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REFRAMING AIR POWER CONTRIBUTION FOR IRREGULAR WARFARE

LtCol B.P.Y. Tang

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Exercise Solo Flight

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LtCol B.P.Y. Tang

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REFRAMING AIR POWER CONTRIBUTION FOR IRREGULAR WARFARE

Introduction

Today's coalition air forces possess overwhelming and unmatched precision firepower, surveillance capabilities and mobility, yet they struggle to help gain decisive victories over their ambiguous adversaries who wage Irregular Warfare (IW) with Improvised Explosive Devices (IEDs) and Kalashnikovs. The debate usually points to the inability for coalition forces to adapt to the adversary's method of fighting, and suggests that somehow there is supposed to be a regular way to conduct warfare. Air forces that frequently contribute to the coalition, such as the Royal Canadian Air Force (RCAF), must adapt to the new security environment, which necessitate a shift in the ways in which air weapons systems are employed and in the type of systems needed. More importantly, in order to maintain relevance in the future, a continuous reframing of the mind is required such that the aviators are not solely preoccupied with "Big Wars",¹ but are equally adept at confronting adversaries together with the Host Nations (HNs).

It is imperative that aviators regard air power as an instrument to achieve a political end. The air force's traditional focus on technology and firepower, and its understanding and approach to warfare must be reframed and adapted for IW with the aim to not just defeat an enemy but also to bolster the legitimacy of the supported government through empowerment. In effect, this paper argues that the air forces must focus on ending a war instead of just fighting a war.

¹ "Big War" is referred to traditional wars between states with conventional force structures, e.g. WWII, 1991 Gulf War. Michael R. Melillo, "Outfitting a Big-War Military with Small-War Capabilities," *Parameters* (Autumn 2006): 22-35.

This paper shall explore the concepts of IW and also the ends, ways and means of an effective IW campaign which include the concept of systematic empowerment. It will then discuss the key air power contributions and the associated challenges in determining success in IW. This paper will also identify opportunities which the RCAF may seize to better prepare for IW.

Irregular Warfare

The dominance of large military powers such as the U.S. in recent conventional warfare has forced lesser adversaries away from traditional force-on-force engagements. Irregular forms of warfare have become the preferred choices for state and non-state actors such as terrorists and criminals to challenge national interests and security. Realizing this increased complexity, the RCAF strategic guidance document *Air Force Vectors* cautions that “the defining feature of 21st century war and warfare . . . will be the willingness of belligerents to make use of any available forms of violence and technology”². In addition to the expanding forms of violence, the other unique characteristic of IW is the emphasis on the population, as poignantly articulated by the United States Air Force (USAF) IW Doctrine Document (AFDD) 3-2: “The key distinctions between IW and traditional warfare are the context and conduct of the conflict, particularly with regard to the population.”³ According to the U.S. Department of Defense (DOD), and adopted by the USAF and RCAF,⁴ IW is defined as:

a violent struggle among state and non-state actors for legitimacy and influence over the relevant populations. IW favors indirect or asymmetric

² Department of National Defence, A-GA-007-000/AF-008, *Air Force Vectors* (Ottawa: DND Canada, 2014), 11.

³ United States Air Force, *Irregular Warfare: Air Force Doctrine Document 3-2* (Washington, D.C.: United States Air Force, 2013), 1.

⁴ Department of National Defence, B-GA-400-000/FP-000, *Canadian Forces Aerospace Doctrine* (Winnipeg: DND, 2010), 66.

approaches, though it may employ the full range of military and other capabilities, in order to erode an adversary's power, influence and will.⁵

The main problem for conventional forces is that the irregular threats cannot be countered solely by conventional military means because the threats (adversaries) compete with the troubled HN for legitimacy and influence over the population. Adversaries are enmeshed with the populations whose connections with the adversaries are often characterized by strong relationships due to religion, culture or language. These threats require delicate and long-term efforts to address.⁶

In essence, the predominant implication of IW is that conventional forces must become more adaptable, flexible and interoperable with the HN in order to defeat irregular adversaries in population-centric conflicts. The following section shall discuss the *ends, ways, and means* linkage approach in confronting IW.

Ends

Ends are defined as the outcomes or as the desired end states. For IW, the desired end state is often described as a self-sufficient HN with a supportive population who believes in the legitimacy and the ability of that government to provide security, governance and economic prosperity. According to the DOD IW Joint Operating Concept (JOC), the measures of success are the degrees to which "the influence and control of the relevant populations have been wrested from the adversary and . . . the legitimacy and

⁵ Joint Chiefs of Staff, *Doctrine for the Armed Forces of the United States*, JP 1, Vol.1 (Washington, D.C.: Joint Chiefs of Staff, 2013), I-6.

⁶ United States Air Force, *United States Air Force Irregular Warfare Strategy 2013* (Washington, D.C.: United States Air Force, 2013), 3.

credibility conferred on the political authorities opposing the adversary have been increased.”⁷

The conduct of an IW campaign will impact the post-conflict prospects for enduring peace since the population has become the battleground; the ways and means of conducting IW have the potential to de-legitimize coalition efforts. Placing particular emphasis on ending the fight, the USAF doctrine advocates that “Airmen should consider the end state during all phases and aspects of IW.”⁸

Similarly, Colonel Olsen of the Royal Norwegian Air Force proposes a winning formula which “consists of establishing a safe and secure environment that can sustain itself without external assistance and that fosters economic growth”,⁹ and warns about complacency and stresses that IW do not have “cookie-cutter” end states because each situation presents different features and unique challenges.¹⁰

Ways

Ways are commonly defined as the methods, practices or approach to achieve the ends. For example, the U.S. military confronts IW directly using its five pillars of IW.

