series of country unmanned aerial vehicle (UAV) assessments based exclusively on open-source information. The first article, North Korean UAVs, was published in October 2017. The second, Russian UAVs, was published in February 2018. The third, Iranian UAVs, was published in April 2018. This fourth and final article provides a broad overview of China's UAV capabilities.

Over a thousand years ago, the Chinese made some of the most useful discoveries in ancient civilization. They invented the compass, gunpowder, fireworks, kites, and movable sails—making them "one of the most advanced maritime forces in the world."[1] Specific components of these inventions were used by militaries around the world to improve weapon capabilities. Today, Chinese UAVs[i] are distributed globally, both militarily and commercially. China is one of the top three UAV manufacturers and exporters worldwide.

At a Glance

Similar to Iran, the Chinese are known for reverse-engineering US-made systems and manufacturing scaled-down versions of US-made aircraft. China's military UAV inventory is large and comprehensive. The country has UAVs that weigh less than one pound, as well as one particular high-altitude long-endurance (HALE) UAV with a higher maximum altitude than seven US-made Global Hawk unmanned aircraft variants. Additionally, China's inventory includes unmanned combat aerial vehicles (UCAVs). Its UCAVs and UAVs are very capable, making China a military force that has strategically postured itself for offensive or defensive military operations with its unmanned systems.

Chinese UAVs are capable of military operations, such as tactical intelligence, surveillance, and reconnaissance (ISR). Additionally, they are capable of border surveillance, communications relay, mine warfare/mine countermeasures, and electronic warfare (EW).[2] The Chinese are bordered by Russia and various Asian countries, with several of the latter having ongoing border disputes with the country. Recently, the Chinese used UAVs to assist with the monitoring of disputed islands in the South and East China Seas. In May 2018, their H-6K long-range strategic bomber, as well as other bombers, participated in takeoff and landing exercises on Woody Island, which is part of

Figure 1. The 0.66-lb DJI Spark Micro UAV
Source: DJI. "[DJI Store: Spark](#)." Accessed 4 June 2018. Modified by ACE-TI.

the Paracel Islands that are also claimed by Vietnam and Taiwan.[3] It was also reported in May 2016 that a Chinese BZK-005 medium-altitude long-endurance (MALE) UAV was on Woody Island in the South China Sea.[4] Almost three years ago, China built runways in the Spratly Islands.[5] These activities are significant because its MALE and HALE UAVs can also takeoff and land from islands in the South China Sea, thus extending China's strategic surveillance and operations.

[i.] UAV is the title given to platforms used by adversaries of the US—to include the opposing force (OPFOR). When these platforms are used by US, allied, and friendly forces, even in training, they are referred to as unmanned aircraft systems (UAS). The term "unmanned aircraft" (UA) is used either to denote neutral platforms or to reference all platforms, whether friendly, neutral, or hostile.

As for the East China Sea, it was reported that a Chinese MALE UAV flew over the Senkaku Islands in September 2013, which are technically under Japan's control, but also claimed by China and Taiwan.[6]

Regarding other countries, China has and continues to benefit from US-made manned and unmanned aircraft. US aircraft that it has attempted to replicate are manufactured by General Atomics Aeronautical Systems, Inc. (Predator and Reaper); Lockheed Martin Aeronautics/General Dynamics and Lockheed Martin manned fighter aircraft (F-16 and F-22); and Northrop Grumman Corporation target unmanned aircraft and manned bomber aircraft (AQM-34N/BQM-34A, B-2, and more).

Figure 2. BZK-005 or Variant MALE UAV
Source: Hendrik_2000. "Chinese UAV & UCAV Development." SinoDefenceForum. 14 November 2017. Modified by ACE-TI.

The Chinese have made significant improvements with their UAV sensors and propulsion systems. Recent advanced sensors include ground movement target indicators (GMTI), thermal-imaging cameras, laser designators, electronic intelligence (ELINT), and synthetic aperture radar (SAR). Propulsion advances have been in the area of hydrogen. An example of this capability is the Hydrone 1800, which is powered by hydrogen and can operate in temperatures as cold as -4° Fahrenheit, has a range of 62 miles, and has a maximum altitude of 16,405 feet.[7]

Figure 3. Map of Disputed Island Areas
Source: CIA. "World Factbook: Political World Map." November 2011. Modified by ACE-TI.

The Hydrone 1800 UAV is capable of using the aforementioned sensors with the exception of SAR. The WZ-2000/WuZhen-2000/WZ-9 UCAV is SAR- and optical sensor-capable, while the ASN-209 UAV can use a majority of the aforementioned sensors, to include SAR. A larger platform that is also SAR-capable is the CH-4 (Rainbow-4).

Figure 4. BZK-005/Variant Gimbal with Seven Different Sensors
Source: Hendrik_2000. "Chinese UAV & UCAV Development." SinoDefenceForum. 14 November 2017. Modified by ACE-TI.

Figure 5. DJI Mavic Air Micro UAV
Source: DJI. "DJI Store: Mavic Air." Accessed 4 June 2018.

Figure 6. DJI Mavic Pro Micro UAV
Source: DJI. "DJI Store: Mavic Pro." Accessed 4 June 2018.

Figure 7. DJI Phantom 4 Micro UAV
Source: DJI. "DJI Store: Phantom 4." Accessed 4 June 2018.

The Chinese are currently not engaged in large-scale multi-domain wars, making it is difficult to determine the authenticity of what is reported about their weapon systems, including their UAVs. Information provided in this article is not based on real-world conflicts. With the reorganization of their military within the past five years, it will take time to gauge the effectiveness of their military transformation. With over 300 UAV types, the wide variety of names, variants, and sub-variants makes analysis of Chinese unmanned vehicles complicated and requires extra diligence.

Assessment

With very capable UAVs and permissive export policies, the Chinese have sold a significant number

of UAVs to countries in several continents and will continue to do so. For example, their **_micro UAVs_** *(above)*, such as the Dà-Jiāng Innovations Science and Technology Co., Ltd., (DJI) Phantom, Mavic, and Spark Fleets are popular worldwide—particularly in North America, Europe, and Asia.[8] These micro UAVs are ideal for saturation and complex operations, as well as commercial activities. Shortly after US technology firm Intel broke a world record by operating 1,218 unmanned aircraft at the 2018 Olympics, the Chinese firm EHang Egret broke Intel's record with 1,374 UAVs in a 13-minute dancing-drone light show.[9]

China's **_tactical UAVs_** *(below)*, such as multiple ASN- and Sky-UAV variants manufactured by Xi'an ASN Technology Group and China Aerospace Science and Technology Corporation (CASC), are capable of saturation operations—at the very least. China's CH-805 UAV, also manufactured by CASC and which appears to be a scaled-down version of the US-made B-2 aircraft, has a maximum speed of 454 miles per hour with a radar cross section of 0.01 square meters.[10] This makes the CH-805 an ideal candidate for Chinese pilots and air defenders to train against.[11]

Figure 8. A-Hawk I (Cloud-1; top) and A-Hawk II (Cloud-2; bottom) Tactical UAVs
Source: By78. "Chinese UAV & UCAV Development." SinoDefenceForum. 15 November 2017. Modified by ACE-TI.

Figure 9. ASN-207 Tactical UAV
Source: Times ASI. ASN 207. Flickr. Accessed 24 May 2017.

Israel Aerospace Industries' Harpy **_UCAV_** may still be part of the Chinese military inventory. An undisclosed number of these aircraft were sold to China in 1994, which the country used to develop a replica—namely the ASN-301.[12] If the Harpy is still active in China's military, a large number of these UCAVs—along with the current inventory of ASN-301s—could attack radar systems and suppress enemy air defenses en masse. In an attempt to include a fighter-like UAV into its military, unconfirmed reports recently indicate that China developed the Dark Sword.[13] However, successfully achieving fighter-like maneuverability and capability with such a UAV includes its own technical challenges, such as beyond line-of-sight operations at very high speeds with communication latency. If China's Dark Sword UCAV is fully mature, it could collect data and target information, engage targets, and be used to provide high-end counter-air defense and strike capability.[14]

China's **_MALE UAVs_**, such as the Wing Loong I and armed Wing Loong II aircraft that are manufactured by Chengdu Aircraft Industrial Group, are comparable to the Predator and armed Reaper. The Wing Loong I and/or II have been exported to at least ten different countries that spread between Africa, the Middle East, Asia, and Europe. Notable countries include Iraq, Pakistan, Russia, Saudi Arabia, and the United Arab Emirates.[15] Of note, there are countless Chinese UAV replicas of the Predator and Reaper, such as the BZK-005/HY-01 and the BZK-006 UAVs manufactured by Beihang Unmanned Aircraft System Technology and Xi'an ASN Technology. Several other Predator and Reaper MALE replicas are not mentioned in this article due to the sheer volume of UAVs in China's inventory. Chinese MALE UAVs also have the potential to operate en masse to conduct ISR and other types of missions.