According to the IW JOC,

the principal way that the joint force will counter irregular threats in both steady-state and surge conditions is by some combination of counterterrorism [CT]¹¹, unconventional warfare [UW]¹², foreign internal

⁷ Joint Chiefs of Staff, *Irregular Warfare: Countering Irregular Threats Joint Operating Concept*, Version 2.0 (Washington, D.C.: Joint Chiefs of Staff, 2010), 16.

⁸ United States Air Force, *Irregular Warfare: Air Force Doctrine Document 3-2* . . . , 12.

⁹ John A. Olsen, “The Quest for a New Airpower Strategy,” *Air & Space Power Journal* (May-June 2015): 31.

¹⁰ *Ibid.*, 31.

¹¹ Department of Defense defines “Counterterrorism” as “activities and operations taken to neutralize terrorists and their organizations and networks in order to render them incapable of using violence to instill fear and coerce governments or societies to achieve their goals.” Joint Chiefs of Staff, *Joint Publication 1-02: Dictionary of Military and Associated Terms* (Washington, D.C.: Joint Chiefs of Staff, 2017), 57.

¹² Department of Defense defines “Unconventional Warfare” as “activities conducted to enable a resistance movement or insurgency to coerce, disrupt, or overthrow a government or occupying power by

defense [FID]¹³, counterinsurgency [COIN]¹⁴, and stability operations [SO]^{15,16}.

These five pillars all require a strong partner or HN and a thorough understanding of the population. Currently, the primary way to assist HNs in the IW context is by providing security cooperation assistance focused in building HN capacity.¹⁷ For the USAF, it is focusing efforts to help develop, enhance, and sustain a HN's aviation enterprise. The USAF IW doctrine notes that "enhanced aviation enterprise capabilities enable PNs [Partner Nations] to strengthen internal security, defend against external aggression, and act as trusted participants in regional security structures".¹⁸

Moreover, Colonel Olsen offers a systems-approach in combatting IW and coined the terms "systematic paralysis" (of the opponent) and "systematic empowerment" (of the supported ally) to characterize the complementary direct and indirect methods.¹⁹ Olsen offers the systematic approach to provide a holistic way to analyze a problem and the associated linkages, e.g. strengths, vulnerabilities and networks of an adversary.²⁰

While systemic paralysis aims to degrade the opponent's leadership and its

operating through or with an underground, auxiliary, and guerrilla force in a denied area." Joint Chiefs of Staff, *Joint Publication 1-02* . . . , 243.

¹³ Department of Defense defines "Foreign Internal Defense" as "participation by civilian and military agencies of a government in any of the action programs taken by another government or other designated organization to free and protect its society from subversion, lawlessness, insurgency, terrorism, and other threats to its security." Joint Chiefs of Staff, *Joint Publication 1-02* . . . , 94.

¹⁴ Department of Defense defines "Counterinsurgency" as "comprehensive civilian and military efforts designed to simultaneously defeat and contain insurgency and address its root causes." Joint Chiefs of Staff, *Joint Publication 1-02* . . . , 56.

¹⁵ According to the Department of Defense, "Military support to stabilization efforts during peacetime generally takes the form of routine contact, military presence, and security cooperation (SC) activities." Joint Chiefs of Staff, *Joint Publication 3.07: Stability* (Washington, D.C.: Joint Chiefs of Staff, 2016), ix.

¹⁶ Department of Defense, *Irregular Warfare . . . Joint Operating Concept* . . . , 17.

¹⁷ United States Air Force, *United States Air Force Irregular Warfare Strategy* . . . , 4.

¹⁸ United States Air Force, *Irregular Warfare: Air Force Doctrine Document 3-2* . . . , 2.

¹⁹ Olsen, *The Quest for a New Airpower Strategy* . . . , 30.

²⁰ *Ibid.*, 33.

decision-making processes to render it ineffective, systemic empowerment aims to enhance and encourage the supported ally.²¹

The central precept of Olsen’s systematic approach is that strategists must overcome their obsession with “the battle”; more emphasis should be placed on the empowerment of the supported HN.²² Olsen advocates that the “preferred method should be to advise and support the host nation. NATO should concentrate on advising, training, educating, and equipping the local government and its military and security forces, avoiding direct combat unless absolutely necessary.”²³ This advisory approach can help HN gain legitimacy and credibility to facilitate a constructive trinity amongst its people, military and government.

Likewise, the USAF doctrine advocates Aviation FID (AvFID) operations to focus on “assessing, training, advising, and assisting HN aviation forces in the sustained use of airpower to help their governments deal with internal threats.”²⁴ The result of an effective AvFID operation would enable the HN to “defend their own territory, expand the rule of law and governance, and provide support in coalition operations²⁵”.

Means

Means are generally defined as the resources and capabilities required to achieve the ends. The DOD IW JOC articulates several guiding principles focusing on an improved understanding of the environment, a balanced approach (risk vs. effect) and building partner capacity to direct force employment.²⁶ The degree of success will be

²¹ Ibid.

²² Ibid., 32.

²³ Ibid., 33.

²⁴ United States Air Force, *Irregular Warfare: Air Force Doctrine Document 3-2* . . . , 40.

²⁵ Ibid., 41.

²⁶ Joint Chiefs of Staff, *Irregular Warfare . . . Joint Operating Concept* . . . , 24-32.

maximized when these principles are applied in the delivery of air power. The following section will discuss those air power capabilities with the most impact in IW and their considerations for the empowerment of the HN and the protection of the local population.

Air Power Contributions

Air power provides flexibility, speed and reach to gain the initiative over the insurgents. The RCAF defines it as “that element of military power applied within or from the air and space environments to achieve effects above, on, and below the surface of the Earth.”²⁷ Contemporary IW doctrine and literature focus on aerial Intelligence Surveillance and Reconnaissance (ISR), precision engagement, air mobility and the concept of air advisory to achieve the desired end state. The legitimacy of the HN and the protection of the population must be considered for all application of air power. While the future is full of uncertainties, air forces must establish guidance for its institution to maintain relevancy. In addition to the guidance and direction provided by the DOD’s IW JOC and the USAF IW doctrine document, the RCAF Air Force Vectors document also serves to provide the necessary guidance to steer the organization to meet tomorrow’s challenges including IW.

Precision Engagement

IW is essentially a struggle for legitimacy and the population’s allegiance, therefore any kinetic engagement with the adversary enmeshed within a population should be examined with extreme prejudice. Military planners must balance the effect and the risks (balanced approach), and be mindful of how the engagement would

²⁷ Department of National Defence, *Canadian Forces Aerospace Doctrine . . .*, 18.

contribute to the end state. After all, as air power historian Dr. Farquhar reminds us, “Airmen must not forget that COIN and IW are inherently political.”²⁸

Since WWII, coalition air forces have been establishing their doctrine based on technological superiority. The air power successes of 1991 Gulf war and Kosovo in 1999 reinforced that desire for technological supremacy. Precision strike technology may appear to have solved the time-old problem of minimizing collateral destruction and protection of civilians. The RCAF doctrine labels precision as one of the main characteristics of aerospace power touting great accuracy and minimal collateral damage.²⁹ It also adheres to the RCAF’s *Power* vector by providing close air support in the denial of the enemy’s freedom of movement. However, air forces must reframe and restrain their desire to conduct precision engagement in IW.

Coalition air forces possess unrivalled precision firepower over their adversaries. For example, the Joint Direct Attack Munition (JDAM)³⁰, the “smart” weapon of choice of the coalition, with its inertial navigation system/global positioning system (INS/GPS) and continuous navigation updates during its trajectory, can be launched at a great stand-off distance with impressive accuracy at 3 meter Circular Error Probable (CEP)^{31, 32} i.e. 50% of projectiles landing within 3 meters of the target. Precision strike is extremely effective in paralyzing the opponent’s systems. In doctrinal parlance, “such activities

²⁸ John T. Farquhar, “Airpower and Irregular War: A Battle of Ideas,” *Air & Space Power Journal* (Spring 2017): 57.

²⁹ Department of National Defence, *Canadian Forces Aerospace Doctrine . . .*, 25.

³⁰ Boeing, “Joint Direct Attack Munition,” last accessed 22 April 2017, <http://www.boeing.com/history/products/joint-direct-attack-munition.page>

³¹ The CEP associated with an estimated target location (x,y) is defined to be the radius of the smallest circle with center at (x,y) which has a 50% probability of containing the true target coordinates. United States Air Force, *Use of Circular Error Probability in Target Detection* (Massachusetts: USAF, 1998), 1.

³² Federation of American Scientists, Joint Direct Attack Munitions, last accessed 24 April 2017, <https://fas.org/man/dod-101/sys/smart/jdam.htm>

serve to undermine, disrupt, or destroy an adversary's will or ability to fight.”³³ In the recent operations in Afghanistan, the combination of light mechanized infantry and overwhelming precision firepower from above was the preferred order of battle.

Unfortunately, precision engagement should only be considered as a last resort as it presents significant issues in IW. Air strikes including precision strikes tend to delegitimize the HN by “producing collateral damage or simply by causing fear in the civilian populace.”³⁴ In the era of precision technology, the result has been devastating in terms of the large numbers of civilian casualties (CIVCAS) which had led to controversy over the use of airpower in Afghanistan (e.g. Kunduz fuel tankers airstrike by two GBU-38 JDAMs killing 142 people, at least 20 of which were children).³⁵ The issue isn't about the accuracy of the weapon but the uncertainty about the target and the associated risks and effect. The global criticism of the International Security Assistance Force (ISAF) was best expressed by President Karzai in 2008, “I am not happy with civilian casualties coming down; I want an end to civilian casualties ... It seriously undermines our efforts to have an effective campaign against terrorism.”³⁶

Indeed such outcry is warranted. “Air-strikes account for the largest percentage of civilian deaths attributed to pro-government forces. The United Nations Assistance Mission to Afghanistan (UNAMA) recorded 552 civilian casualties of this nature in

³³ Department of National Defence, *Canadian Forces Aerospace Doctrine . . .*, 41.

³⁴ David Glasson, “Big War Air Power for Small War Operations,” *The Royal Canadian Air Force Journal* vol.3 no.1 (Winter 2014): 20.