China's military inventory also includes borderline and full-fledged **_HALE UAVs_**, such as the armed Sky

Figure 10. Wing Loong II (Left) and I (Right) MALE UAVs
Source: Mztourist. "Wing Loong I and II." Wikimedia Commons. CC BY SA 4.0. 16 November 2017. Modified by ACE-TI.

Figure 11. Wing Loong II (Left) and I (Right) MALE UAVs
Source: China Defense Blog. "CH-5 Cai Hong-5/Rainbow-5." Accessed 24 May 2017. Modified by ACE-TI.

Figure 12. Xianglong (Soar Dragon) HALE UAV
Source: China Defense Blog. "Xianglong/Soar Dragon." Accessed 24 May 2017. Modified by ACE-TI.

Saker by Norinco and the solar-powered Caihong (Rainbow) by China Academy of Aerospace Aerodynamics, a subsidiary of CASC. The successful testing of the Caihong UAV marks China as the third country, following the US and United Kingdom, to have this technology.[16] Expect China to continue testing UAVs at higher altitudes.

In the near future, China will have the capability to conduct complex operations with UAVs from almost all groups of unmanned aircraft. Expect increased sophistication with China's UAVs to occur at exponential rates. In the areas of research and development, China will continue to explore **_cargo and passenger UAVs_**. Currently, it is one of the leading countries in

Figure 13. AV500 Helicopter Cargo UAV
Source: Hendrik_2000. "Chinese UAV & UCAV Development." SinoDefenceForum. 15 November 2017. Modified by ACE-TI.

these areas and has been carrying shipments to its military bases in the South China Sea with its AT200 UAV, which can carry up to 3,000 pounds.[17] It was reported earlier this month that civilian Chinese UAVs will be able to carry cargo that weighs approximately 2,000–3,000 pounds by 2019.[18] One current civilian model, the AV500, is a helicopter cargo UAV with some features similar to Austria's Camcopter S-100.[19] The Chinese military version is capable of surveillance and light-attack missions.[20] Future implications of China's current UAV inventory and research areas are indicative of a force actively building up its military strength in the areas of unmanned systems. China is engaged in a decades-long modernization of its once-backward armed forces, and military leaders have set a goal of fielding a world-class military by 2050.[21]

Training Implications

It is important that threat UAVs from different countries are included in training exercises to portray a multi-domain environment. Opposing Force (OPFOR) units at training centers should continue to include several countries' UAV capabilities during exercises. For example, the Mission Command Training Program (MCTP) OPFOR portrays a mix of threat UAVs from multiple countries. MCTP OPFOR Warfighters also represent threat UAVs from various classes. It is recommended that CTCs continue to integrate significant UAV threats during training exercises. Similar to other Red Diamond Newsletter articles in this four-part series, information regarding UAVs is included in this particular document to assist with training.

Conclusion

China's military and commercial unmanned systems inventory has almost full coverage of the UAV spectrum. The volume of its UAV inventory indicates that the country has the capacity to conduct mass-UAV operations in series, with multiple UAVs working in succession with manned and unmanned systems.

A very limited percentage of China's total UAV inventory is introduced below. Note the high density of UAVs at all operational levels: tactical, operational, and strategic. The Chinese UAV inventory is designed to offer redundant operational capabilities, providing an ideal landscape to conduct complex UAV operations.◆

Table 1. Parametric Data for Less than 10% of the Chinese UAV Inventory^

UAV/Type & Capability	Weight,* pounds	Max Altitude, feet	Max Range, miles	Endurance	Max Speed, mph	Assessed Level of Operation
DJI Spark micro	0.66	13,123	1.2	16 minutes	31	Tactical
DJI Mavic Air micro	0.95	16,400	6.2	21 minutes	42.5	Tactical
DJI Mavic Pro micro	1.64	16,400	8	27 minutes	40	Tactical
DJI Phantom 4 micro	3.04	19,685	3.1	28 minutes	45	Tactical
CH-901: Target, ISR, Target Acquisition (TA)	20	#	9.3	2 hours	93	#
Sky Wing 6 (SW-6): EW, ISR, TA	44	9,842	#	1 hour	62	Tactical
Blue Fox: Target, Training	#	26,250	#	40 minutes	571	Tactical/ Operational
Harpy (or Chinese ASN-301): Target, Attack	298	#	311	#	115	#
A-Hawk I (Cloud-1) Vertical Takeoff and Landing (VTOL): ISR, TA	386	9,842	#	30 minutes	37.3	Tactical
A-Hawk II (Cloud-2) VTOL: ISR, TA	265	16,400	#	4 hours	37.3	Tactical/ Operational
ASN-104: ISR, TA	308	10,500	62	2 hours	127	Tactical
ASN-207: ISR for Chemical, Biological, Radiological, Nuclear (CBRN), TA	489	19,685	373	#	#	Tactical/ Operational
Sky-09P: ISR	26.5	13,120	19	3	62	Tactical
Harrier III: ISR, TA	4,400	#	124	24 hours	199	Tactical
CH-500 UCAV: ISR, TA	440	13,451	124	#	75	Tactical
CH-802: ISR	14	13,100	18	2.5 hours	56	Tactical
CH-805: Target, Training	419	#	#	40 minutes	454	Tactical/ Operational
CH-902: ISR	8	656	9.3	1.5 hour	43	Tactical
F-16 Scaled-Down (Assessed: Target, Training)	#	#	#	#	#	#
F-22 Scaled-Down (Assessed: Target, Training)	33	#	#	#	174	#
BZK-005/HY-01 MALE: EW, ISR, TA	2,756	24,600	#	40 hours	106	Tactical/ Operational
BZK-006 MALE: ISR, TA	#	#	#	12 hours	#	Tactical/ Operational
Wing Loong I MALE: Attack, ISR, TA	9,259	30,000	#	32	230	Tactical/ Operational
Wing Loong II MALE (Pterodactyl, WJ-1): Attack, ISR, TA	2,425	17,400	2,485	20 hours	#	Tactical/ Operational
Cloud Shadow MALE: Attack, ISR, TA, ELINT	#	45,930	180	#	385	Tactical/ Operational
CH-3 (Cai Hong-3/ Rainbow-3) MALE: Attack, ISR, TA, EW	1,389	16,404	1,491	12 hours	137	Tactical/ Operational
CH-4 (Cai Hong-4/ Rainbow-4) MALE: Attack, ISR, TA, EW	2,932	26,250	2,175	30 hours	146	Tactical/ Operational
CH-5 (Cai Hong-5/ Rainbow-5) MALE: Attack, ISR, TA	2,720	#	559	20 hours	#	Tactical/ Operational
Sky Saker MALE: Attack, ISR, TA	9,259	45,932	1,019	#	295	Operational/ Strategic
CH-1 (Chang Hong-1, WZ-5, Wu Zhen 5) MALE/HALE: Air-launched ISR	3,748	57,415	1,550	3 hours	500	Operational/ Strategic
Xianglong (Soar Dragon) MALE/HALE: ISR, TA	16,535	59,055	4,350	10 hours	466	Operational/ Strategic
WZ-2000/WuZhen-2000/ WZ-9 MALE/HALE: Attack, ISR, TA	3,748	59,055	1,491	3 hours	497	Operational/ Strategic
Caihong (Rainbow) HALE: ISR	#	65,620	#	MONTHS	#	Operational/ Strategic

^ Critical and/or high-level capabilities appear in red font
* Maximum gross takeoff weight (MGTOW)
# Reliable/valid unclassified numbers unavailable

Data sources: Association of Unmanned Vehicle Systems International (AUVSI): All Things Unmanned. "AUVSI." Accessed May 2018. Account required; Shephard (Media) Plus. "Datasets: Unmanned Systems." Accessed May 2018. Account required.

Parametric data provided in Table 1 portray current information from reputable commercial open sources. Some of these data will be included in the next update of the Worldwide Equipment Guide (WEG). Due to the evolving nature of unmanned aircraft, capabilities change and new variants are produced regularly. Additionally, the WEG introduces UAV parametric information according to the International Systems of Units, whereas this article provides UAV parametric information according to the US measurement system for convenience.

Notes

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21. Agence France-Presse. "Pentagon Report Claims Chinese Bombers Training for US Strikes." *Shephard Media*. 17 August 2018.

DJI Inspire 1 with Zenmuse X5 PRO hovering over Piz Kesch, Switzerland.
Source: By Capricorn4049 (Lino Schmid & Moira Prati) [CC BY-SA 4.0 (https://creativecommons. org/licenses/by-sa/4.0)], from Wikimedia Commons
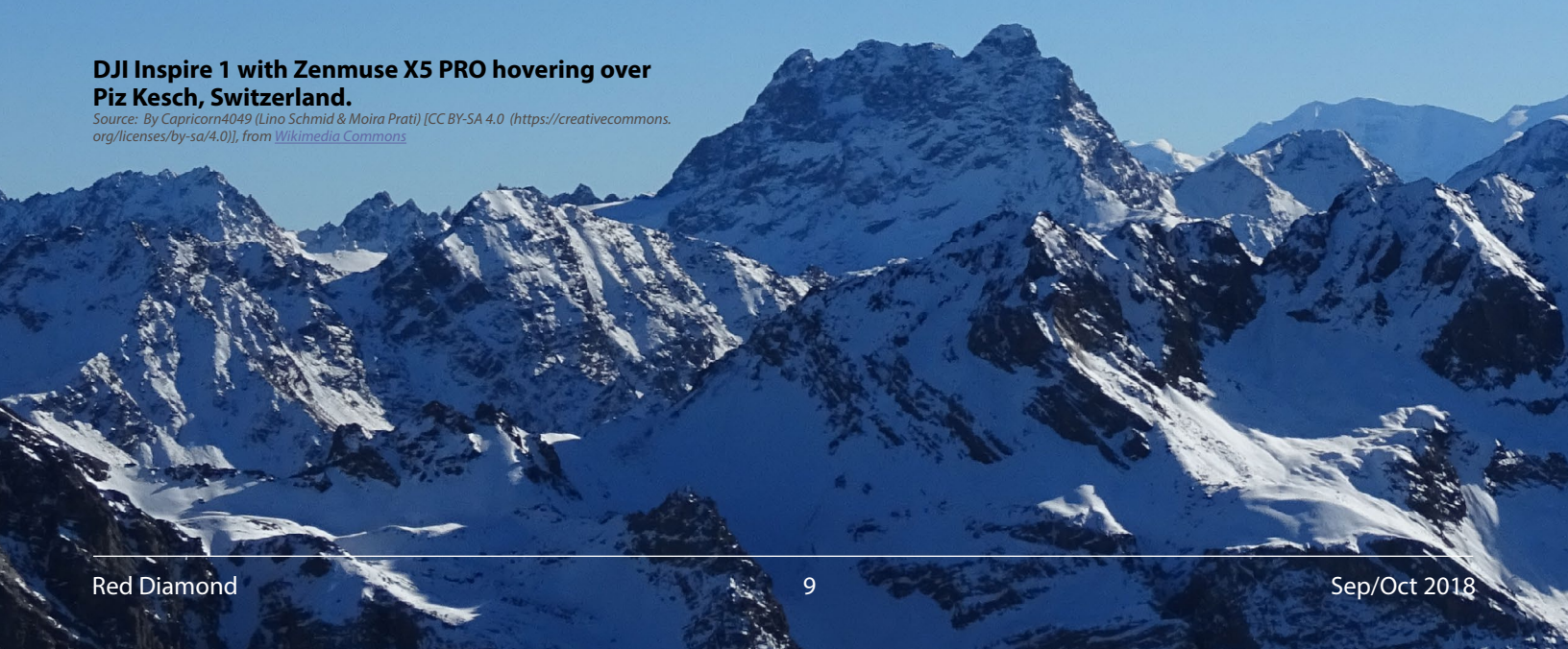
Threat Counterstability Actions in Persistent Conflict

by Major E.J. Kesselring and Jon H. Moilanen

Counterstability actions create conditions that enable the successful design and execution of threat operations in an operational environment. Counterstability is an integral aspect of threat military operations and often causes an impact that reaches beyond the tactical and operational effects of persistent armed combat. Whether conducted by regular forces, irregular forces, combinations of regular and irregular forces, and/or willing or coerced civilians, the desired effects of counterstability actions focus on disrupting major areas of potential stability in an OE. In support of tactical and operational missions, and probable support of strategic goals, the threat executes counterstability activities to—

- Discredit enemy civil law enforcement and/or internal security forces.
- Deride enemy judicial processes.
- Damage enemy civilian infrastructure.
- Degrade enemy civil governance.
- Dissuade relevant population overt support to the enemy.
- Disrupt enemy coalition partner and/or ally support.
- Dislocate enemy from regional/global community and diaspora support.
- Defeat enemy military and internal security operations.
- Destroy enemy civilian and military resolve to resist

PLANNING COUNTERSTABILITY ACTIONS

The threat uses conditions of instability to enhance achieving its goals and objectives. Counterstability actions range from covert influence to overt violence and can be based on religious fanaticism, global competition for resources, climate change, residual territorial claims, ideology, ethnic tension, elitism, greed, and/or the desire for power. The threat uses these types of motivation to identify, target, and create conditions of instability, and establish conditions that promote a gradual acceptance of threat objectives by local and regional populations, and can even obtain an eventual acceptance and support from transnational institutions.

Threat actors, actions, or conditions plan operations to exceed an enemy's capacity to exercise effective governance, maintain civil order and obedience, and ensure economic development. An overarching aim is to sustain recurring incidents in a relevant population, create disruptive conditions that threaten to collapse effective governance in an OE, and defeat the practical resolve of enemy forces and the population it represents. See figure 1 on page 11. Examples of instability sources that the threat can institute or co-opt include but are not limited to—

- Economic conditions that do not provide opportunities for individual work and family livelihood.
- Social and civil conditions that do not provide adequate systems for health programs and general welfare support to a relevant population.
- Degraded or make obsolete infrastructure that diminishes a relevant population's quality of life.
- Charismatic individuals and special interest groups that disrupt effective civil governance.
- Irreconcilable religious, ethnic, economic, or political differences among competing relevant populations.
- Natural and/or man-made disasters.
- Natural or man-made scarcity of a required commodity.
- Ineffective or corrupt host-nation law enforcement forces.
- Ineffective or corrupt host-nation security forces.
- Rampant criminal activities.
- Recurrent acts of terrorism.
- Guerrillas operating in paramilitary operations.
- Insurgents operating an underground support system and self-proclaimed governance in a relevant population
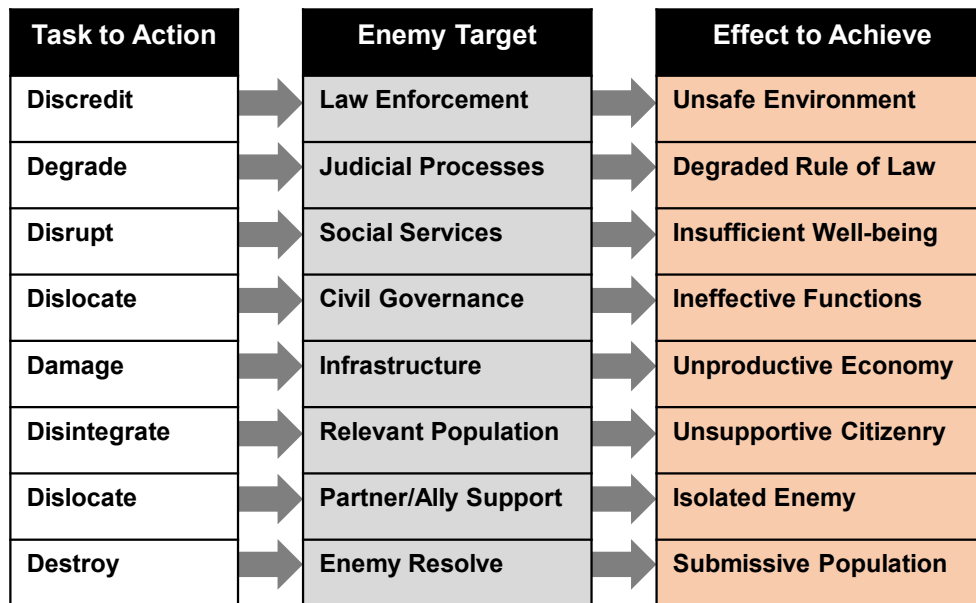
Task to Action	Enemy Target	Effect to Achieve
Discredit	Law Enforcement	Unsafe Environment
Degrade	Judicial Processes	Degraded Rule of Law
Disrupt	Social Services	Insufficient Well-being
Dislocate	Civil Governance	Ineffective Functions
Damage	Infrastructure	Unproductive Economy
Disintegrate	Relevant Population	Unsupportive Citizenry
Dislocate	Partner/Ally Support	Isolated Enemy
Destroy	Enemy Resolve	Submissive Population

Figure 1. Actions to create counterstability conditions and effects

An integrated concept to conduct counterstability tasks typically requires a long-term framework that expands and sustains unstable conditions in an OE until achieving the ability to achieve threat plans and policies. The range of counterstability tasks and missions can include support to military operations from small-scale military or paramilitary engagements to participation in major military operations. Related coercive activities in a civilian sector often include crime and acts of terrorism. Implementation at any point along this range of military, paramilitary, or non-military civil activities can be coordinated by the threat to destabilize the operations of an enemy and enhance the information warfare effects of the threat agenda.