³⁵ Action on Armed Violence, *Air power in Afghanistan*, (London, Action on Armed Violence, 2014), 16, last accessed 24 April 2017, <https://aoav.org.uk/wp-content/uploads/2015/03/AOAV-Air-Power-in-Afghanistan.pdf>

³⁶ Human Rights Watch, “Troops in Contact: Airstrikes and Civilian Deaths in Afghanistan,” September 2008, last modified 08 September 2008, <https://www.hrw.org/report/2008/09/08/troops-contact/airstrikes-and-civilian-deaths-afghanistan>

2008”³⁷, up 72% from the previous year (321 casualties)³⁸. Precision engagement is a double edge sword. “The greater the accuracy of modern weapons, the louder the outcry when they nonetheless kill or wound civilians.”³⁹ Precision weapons are not 100% accurate, and the issue isn’t so much about the accuracy but the uncertainties about a target due to the lack of situation awareness or “ground truth” when conducting air strikes. The circumstantial evidence, the difficulty to maintain persistent positive identification of the target, the complexity of collateral damage estimates, and the misinterpretation of intent from the sky all contribute to uncertainties. To illustrate the conflation of uncertainties with a scenario, consider a trio of Afghan fighting-age males taking shifts digging by the side of a road at night in an insurgent stronghold, who were interpreted as IED planters by a remote MQ-1 Predator drone pilot; whereas in reality they were farmers performing irrigation work at cooler night temperatures. The prosecution of this target would adhere to certain Rules of Engagement (Hostile Intent / Act) yet result in CIVCAS. Although it may increase the risk, a carefully planned and executed patrol could have conducted interrogation and identified them as farmers.

Even if collateral damage and uncertainties were eliminated, the use of precision air power delivered from foreign forces gives the perception that the HN lacks independence, essentially projecting an image of a “puppet government” which is strategically damaging in the competition for legitimacy. “Foreign airpower over a nation

³⁷ United Nations Assistance Mission to Afghanistan, “Afghanistan: Annual Report on Protection of Civilians in Armed Conflict 2008,” last accessed 24 April 2017, https://unama.unmissions.org/sites/default/files/unama_09february-annual20report_poc202008_final_11feb09.pdf

³⁸ Human Rights Watch, “Troops in Contact: Airstrikes and Civilian Deaths in Afghanistan: III. US and NATO Bombing and Civilian Deaths,” last accessed 24 April 2017, https://www.hrw.org/reports/2008/afghanistan0908/3.htm#_Toc208224420

³⁹ The Economist, “Irregular Warfare: After Smart Weapons, Smart Soldiers,” last modified 25 October 2007, <http://www.economist.com/node/10015844>

represents a very visible sharing of national sovereignty”⁴⁰, and when it results in CIVCAS, the risk of losing legitimacy is exacerbated. Simply, it goes against the spirit of HN empowerment.

The asymmetric advantages of precision air strikes cannot be overstated as this capability has protected countless coalition forces in battlefields. However, it is a complex issue as Dr. Farquhar brilliantly situates the conundrum, “to use airpower as an instrument to advance the overall political objective without damaging the cause through excessive force.”⁴¹ Statistics have demonstrated the adversity of air strikes and it requires great leaders to acknowledge the problem and challenge the status quo. In the aftermath of a catastrophic air strike in Azizabad where 92 civilians were killed,⁴² Commander ISAF General McChrystal challenged the readiness to apply excessive force. He issued a directive to restrain the use of explosive weapons in populated areas stating that “The use of air-to-ground munitions and indirect fires against residential compounds is only authorized under very limited and prescribed conditions”⁴³ and warns that the coalition “must avoid the trap of winning tactical victories – but suffering strategic defeat - by causing civilian casualties and excessive damage and thus alienating the people.”⁴⁴ The decline of civilian deaths from 2008 to 2009 could be attributed to his tactical directive.⁴⁵ Aviators must continue to reframe the application of airpower to achieve the desired end states. As stated by the guiding principle – RCAF’s Agile vector, aviators must “have the

⁴⁰ Stephen L. Hoog, “Airpower over Afghanistan: Observation and Adaptation for the COIN Fight,” *Air University Press* (November 2014): 238.

⁴¹ Farquhar, *Airpower and Irregular War* . . . , 52.

⁴² United Nations Assistance Mission to Afghanistan, *Afghanistan: Annual Report* . . . , 9.

⁴³ International Security Assistance Force, Tactical Directive (Kabul: NATO, 2009), last modified 06 July 2009, http://www.nato.int/isaf/docu/official_texts/Tactical_Directive_090706.pdf

⁴⁴ *Ibid.*

⁴⁵ Norton A. Schwartz, “Airpower in Counterinsurgency and Stability Operations,” *Prism* 2 no. 2: 131.

agility of mind to adapt.”⁴⁶ The RCAF must be as adaptable and agile as the irregular adversaries to integrate lessons learned to operate in a changing environment.

Canada’s decision to withdraw its CF188 fighters from Operation IMPACT may be the result of a strategic reframing aimed to eradicate collateral damage. While precision strike is a critical air power capability, coalition aviators should consider it as the last resort in IW, perhaps limiting it only to deliberate planned operations with high fidelity on ground situation awareness. If hasty engagements are absolutely required for time sensitive targets or troops in contact scenarios, the inclusion of the HN in the decision making process would be crucial to establish accountability and minimize uncertainties. In order to reduce collateral damage, coalition forces must have access to the most accurate and timely information. HN officials should be integrated into the “Kill Chain” to facilitate intelligence fusion⁴⁷ and for the prosecution of the targets.

Intelligence, Surveillance and Reconnaissance

Air power contributes significantly to IW where irregular forces are widely dispersed and enmeshed within the population. Air power has been applied very effectively to ISR activities to enable targeting. Aerial ISR is a critical capability which provides the coalition an asymmetric advantage by minimizing own risks while exposing the insurgent threat through information collection, geospatial and signals analysis and exploitation, and dissemination. The major contribution of aerial ISR is its speed, persistence and ubiquity which allow for coverage of large area of operations to provide situational awareness to the supported commanders. These characteristics of air power greatly enhances the *Sense* function which “provides commanders the knowledge

⁴⁶ Department of National Defence, *Air Force Vectors* . . . , 34.

⁴⁷ Department of National Defence, B-GA-402-000/FP-001 *Canadian Forces Aerospace Sense Doctrine*, (Winnipeg: DND, 2012), 16.

necessary to direct their forces to achieve the most appropriate effect on the operational environment”⁴⁸, fulfilling the Commander’s Critical Information Requirement.

During recent operations in Iraq and Afghanistan, air platforms such as the RC–135 Rivet Joint and Combat Sent, U–2 Dragon Lady, MQ–1 Predator, MQ–9 Reaper, RQ–4 Global Hawk, MC–12 Liberty, RCAF CP140 Aurora and Royal Australian Air Force P3-C Orion including several non-traditional ISR platforms (B-1 and B-52 bombers and F-15E and F-16 fighters) provided continuous ISR coverage.⁴⁹ Together these platforms processed “over 1 million targets, provided support in over 800 troops-in-contact situations, assisted in the capture of more than 160 high-value individuals, and identified over 1,000 possible improvised explosive devices”⁵⁰. They protected countless coalition forces through the provision of intelligence and over-watch.

However, there is an over-dependence on aerial ISR. The use of aerial ISR must be reframed to ensure it is doing the right thing. “One morning, in the middle of the battle update briefing, McChrystal said, ‘Stop. The aircrew does not do BDA [Battle Damage Assessment]’ . . . McChrystal pointed out that BDA is the ground commanders’ business.”⁵¹ General McChrystal challenged once again the effective use of airpower. Ground commanders often resort to aerial BDA to minimize risks to ground forces but it provides no “ground truth”. In terms of legitimacy, if there are injured civilians, “it is far better to provide aid . . . versus having the local villagers make claims after the fact.”⁵²

ISR is a critical enabler for precision engagement, and HN integration into the intelligence cycle could pay huge dividends for intelligence fusion. Fusion is “the

⁴⁸ Department of National Defence, *Canadian Forces Aerospace Doctrine* . . . , 37.

⁴⁹ Schwartz, *Airpower in Counterinsurgency and Stability Operations* . . . , 129.

⁵⁰ *Ibid.*, 130.

⁵¹ Hoog, *Airpower over Afghanistan* . . . , 243.

⁵² *Ibid.*

blending of information from multiple sources into a coherent and understandable picture.”⁵³ For IW, it is important to understand the cultural dynamics across the battlespace. Air force intelligence staff should integrate HN officials in the intelligence cycle since these “imbedded personnel are more easily able to acquire unfiltered and current insights and interaction with HN counterpart.”⁵⁴ However difficult it may be to share sensitive information, allies must overcome the administrative and technical obstacles to gain informational superiority.

Furthermore, ISR capability could be used as a systematic empowerment tool to build partner capacity. Just as the RCAF is struggling to advance its Joint Unmanned Surveillance and Target Acquisition System (JUSTAS) project to address its capability deficiencies in ISR and targeting,⁵⁵ HNs are also denied this crucial air power capability and the associated developmental opportunities due to resource constraints.

ISR operations are often carried out by the most technologically sophisticated weapon systems, but there exists less expensive and easy-to-operate platforms with which HNs can train and operate to professionalize its air force where applicable. The importance of developing indigenous forces is highlighted by Colonel Jogerst’s vision that entire Air Force Wings should be dedicated to teach airpower employment to the HN.⁵⁶ He advocates using “a small complement of aircraft – not high or low tech but

⁵³ Department of National Defence, *Canadian Forces Aerospace Sense Doctrine* . . . , 14.

⁵⁴ United States Air Force, *Irregular Warfare: Air Force Doctrine Document 3-2* . . . , 34.

⁵⁵ The objective of the JUSTAS project is to acquire a weaponized UAS [Unmanned Aerial System] ISTAR [Intelligence Surveillance Target Acquisition Reconnaissance] capability to support CF domestic and international operation in the overland, maritime and arctic environments. RCAF, *Project Charter: Joint Unmanned Surveillance and Target Acquisition System (JUSTAS) Project C.001035* (Ottawa, DND, 2013), 3.

⁵⁶ John D. Jogerst, “Preparing for Irregular Warfare: The Future Ain’t What It Used to Be,” *Air & Space Power Journal* (Winter 2009): 75.

right tech for the particular countries” with considerations based on “capability, affordability, maintainability, and commonality with other nations.”⁵⁷

Most HNs cannot afford specialized and sophisticated air weapon systems, but it would be more practical to acquire affordable, reliable and rugged multi-purpose platforms. The U.S. 6th Special Operations Squadron who specialises in COIN favours the fixed wing Short Take-Off and Landing (STOL) platforms such as the Pilatus PC-6 Turbo Porter and the Basler BT-67.⁵⁸ These two platforms possess inherent versatility in that their airframes can be modified to accommodate ISR sensors and standoff weapon systems.