The threat recognizes that decisions and actions by U.S. forces are compliant with international conventions and legal restrictions on conduct in providing military support to a wide range of activities. U.S. forces act typically in a cooperative environment to host-nation laws and regulations when operating as part of a coalition or alliance in a region, and conduct operations in accordance with the Law of Armed Conflict that are typically more restrictive than actions demonstrated by the threat.

Mission planning of counterstability actions apply combinations of offensive and defensive tasks. Key elements in planning counterstability tasks include—

- Determine the goals and objectives of the threat.
- Define the time available for plans, actions, and mission completion.
- Discipline the amount of time allowed to plan and prepare for operations.
- Organize forces by function for particular missions.
- Coordinate INFOWAR activities in support of each mission.
- Incorporate recurring observations into refined plans and actions for success of threat goals and objectives.

Counterstability actions require detailed reconnaissance and surveillance to collect information, develop situational awareness, and determine situational understanding of OE conditions. This continuous intelligence preparation and production, often complemented with support of an indigenous population, provides an appreciation of how to most effectively conduct actions with available resources in order to achieve specified and implied tasks. Decisions for action will be either offensive or defensive in nature and execution. A conceptual cycle of planning, preparing, executing, and exploiting execution results is a continuum of assessment and evaluation. Learning from this cycle is integrated into performance and improved effects.

Threats in a Relevant Population

Infiltrating governmental, intergovernmental, and nongovernmental organizations in an OE is a typical way for the threat to disrupt enemy operations and

relationships among actors and institutions. Intergovernmental organizations and nongovernmental organizations are the primary sources of subject matter expertise in many essential services and governance responsibilities. They also are the primary provider of humanitarian, infrastructure, and essential services in immature OEs. Intergovernmental and nongovernmental organizations usually have experienced and detailed knowledge of the civil environment within which they operate. In this principally civilian context, a diverse array of noncombatants can be a significant resource to be manipulated by the threat.

Threats and Criminal Activity

Criminal activity exists at every level of society as a destabilizing factor in rural and urban environments. The presence of criminals as a threat, whatever their level of capability in independent or affiliated activities, can complement other threat actors conducting actions in threat counterstability operations. Whether or not criminal activities are coordinated with threat forces for deliberate counterstability actions, the social impact of criminal actions typically degrades the capability of an enemy of the threat to stabilize conditions in a relevant population. Criminals can also conduct criminal actions totally separate from a threat force in support of their own goals and objectives.

Criminal organizations can be categorized as gangs, large-scale criminal networks, and transnational crim-

inal organizations. Some gangs and criminal networks develop into larger criminal networks and can evolve into transnational criminal organizations. The lines of separation between echelons of capability and criminal influence can be purposely vague. Organizational structure can be relatively flat or involve multiple echelons of control and commodity marketing, sales, and distribution.

> *Note. For more information on the ability of the threat to manipulate noncombatant individuals and organizations, see chapter 5 of U.S. Army Training Circular (TC) 7-100.3.*

Criminal activities range from misdemeanor acts such as petty theft to major felony crimes such as murder or assassination. Any of these crimes, ranging from localized gang activity to transnational networks, sap the resources and ability of the enemy civil governance and military forces, nongovernmental organizations, and/or supporting coalition or allied forces to improve a stabile OE. The broad range of crime includes assault, robbery, extortion, human trafficking, kidnapping, rape, assassination, smuggling and murder.

Some criminal networks may develop into expansive criminal networks or transnational criminal organizations. These organizations may have ambitious economic and/or political agendas. They often begin to fill the power vacuum in poorly governed or ungoverned geographic regions, and can challenge govern-
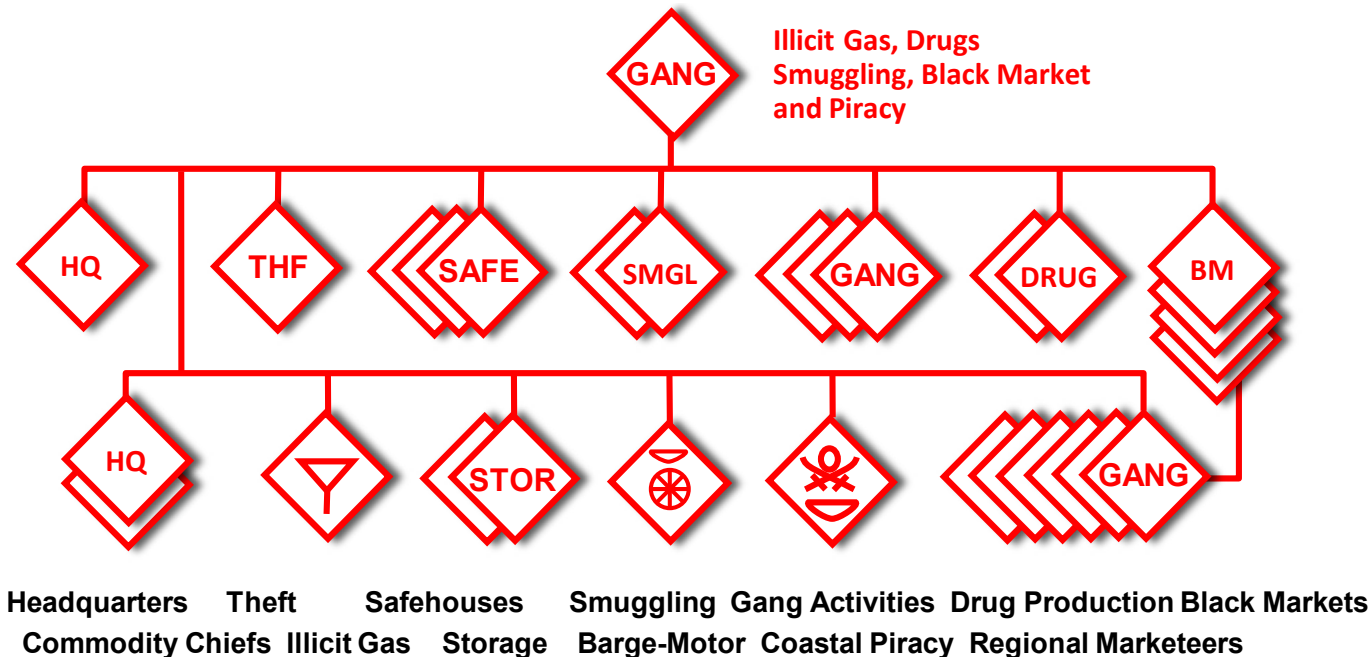

Figure 2. Criminal large-scale network organization structure (example)
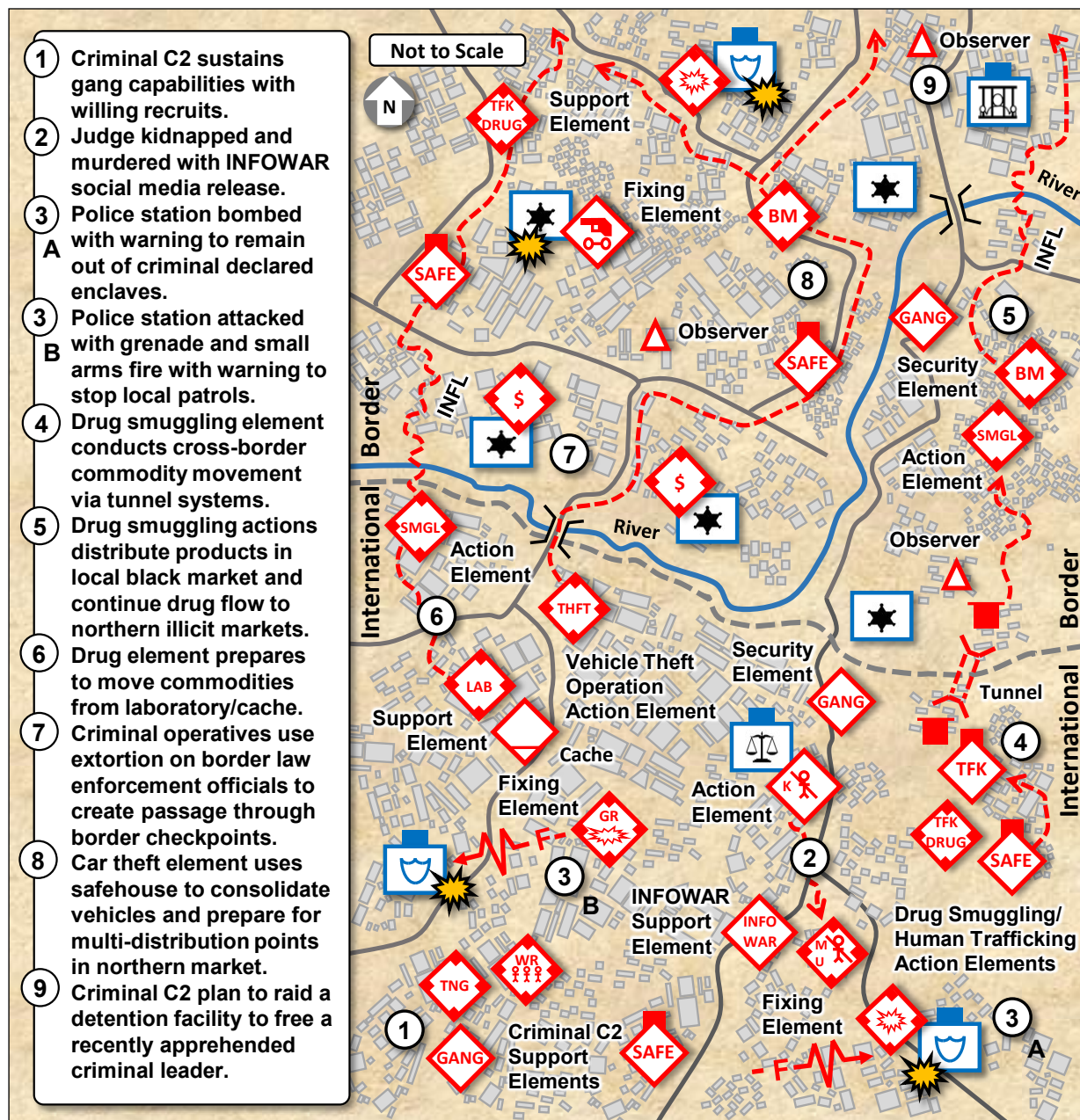
Figure 3. Crime vignette: International cross-border multiple activities