The coalition air forces cannot use conventional means alone for an irregular fight. It must help build partner capacity and legitimacy. It’s better to see indigenous air force operate adequately than to see coalition air forces execute flawlessly. There exists realistic opportunities for the coalition to help HNs develop ISR capabilities. Using the right technology to facilitate the development of indigenous air power capabilities such as ISR is an operational imperative. There may be instances where the HN does not have an air force; the inclusion of HN officials in the decision-making process, the targeting and intelligence cycle would also help gain legitimacy.

Air Mobility

Air mobility is another capability that could be readily harnessed by an indigenous air force. Like ISR, air mobility is instrumental in IW. “It is air mobility’s reach, speed, flexibility, and versatility that underpin the *Move* component of aerospace power.”⁵⁹ It

⁵⁷ Ibid.

⁵⁸ George H. Hock Jr., “Closing the Irregular Warfare Air Capability Gap: The Missing Puzzle Piece: Rugged Utility Aircraft and Personnel,” *Air & Space Power Journal* (Winter 2010): 64.

⁵⁹ Department of National Defence, *Canadian Forces Aerospace Doctrine . . .*, 43.

provides the reach essential for the projection of military power in contested area. Air mobility is “essential for infiltration, exfiltration and ongoing logistical support. In addition to this physical support, airlift provides important support for morale.”⁶⁰ The introduction of Chinook Helicopters CH147D for the RCAF in Afghanistan in 2009 helped mitigate the risk of IEDs to ground troops. Tactical airlift provided freedom of movement in the battlespace where ground lines of communications were often targeted by IEDs and suicide bombers.

Air mobility operations can also increase the HN’s capacity “to govern and administer otherwise inaccessible regions of the country”⁶¹, such as through humanitarian and medical outreach. The positive impact of the Afghan Air Force’s (AAF) rescue operation in the Kunar Valley floods in 2010 was a prime example. “The fact that nearby Taliban foot soldiers stood down while AAF helicopters conducted rescue operations reflects the impact of the missions.”⁶² The importance of air mobility is not lost within the coalition. The 2010 Quadrennial Defense Review Report tasked the USAF to “field light mobility and light attack aircraft in general purpose force units in order to increase their ability to work effectively with a wider range of partner air forces.”⁶³ Although the directive is clear, the USAF is struggling to commit resources to its IW strategy, i.e. “to be the light aviation advising, assisting, and training partner of choice for its foreign allies.”⁶⁴

⁶⁰ Glasson, *Big War Air Power for Small War Operations* . . . , 22.

⁶¹ United States Air Force, *Irregular Warfare: Air Force Doctrine Document 3-2* . . . , 36

⁶² Bernie Willi, “The Importance of Airpower in Supporting Irregular Warfare in Afghanistan,” *Air & Space Power Journal* 26, no.4 (July - August 2012): 111.

⁶³ U.S. Department of Defense, *Quadrennial Defense Review Report* (Washington, D.C.: Secretary of Defense, 2010), 29.

⁶⁴ United States Air Force, *United States Air Force Irregular Warfare Strategy* . . . , 13

The aforementioned STOL aircraft such as the Basler BT-67 or PC-6 Turbo Porter could be employed as multi-role ISR and air mobility platforms. They can access most of the same landing zones as a helicopter and boast greater reliability and versatility.⁶⁵ These relatively inexpensive platforms could be used by coalition advisors to train an indigenous air force to bolster the population's support for the HN. In the RCAF context, building HN capacity in air mobility as well as ISR is consistent with the RCAF *Reach* and *Integration* vectors to project power and interoperability.⁶⁶

Air Advisory

The most valuable resource of any organization is its personnel. The air advising capability is key to building HN capacity. "Air advisors are personnel who communicate professional knowledge and skills to HN aviation personnel in order to improve HN airpower capabilities."⁶⁷ A credible indigenous air force could provide security and the necessary service to its population. In addition to having the right weapons systems, its personnel must be trained in the tenets of air power. An air advisor group should include officers and non-commission members trained in IW but also in the tenets of airpower such as centralized control and decentralized execution, flexibility and versatility, synergistic effects, persistence, concentration, priority, and balance.⁶⁸ In the case of the Afghan National Army Air Corps, "they had persistently violated the tenet of centralized control by dispersing its forces to several regional ground commanders."⁶⁹ The requirement for professional air power training cannot be overstated.

⁶⁵ Hock, *Closing the Irregular Warfare Air Capability Gap* . . . , 64.

⁶⁶ Department of National Defence, *Air Force Vectors* . . . , 39

⁶⁷ United States Air Force, *Irregular Warfare: Air Force Doctrine Document 3-2* . . . , 19.

⁶⁸ Department of National Defence, *Canadian Forces Aerospace Doctrine* . . . , 28.

⁶⁹ Hock, *Closing the Irregular Warfare Air Capability Gap* . . . , 62.