The following is the legend from the figure:

1. Criminal C2 sustains gang capabilities with willing recruits.
2. Judge kidnapped and murdered with INFOWAR social media release.
3A. Police station bombed with warning to remain out of criminal declared enclaves.
3B. Police station attacked with grenade and small arms fire with warning to stop local patrols.
4. Drug smuggling element conducts cross-border commodity movement via tunnel systems.
5. Drug smuggling actions distribute products in local black market and continue drug flow to northern illicit markets.
6. Drug element prepares to move commodities from laboratory/cache.
7. Criminal operatives use extortion on border law enforcement officials to create passage through border checkpoints.
8. Car theft element uses safehouse to consolidate vehicles and prepare for multi-distribution points in northern market.
9. Criminal C2 plan to raid a detention facility to free a recently apprehended criminal leader.

mental control of a region and relevant population. In some cases, this type of criminal organization can evolve into a de facto insurgency with goals and objectives toward increased materiel wealth and power or influence in advancing its criminal actions. Criminals in various regions can cooperate in transnational criminal ventures that take advantage of the increasing ease and effectiveness of global communications. Globalization and the increased legitimate and illegitimate movement of people across contested borders and among nation-states add significant capabilities to criminal activities and the disruption of enemy governance and/or use of military forces.

PREPARING COUNTERSTABILITY ACTIONS

In the preparation phase, the threat focuses on ways of applying all available resources and the full range of actions to place the enemy in a vulnerable position. The threat prepares an OE and forces to achieve a mission purpose, and considers mission requirements for branches and sequels to a designated counterstability task. Aspects of camouflage, concealment, cover, and deception (C3D) and/or complex terrain provide degrees of force protection and operations security to threat plans, preparations, and actions.

Threat actions often concentrate on convincing a relevant population that the contemporary actions of the

population's established governmental organizations are dysfunctional and/or corrupt, and that a mandate proclaimed by the threat offers an improved lifestyle. In order to improve the posture and support of threat goals and objectives in an OE, the threat conducts operations to destabilize enemy civil and military organizational performance, and disrupt support to the enemy by coalition partners and/or allies, and defeat enemy military operations. The threat often replaces the destabilized systems of its enemy with demonstrated support system capabilities as one of several ways to obtain the active or passive acceptance of a relevant population.

CRIME AND MISSION TASK EXECUTION

The vignette on the previous page and following narrative present the complexity that a criminal organization can conduct in illicit operations. Actions can coerce a relevant population to remain silent, be passive supporters of criminal actions, or become active participants in criminal activities.

Threats and Terrorism

The threat uses terrorism as a tactic to cause significant psychological and/or physical effects on a relevant population through the anxiety or fear caused by a stated intention to use violence or the actual use of violence. Terrorism is defined as the unlawful use of violence or threat of violence, often motivated by religious, political, or other ideological beliefs, to instill fear and coerce governments or societies in the pursuit of goals that are usually political. Terrorism strategies are typically a long-term commitment to degrade the resilience of an enemy in order to obtain concessions from an enemy. International conventions and/or law of war protocols on armed conflict and the illegality of conducting acts of terrorism may not be a constraint on threat forces.

TERRORISM AND MISSION TASK EXECUTION

Acts of terrorism in the following vignette and narrative demonstrate techniques beyond the specific

1. Insurgent cell conducts an assassination raid on local police checkpoints to intimidate law enforcement leaders/civilian population.
2. Insurgents obtain internal security force vehicles, dress as ISF soldiers, and falsify search warrants to deceive police at CP 1.
3. Insurgents arrive at CP 1 and seize checkpoint, zip-cuff all policemen, and use pistols with silencers to assassinate them. INFOWAR cell videotapes all actions. With no audible gunshots, the wee-hour raid is undetected.
4. Insurgent deception is just as successful at CP 2. Police at the CP barrier are disarmed and assassinated. Policemen off-duty in CP billets are shot in their cots or are zip-cuffed, dragged outside, and then assassinated along the road.
5. (continued with 4)
6. An affiliated local gang fixes police at area police station to prevent police response to the raid.
7. Cell kidnaps police captain and exfiltrates to safehouse.
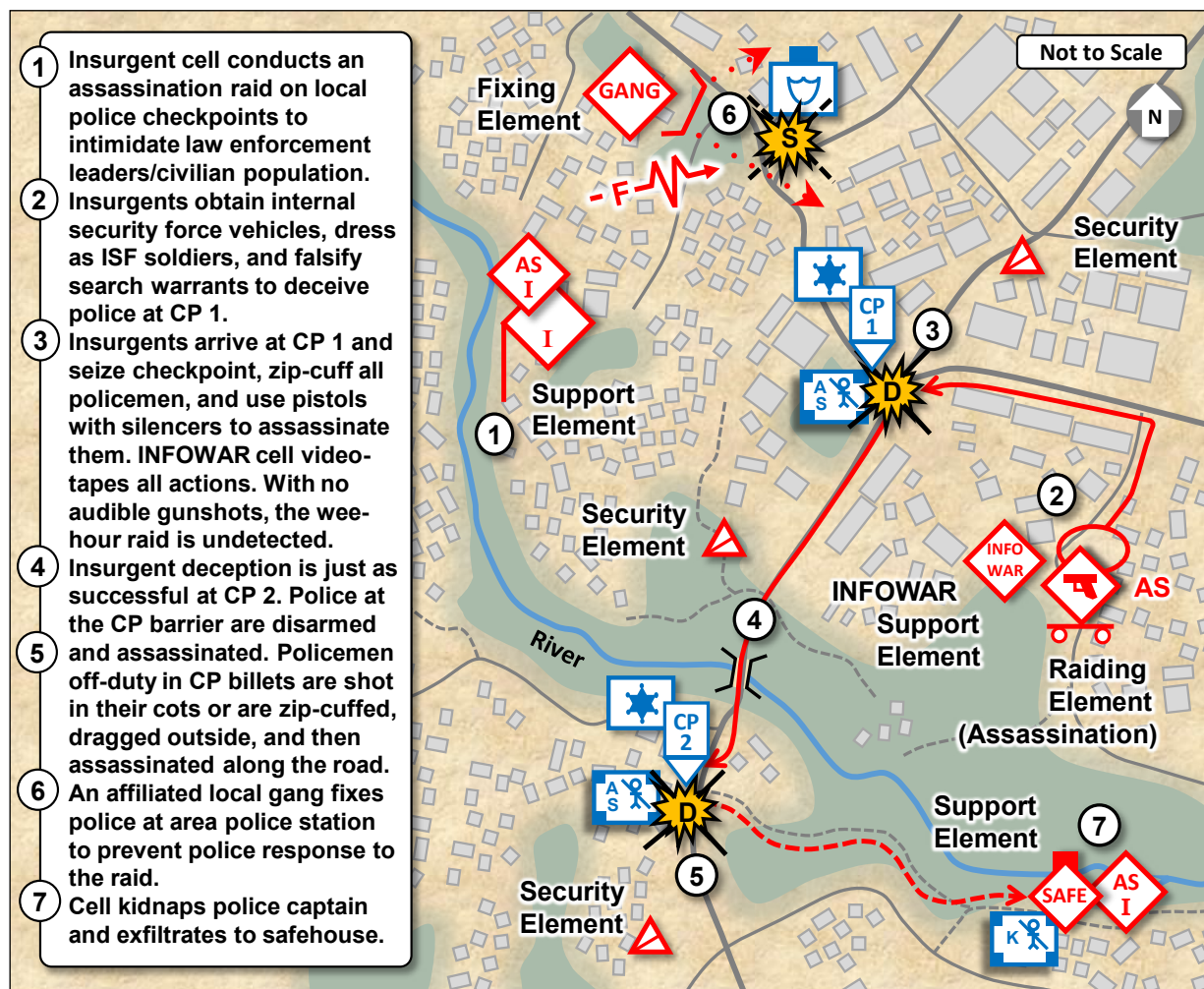
Figure 4. Terrorism vignette: Assassination raid against civilian law enforcement

acts of kidnapping and assassination. Terrorist use of captured law enforcement equipment, uniforms, and vehicles is an additional means to degrade civilian confidence in a governing authority. Civilians are often doubtful that law enforcement officers are who they say they are. This anxiety disrupts the ability to sustain civilian confidence, law, and order—and enhances criminal organization activities.

Whether acts of terrorism are deliberate, apparently random, and/or purposely haphazard, the physical, symbolic, and/or psychological effects can diminish the confidence of a relevant population for its key leaders and governing institutions. Social and political pressure, internal and/or external to a relevant population and governing authority, is frequently exploited by the threat with near real-time media coverage in the global information environment. Acts of terrorism can further exploit and coerce a relevant population. The themes and messages promoted by acts of terrorism can accent anxiety, demoralize the resolve of a relevant population and its leaders, and eventually contribute to defeat of an enemy.

The threat decision to apply terrorism is often motivated by philosophical or ideological beliefs with an objective typically political in nature. The pursuit of goals and actions labeled as terrorism by some actors in an OE can be considered fully justifiable by other actors. Another consideration in threat terrorism activities is an independent actor who may be distinct and separate from any other threat force. The spectrum of actors in an OE can range political, public, commercial institutions, other institutions appearing legitimate but disguising an illicit agenda, and/or organizations and individuals who openly declare intent to use terror as a matter of policy and practice.

EXECUTING COUNTERSTABILITY ACTIONS

Executing counterstability actions may appear as discrete events; however, the threat typically plans and operates with a comprehensive approach to conducting actions in order to achieve unity of effort toward a primary objective. Cooperation and coordination by the threat leverages the capabilities of disparate actors to conduct a broad array of actions. Shared understanding and appreciation among threat actors may be a formal organization, long-term association, and/or temporary affiliation of forces and resources for mutual benefit.

Threat leaders often acknowledge that actors are not compelled to work together toward one common goal, but can often be convinced of mutual support and benefit for select activities or support of actions. Achieving a desirable threat end state can be crafted to accommodate the best interests and goals of diverse participating actors. Threat actors often use terms for cooperation or coordination that can be understood or misinterpreted depending on the expectations of a particular threat actor. Realistic, consistent, and achievable expectations for a threat actor in terms of goals, time, and resources can fortify the resolve of threat actors to work together and measure progress of expectations.

The nature of threat shared goals or interests determines the tenure, type of tactical relationship, and degree of affiliation as a threat force. Any affiliation depends on the needs of the criminal organization at a particular time. Criminals and criminal organization may oppose other criminal actors whose activities degrade the success of a criminal enterprise. Criminal motivations vary, but are seldom motivated by a political or religious ideology typical of other types of threat forces. Criminal enterprises usually focus on obtaining profit in some commodity and achieving influence and power. Criminal organizations may become affiliated with threat military or paramilitary forces if interests coincide for mutual benefit.

The threat may desire to create legitimacy for its actions, and typically seek to establish control of a process, resources, or commodity with the acceptance of a relevant population. The manner in which threat actors conduct themselves in long-term operations can foster legitimacy, or cause indirect and direct resistance to its actions. Consent or dissent is the extent to which a relevant population agrees with threat actions and complies with the declared authority of a threat mandate. Consent or resistance to the threat in a relevant population is typically based on how the threat provides a positive way to improve OE conditions and livelihood of the relevant population.◆

GCKN's
Cultural Mapping Series

The Global Cultural Knowledge Network's (GCKN) Cultural Mapping Series (CMS) is intended to bring together socio-cultural analysis and geospatial analysis to form a series of products that not only inform, but are also in and of themselves tools for further analysis. The CMS is designed to facilitate Operational Environment (OE) understanding, with a strong focus on socio-cultural and related phenomena and their relative geospatial dispositions within an OE.

The CMS products are comprised of three major components, each appealing to a slightly different audience. The first component is the culmination of the analytical process and is the "polished" product that would be of interest to decision makers. It consists of a number of map composites of a particular OE formed from multiple layers and the analytic discussion and implications of the phenomena observed in the overlapping layers.

The second component is a graphic representation and description of all the individual layers used to assemble the composites. This component will be of interest primarily to analysts and for those in a training environment. Much like pieces of a puzzle, the layers can be put together to form new composites that will draw out the answers to questions of a specific operational relevance.

Finally, the third component is what GCKN refers to as Cultural Mapping Analysis (CMA). This stand-alone, non-OE specific component outlines the details of the entire analytical process that was used to develop the first two components for each OE specific CMS product. The CMA is part of the broader GCKN effort to develop innovative tools to enhance how the US Army understands socio-cultural aspects of an OE.

The CMS Composite

The CMS composite component will contain anywhere from three to six carefully selected topics that are further explored through the use of selective layering. Each topic will be represented by a primary layer, such as the ethno-linguistic groups of Nigeria as shown in Figure 1. It is accompanied by a group of
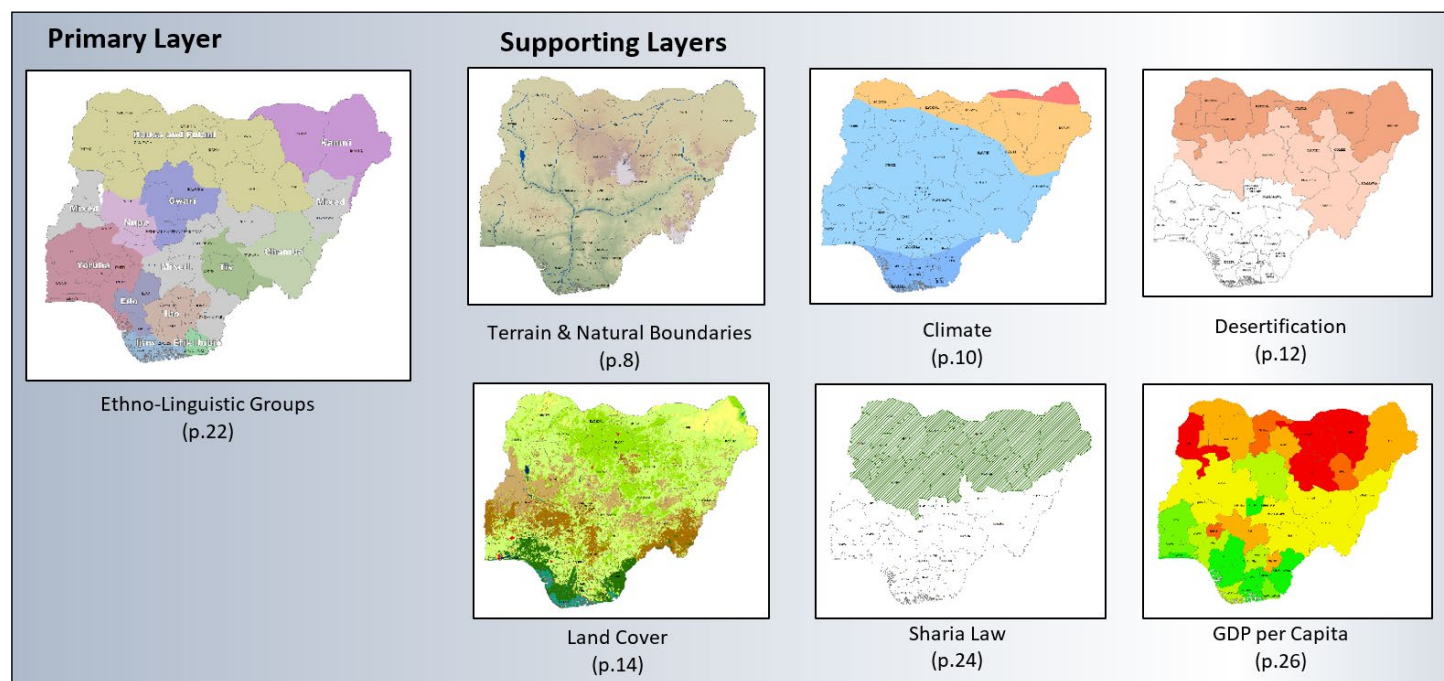