The coalition has seen recent successes in an air advisory role. The RCAF has followed through on its *Integration* vector to train sixty Ukraine Armed Forces (UAF) officers; the second Ukraine Flight Safety Course (UFSC) was completed in February 2017 in L'viv.⁷⁰ Not only did the graduates receive a RCAF certificate of completion, they also attained the International Civil Aviation Organization (ICAO) aviation safety management standards, providing them with a solid foundation on establishing a modern aviation safety program.⁷¹ Performing air advisory within a coalition such as with the Ukraine Armed Forces requires significant coordination and resources; advising a HN in the IW context requires far more intangible resources.

Building HN capacity is a long term process. It requires mutual respect and time to build fruitful relationships. The short deployment rotations used for conventional operations cannot foster lasting relationship required of an effective FID. Colonel Jogerst suggests that coalition must implement long-term deployment and recurring deployments of the same cadre of trained coalition personnel.⁷²

Air advisory requires serious commitment but it is instrumental in building a legitimate HN government and should be considered as the core of any IW strategy. Air advisors are agents of change who serve to empower the indigenous air force by transferring the necessary knowledge and skill sets required to build an effective force.

⁷⁰ Royal Canadian Air Force, "RCAF completes flight safety training for second group of Ukrainian Officers," last modified 28 March 2017, <http://www.rcaf-arc.forces.gc.ca/en/article-template-standard.page?doc=rcaf-completes-flight-safety-training-for-second-group-of-ukrainian-officers/j0ts8jhb>

⁷¹ Ibid.

⁷² Jogerst, *Preparing for Irregular Warfare . . .*, 76.

The Challenge – What Does ‘Good’ Look Like?

The most challenging aspect in IW is the big military’s inability to reframe the problem to tailor their actions. It is human nature to repeat those activities which led to previous successes. Once the problem is identified and a plan is crafted, the metrics for success must be established to assess the effectiveness of the strategy. Coalition forces often lack the appropriate Measures of Effectiveness (MoE) in IW.

Doctrine, such as the CAF Operation Planning Process and the U.S. Joint Operation Planning discuss the importance of the use of MoE during planning and execution to assess progress.^{73, 74} However, traditional understanding of effectiveness may not be appropriate for IW. In order to ensure the right problem is being solved, Colonel Banach and Dr. Ryan from the School of Advanced Military Studies (SAMS) suggested that “Reframing” is required for planners and designers to let go of ideas that worked in the past and to challenge their situational understanding and focus on the new problem. Banach and Ryan defines *reframing* as “an intellectual activity to identify new opportunities and overcome obstacles to progress when interaction with the real world situation or new sources of information reveal issues with a current problem.”⁷⁵ Military institutions have strong motivations to reframe after failures, but there is a tendency to resist changes when recent operations had proven successful such as the initial stages of Operations IRAQI FREEDOM and ENDURING FREEDOM where decisive conventional battles were won.

⁷³ Department of National Defence, B-GJ-005-500/FP-000 *Canadian Forces Joint Publication 5.0 (CFJP 5.0) The Canadian Forces Operational Planning Process* (Ottawa: DND Canada, 2008). 2-2.

⁷⁴ A “Measure of Effectiveness” is a criterion used to assess changes in system behavior, capability, or operational environment that is tied to measuring the attainment of an end state, an objective, or the creation of an effect. It measures the relevance of actions being performed. Joint Chiefs of Staff, *Joint Operation Planning*, JP 5-0 (Washington D.C.: Joint Chiefs of Staff, 2011), xxiv.

⁷⁵ Stefan J. Banach and Alex Ryan, “The Art of Design: A Design Methodology,” *Military Review* (March-April 2009): 107. , 105-115, 107.

Whereas conventional warfare focuses on the numbers of aircraft sorties, numbers of enemy killed in action or key infrastructure destroyed to assess progress (as are reported by every theatre Daily Situation Report), the more appropriate measures for IW may be the number of missions led by the HN or the number of civilians seeking local government support or hours of electricity available. Indeed, there are criticisms with regards to the poor foundational understanding of what success means in IW. Security analysts James Clancy and Chuck Crossett posited that effective measures of effectiveness for IW should be reframed based on sustainability, legitimacy and stability as they had concluded that “military operations that counter the sustainment and legitimacy of the insurgents and support the stability of the general situation seem to be highly influential.”⁷⁶

The appropriate MoE will help identify and reinforce those activities which help set the conditions for success. Unless there is a true departure from the way the coalition thinks and fights the last war, irregular threats will continue to exhaust away all the well-intended but ineffective activities of the coalition.

RCAF Opportunities

There are opportunities in which the RCAF may explore to effectively engage in IW. As most of Canada’s remote region can only be accessible by air, there is a requirement for an air asset to provide the reach necessary for sovereignty operations. The aim of the Utility Transport Aircraft (UTA) project is to procure a fleet of aircraft (to replace the CC138 Twin Otter) to provide Canada with an effective utility transport

⁷⁶ James Clancy and Chuck Crossett, “Measuring Effectiveness in Irregular Warfare,” *Parameters: The US Army War College Quarterly* (Summer 2007): 96.

capability in remote and austere regions of Canada.⁷⁷ While it is not written in the current statement of requirement, the UTA project could expand the role of the selected platform to include IW. The project requirement for STOL remains applicable to austere conditions anywhere. Current UTA mandatory requirements stipulate a crew of four and two standard Ranger loads, austere capability to take-off and land from a 3,500ft austere runway, and a range of 1,533 km.⁷⁸ The reach and loiter time described by the project is comparable to the performance of the Pilatus and Basler aircraft mentioned previously. These characteristics are ideal for a multi-role ISR and mobility platform for training an indigenous air force in an irregular fight, not to mention its potential to provide the RCAF with an interim solution to enhance its ISR capabilities while the JUSTAS project experiences perpetual delays.