Figure 1. Example of a primary layer and supporting layers in a map composite
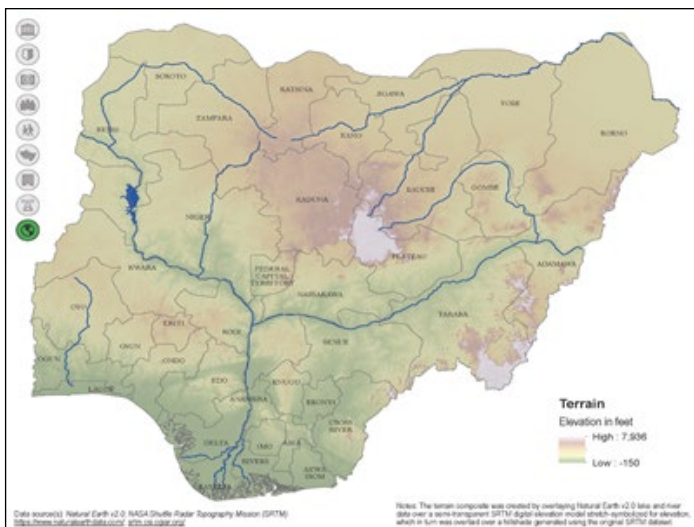
Figure 2. Example of an individual map layer

supporting layers that help explain the spatial distributions in the primary layer. At a glance we can get an idea of the terrain, land cover, economics, and climate that a particular ethnic group lives in and begin to recognize patterns. The CMS will provide a short discussion on the emergent patterns and how each of these layers has or could have an impact—or be impacted by—the spatial distribution of the primary layer. It will further provide an analysis of operationally relevant implications in the OE. Each of these is typically no more than two to three pages in length.

The Individual Layers

An appendix in each CMS product will feature a page for each layer used in the series of composites. This is presented as a stand-alone layer so that analysts can get more information on each individual layer. Analysts can then form their own composites based on specific questions they may need to consider about a given OE. These maps can also provide a quick reference point to answer spatial questions about the OE. Each appendix page will feature a visual depiction, along with the source of the mapping data and any notes and observations by the analysts.

The Cultural Mapping Analysis

The CMA combines Geographic Information Systems (GIS) analysis with socio-cultural analysis. As shown in Figure 3, the CMA process involves two distinct roles, one of the socio-cultural analyst and one of the cartographer. While these are two separate roles, they can both be filled by one qualified person or delegated

to dozens of people, depending on the scope of the desired end-product. The socio-cultural analyst reviews the map layers and helps build the composites and the associated narratives. The cartographer researches the data for the original layers and decides on the appropriate symbology and mapping techniques, while also offering input into potential composites and the accompanying narratives. Both may interact with the initial requester of the product in order to deliver a product that best fits the customers' needs.

Conclusion

The unique blend of data visualization and socio-cultural analysis that occurs within CMS products may reveal socio-cultural phenomena within a specific OE, but there is also the possibility that CMS products may lead to more questions than answers. Therefore, in addition to enabling broader OE understanding, CMS products may also be the catalyst that informs and drives the use of additional research processes such as GCKN's Analytic Methodology or more traditional military analysis procedures.

The driving objective behind GCKN's development and institutionalization (through doctrine, education, and training) of this blended analytic methodology, is the inclusion of a systematic, methodological, defensible, and social science science-infused analytical process. As such, there are multiple intended audiences for these products. Each CMS product is intended to enable greater OE specific understanding, and also to inform the development of more realistic and complex training environments and scenarios.◆
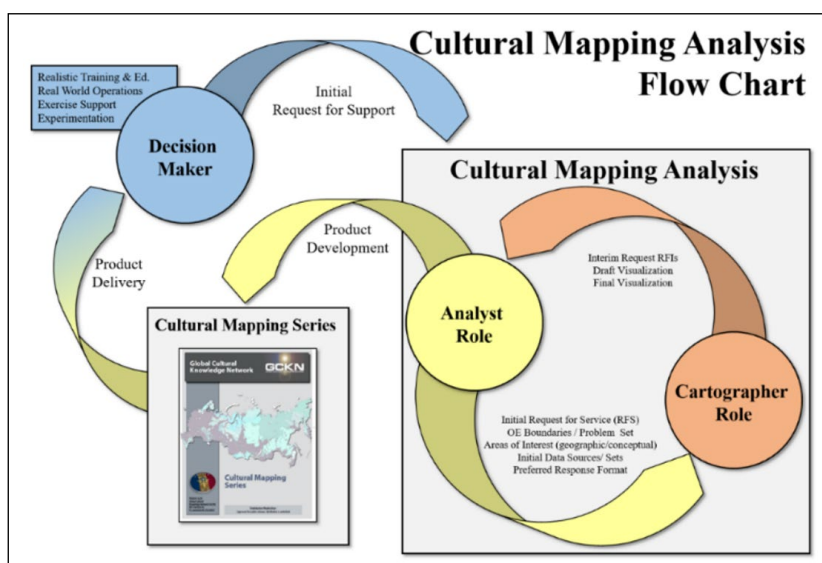

Figure 3. CMA flowchart

ACE-TI
Threats Tactics Course

by Kristin Lechowicz (DAC) and Jay Hunt (CTR) TRADOC G-2 ACE Threats Integration

WHAT: TTC Description

The Threats Tactics Course (TTC) is a five-day block of instruction presented by the TRADOC G-2 ACE Threats Integration (ACE-TI) Directorate. The TTC is a Department of the Army G-2 Foundry approved course. Foundry funds/supports training courses such as the TTC for military intelligence (MI) units or MI mission development. The venues offered for the TTC are both as a resident course at FT Leavenworth, KS and as a mobile training team (MTT). The course curriculum focuses on developing understand and applying a validated opposing force (OPFOR) threat in support of US Army training, professional education, and leader development learning objectives.

The course encourages the application of functional analysis to dissect real world crises and prevent analytical mirroring of US thought processes when developing training or evaluating threat capabilities. The course leverages examples of real-world threat actors (historical and current), and expands on the OPFOR composite described in the US Army Training Circular (TC) 7-100 series.

The OPFOR composite replicates a realistic, robust, and relevant hybrid threats in operational environments (OEs) as presented in US Army Regulation 350-2 and the US Army Training Circular (TC) 7-100 series. The OPFOR composite is a combination of regular, irregular forces, and criminal organizations, that represent varying capabilities of actual worldwide adversaries in doctrine, tactics, techniques, organization, and equipment. The TTC illustrates OPFOR capabilities and subsequent impacts within multi-domain operations. The TTC uses terrain derived from the combat training centers (CTCs) for practical exercises. The course capstone utilizes the US Army's *Decisive Action Training Environment* (DATE) to provide a consistent tactical setting of OE variables and OPFOR in the student's final product.

WHO: TTC Attendees

The TTC curriculum addresses threat topics useful to US Army Soldiers and leaders who will act as an OPFOR supporting institutional/operational readiness training missions such as a combat training center or regional collective training capability (RCTC); Center of Excellence (CoE) training and curriculum developers; or threat managers, scenario developers, and home-station training and installation planners.

Over the last 2 years, the course has provided an invaluable (based on student feedback) insight for US Army battalions or brigades' S-2 intelligence sections. The TTC provides S-2 sections with the ability to shift from a counterinsurgency mindset into a framework that analyzes, plans, and develop threat courses of action for a near peer adversary. The TTC is open for attendance to US military, US government employees, and US government contractors.

WHERE: TTC/MTT Presentation Requirements

The TTC resident course is offered at FT Leavenworth, KS campus in the modernized classroom facilities of TRADOC G-2 ACE Threats Integration.

The MTT is another option for a unit/activity to host a TTC. The TTC can accommodate a wide range of unit/activity locations and adapts to available facilities in coordination with the unit/activity point of contact. Course requirements at the MTT host site to include:

- *Computers for instructor and students*
- *Instructor's computer should have a DVD/CD deck, projector, speakers and projection screen for instructional lessons and video options*
- *Internet connectivity computer stations for instructor(s) and at least three small groups to Army Knowledge Online (AKO), Army Training Network (ATN), All Partners Access Network (APAN)*
- *Three whiteboards or chalkboards (for small group exercises) with dry-erase markers or chalk in a small-group setting with desks and chairs.*

WHEN: TTC Duration

The TTC follows a five-day program, Monday through Friday. The normal class day is 0800 to 1630. Exceptions to policy can be made a case by case basis.