Of course, significant investment and time is required to transform a purely utility transport fleet into an ISR and mobility fleet for IW. Force development initiatives must be carefully considered using the Personnel, Research/Development, Infrastructure, Concepts, IM/IT, and Equipment (PRICIE) analysis framework.⁷⁹ However, a light and “right tech” platform suggested by the UTA project is a viable option worth investigating for IW. In addition to equipment, and most importantly, additional personnel is required in the establishment of an IW programme.

⁷⁷ Department of National Defence, *Statement of Requirement: Utility Transport Aircraft Project v.1.1* (Ottawa: DND, 2006), 6.

⁷⁸ *Ibid.*, 8.

⁷⁹ “PRICIE” is an acronym to describe the Canadian Forces functional components of capability. A complete analysis will examine all aspects of a capability including: personnel, leadership and individual training; research and development, and operational research; infrastructure, environment and organization; concepts, doctrine and collective training; information management and technology; and equipment and support. DND, B-GL-300-000/AG-001, *Designing Canada’s Army of Tomorrow* (Kingston: DND Canada, 2011), 36.

In the current context of Personnel Year (PY) neutrality, no personnel growth is expected within the RCAF regular force; a feasible way to develop a new body of expertise in IW is through the Reserve Force. The RCAF Reserve Strategy of 2025 is planning to grow the Air Reserves.⁸⁰ The Commander's intent is to create a construct that is more responsive to evolving operational needs.

The RCAF Air Reserve manning is not optimized. It currently has over 1,000 vacant positions with 500 vacant for more than three years.⁸¹ The RCAF Reserve Strategy 2025 is being implemented along five Lines of Operations (LOO): Governance, Establishment, Recruiting, Education and Build. Along the LOO 2 (Establishment), it plans on expanding the Air Reserve to include emerging areas; and in LOO 5 (Build), it strives to augment intake through Ab Initio enrollment into areas that will enhance RCAF's ability. One of the ways in which the Air Reserve can augment Ab Initio enrollment is to take advantage of the Canadian demographics, more specially the cultural diaspora in major cities (Toronto, Montreal and Vancouver)⁸². While Toronto and Montreal have significant military footprints, employment in Vancouver may be more problematic. In such cases, the RCAF could leverage off civilian aviation infrastructure to establish military force structure and capabilities, e.g. 412 (Transport) Squadron of 8 Wing Trenton operating out of Ottawa International Airport. Nonetheless, there exists opportunities to augment enrollment as well as to add cultural and language diversity in an air force gearing up for IW. However, to avoid piece-meal and

⁸⁰ Department of National Defence, *Release of RCAF Reserve Strategy 2025* (Ottawa: DND Canada, 2017), 1.

⁸¹ Heather Collins (LCol) and Ron Francis (LCol), "Introduction to Establishments", Air Reserve Training Session Presentation, 17th Wg, Winnipeg, 2-3 November 2016.

⁸² Chantal Fraser, "Diversity Recruiting: It's Time to Tip the Balance," *The Canadian Military Journal*, vol. 13, no. 4, last modified 14 July 2008, <http://www.journal.forces.gc.ca/vol13/no4/page25-eng.asp>

uncoordinated actions, the RCAF must first develop its own IW doctrine and strategy before considering its force posture and equipment for IW.

Conclusion

The conventional dominance of the coalition has forced the enemies to seek out irregular methods to challenge big military powers. The current security environment and the lessons learned from operations in Iraq and Afghanistan are signalling an increased frequency of IW. The threat of an ambiguous adversary unmeshed within a relevant population is a complex problem which necessitates a different type of military response. The air power characteristics such as speed, reach and precision will continue to provide the coalition the asymmetric advantage over lesser adversaries. The air forces of the west must continue to excel in precision attacks, mobility and ISR to gain the initiatives. However, the “warheads on foreheads” mentality cannot triumph in IW where the competition of legitimacy and the protection of civilians must shape the way battles are fought. The adverse impact of CIVCAS due to air strikes has significantly hampered the coalition’s effort to establish security and support of the population in past conflicts. Instead, the HN must be empowered to develop its governance and capabilities in order to garner the support of the populace. In addition to strikes, ISR and mobility, coalition air forces must also focus on advising and developing the HN. A credible and well-trained indigenous air force can engender legitimacy through the provision of security and services to its citizens. In cases where there are no indigenous air forces, the importance of HN involvement in the decision-making process or the targeting process could lend credence to legitimacy. Another avenue to enable the building of partner capabilities is through the adoption of the right technology such as a lower cost, rugged

STOL aircraft which can lower the barrier of entry for a HN to train and develop its air power capabilities. A low cost multi-role (ISR and mobility) STOL aircraft would provide the necessary intelligence, the reach and speed required to exert sovereignty in the HN.

In order to remain relevant and effective in responding to future challenges such as IW, coalition air forces such as the RCAF must remain agile to adapt to the ever changing operating environment. They must be a learning organization and be able to reframe the application of air power and choose the appropriate measures of effectiveness to ensure those well-intended activities contribute to the desired end state.

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