HOW: TTC Small-Group Concept

A resident TTC is typically 16 attendees (1 class). A MTT typically sustains 15-27 students.

The class breaks into smaller groups during the week for tactical projects and preparation for practical exercises. Instructional methods include lecture, small group research and discussion of threat topics and class presentations, video vignette assessments, and real-world threat incident analysis. Attendees develop threat courses of action and related intelligence tasks.

Source: U.S. Army *Photo* by Sgt. Jason Nolte

TTC Main Topics

A five-day schedule of instruction includes the following main topics as coordinated with the unit/activity point of contact:

- *Threat concepts;*
- *OPFOR functional tactics and functional analysis;*
- *Strategic environment (SE) overview, operational environment (OE), and OE variables for tactical exercises;*
- *Hybrid threat (HT) in current, complex, persistent conflict and relevant populations;*
- *Threat actors: Regular and irregular forces, criminal organizations, and terrorist groups;*
- *Offensive and defensive tactics and techniques;*
- *Emerging threat capabilities; and*

- *Practical exercises: Tactical offense and defense vignettes.*

COST: MTT Funding

The unit is responsible for funding the instructor temporary duty (TDY) costs. No additional MTT cost is incurred for course instruction for US military members, US government employees, or US government contractors. The TTC is "Foundry approved training" and currently resides on the Army Training Requirements and Resources System (ATRRS); however, students are NOT enrolled through ATRRS courses. The Foundry Program Course Number is AS327. Typical standard funding planning information includes:

- *Airfare is round-trip: Kansas City International Airport (MCI) to regional-international airport nearest MTT location.*
- *Round-trip baggage fee for to-from air flight totals approximately $50.*
- *Rental Car (compact) from airport to MTT location. Estimate $50. per day.*
- *US government per diem and MIE authorization. https://www.gsa.gov/portal/content/104877*
- *Other incidental costs can include travel mileage or shuttle service to-from instructor residence-airport, or POV parking at MCI economy lot. Verify these type costs in direct coordination with the MTT coordinator-instructor.*

MTT Proponent

The US Army TRADOC G-2 ACE Threats Integration (ACE-TI) Directorate at Fort Leavenworth, Kansas, is the G-2 proponent for the TTC-MTT. The unit POC shapes MTT instruction and learning objectives experience in direct coordination with the G-2 ACE-TI course coordinator and course author. Coordinate directly with Kristin Lechowicz for course information or scheduling an MTT at a unit-activity.

TRADOC G-2 ACE-TI Points Contact for additional MTT information:

Kristin Lechowicz, Team Chief, TTC-MTT Coordinator, Course Author, kristin.d.lechowicz.civ@mail.mil 913-684-7922.
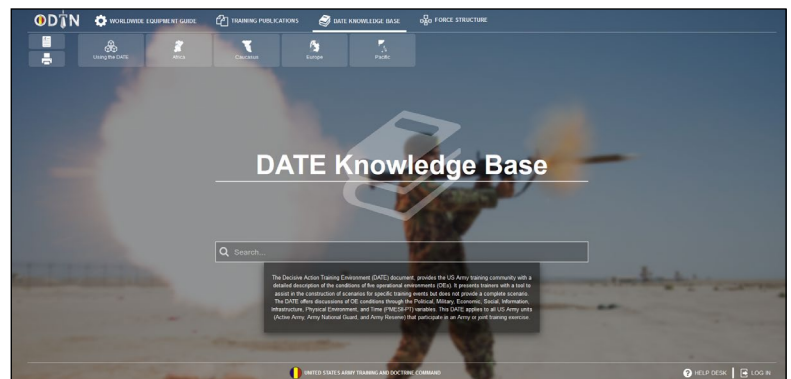
Jay Hunt, Deputy Chief, Course Developer, Instructor, james.d.hunt50.ctr@mail.mil (913) 684-7960.◆

Decisive Action Training Environments (DATEs)

by TRADOC G-2 ACE Threats Integration

In October, TRADOC G2 ACE Threats Integration released three new Decisive Action Training Environments (DATEs). For the last seven years, DATE provided the US Army and allies with a training environment set on the real-world terrain of the Caucasus. This environment still exists, but is now accompanied by three additional, equally robust environments set in the Pacific, in Europe, and in Africa. TRADOC created these products to meet the guidance of GEN Mark, A. Milley, Chief of Staff of the Army.

DATE Knowledge Base on the Operational Environment Data Integration Network (ODIN)

The purpose of the Decisive Action Training Environments (DATEs) is to provide the US Army training, education, and leader development community with a detailed description of the conditions of composite operational environments (OEs). It presents trainers and educators with an operational environment baseline to serve as a starting point in the construction of scenarios for specific training events, but is not a complete scenario in itself. All four of the DATEs offer descriptions of OE conditions through the political, military, economic, social, information, infrastructure, physical environment, and time (PMESII-PT) variables. These DATEs applies to all US Army units (Active Army, Army Reserve, and Army National Guard) and partner nations that participate in DATE-compliant Army exercises.

Notably, the DATEs now exist as living documents on the Operational Environment Data Integration Network (ODIN). ODIN is the authoritative source for DATEs, their accompanying Threat Force Structures, the Worldwide Equipment Guide (WEG), and other threat doctrine publications such as the TC 7-100 series. Customer feedback is important for maintaining the relevancy and accuracy of these critical training documents, so questions, comments, and recommendations are welcome via our APAN page for DATE feedback. In Volume 9, Issue 03 May–July 2018 of the Red Diamond, additional, content specific information is available on DATEs Africa, Europe, and Pacific to familiarize users with the conditions for each new environment.◆
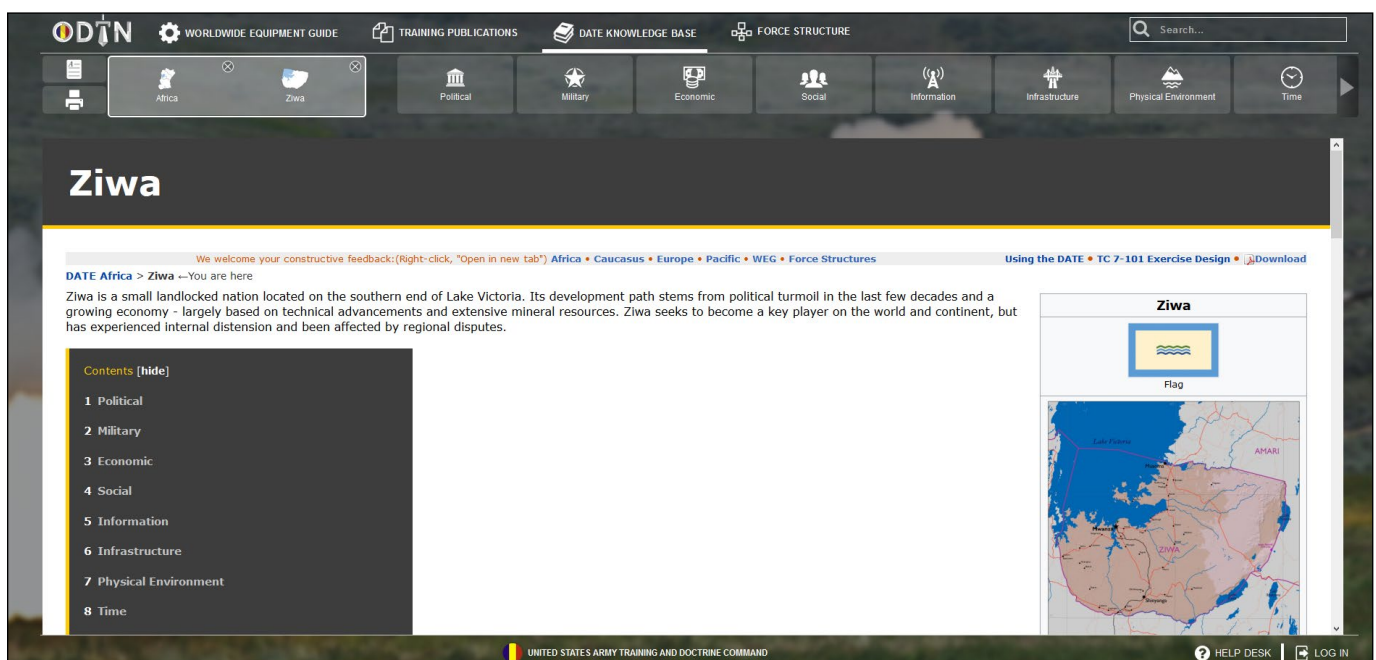
DATE OE overview page featuring hierarchical section indicators and PMESII-PT links.