

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

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1. REPORT DATE (DD-MM-YYYY) 27-03-2023	2. REPORT TYPE FINAL	3. DATES COVERED (From - To) N/A
--------------------------------------------------	--------------------------------	--------------------------------------------

4. TITLE AND SUBTITLE Weaponizing ORM: Combating Taiwan Air Defense Operational Fatigue and Military Pilot Shortage through the International Military	5a. CONTRACT NUMBER N/A
	5b. GRANT NUMBER N/A
	5c. PROGRAM ELEMENT NUMBER N/A

6. AUTHOR(S) CDR Jonathan James Lushenko, USN	5d. PROJECT NUMBER N/A
	5e. TASK NUMBER N/A
	5f. WORK UNIT NUMBER N/A

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Writing & Teaching Excellence Center Naval War College 686 Cushing Road Newport, RI 02841-1207	8. PERFORMING ORGANIZATION REPORT NUMBER N/A
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9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A	10. SPONSOR/MONITOR'S ACRONYM(S) N/A
	11. SPONSOR/MONITOR'S REPORT NUMBER(S) N/A

12. DISTRIBUTION / AVAILABILITY STATEMENT
Distribution Statement A: Approved for public release; Distribution is unlimited.

13. SUPPLEMENTARY NOTES A paper submitted to the faculty of the NWC in partial satisfaction of the requirements of the curriculum. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.

14. ABSTRACT

The defense of Taiwan is a complex operational problem exacerbated by growing Chinese military capability and capacity. In particular, constant People's Liberation Army (PLA) Air Defense Identification Zone (ADIZ) infractions risk causing operational fatigue in the Taiwanese Air Force (TAF) due to the latter's shortage of military pilots. Applying principles of operational risk management, the United States Indo-Pacific Command (USINDOPACOM) should implement a Hoopoe Education-Aviation Readiness Training (HEART) Program under the auspices of the Department of State's International Military Education and Training Program to create a cadre of contracted combat-capable pilots (CCCP) comprised of volunteers from Western Pacific countries. The Taiwan Ministry of National Defense will assume responsibility for CCCPs following the completion of HEART Program training in America. The use of CCCPs to respond to PLA ADIZ incursions will help prevent TAF operational fatigue by assuming defensive counterair missions. The HEART Program is an innovative competition mechanism supporting U.S. policy and USINDOPACOM operational objectives.

15. SUBJECT TERMS (Key words)
Taiwanese Air Force, Hoopoe Education-Aviation Readiness Training (HEART) Program, Contracted Combat-Capable Pilots (CCCP), Air Defense Identification Zone (ADIZ), People's Liberation Army

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT N/A	18. NUMBER OF PAGES 12	19a. NAME OF RESPONSIBLE PERSON Director, Writing Center
a. REPORT UNCLASSIFIED	b. ABSTRACT UNCLASSIFIED	c. THIS PAGE UNCLASSIFIED			19b. TELEPHONE NUMBER (include area code) 401-841-6499

Weaponizing ORM:

**Combating Taiwan Air Defense Operational Fatigue and Military Pilot Shortage through
the International Military Education and Training Program**

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INTRODUCTION

In response to the United States (U.S.) Speaker of the House Nancy Pelosi's visit to Taiwan on August 2–3, 2022, the People's Republic of China (PRC) expressed displeasure through a torrent of nearly unprecedented military, diplomatic, and economic measures. This reaction has collectively been dubbed the Fourth Taiwan Strait Crisis.¹ The Fourth Taiwan Strait Crisis included an extraordinary display of the Chinese People's Liberation Army (PLA) capability and capacity spread across six exercise areas surrounding Taiwan. Moreover, the Fourth Taiwan Strait Crisis is the latest episode in an increasingly turbulent U.S. Indo-Pacific Command (USINDOPACOM) area of responsibility (AOR) characterized by American and Chinese competition below the level of armed conflict. U.S. and PRC competition is designed to achieve an asymmetric advantage in support of national interest.² At one end of the spectrum, the PRC, led by Chinese Communist Party (CCP) General Secretary Xi Jinping, has painstakingly developed and begun implementing a "great rejuvenation" grand strategy to "match or surpass U.S. global influence and power, displace U.S. alliance and security partnerships in the Indo-Pacific region, and revise the international order to be more advantageous to Beijing's authoritarian system and national interests."³ Known as the "Chinese Dream," this strategy includes a two-phase plan to achieve national rejuvenation—and reunification with disputed territories, including Taiwan—no later than the PRC centenary in 2049 through "systems of

¹ Bonny Lin, Brian Hart, Matthew P. Funaiolo, Samantha Lu, Hannah Price, and Nicholas Kaufman, "Tracking the Fourth Taiwan Strait Crisis," accessed August 20, 2022, <https://chinapower.csis.org/tracking-the-fourth-taiwan-strait-crisis/>. For an excellent review of the first three Taiwan Strait Crises see Bruce A. Elleman, *Taiwan's Offshore Islands: Pathway or Barrier?* (Newport, RI: Naval War College Press, 2019) and Bruce A. Elleman, *Taiwan Straits Standoff: 70 Years of PRC-Taiwan Cross-Strait Tensions*. (London, England: Anthem Press, 2022).

² See U.S. Office of the Chairman of the Joint Chiefs of Staff, *Joint Doctrine Note 1–19, Competition Continuum*, Chairman of the Joint Chiefs of Staff (3 June 2019) for a detailed review of the Competition Continuum.

³ U.S. Office of the Secretary of Defense, *Military and Security Developments Involving the People's Republic of China, 2021* (Washington, DC: Department of Defense, 3 November 2021): iii.

systems” warfare.⁴ On the other end of the spectrum, the U.S. seeks to maintain a “free and open” USINDOPACOM through shared values, interests, and mutual security that adheres to a rules-based international order.⁵ Consequently, American support of Taiwanese sovereignty codified in the Taiwan Relations Act of 1979 has become a microcosm in the struggle between revisionist authoritarianism and the liberal international order (LIO).⁶ Air power, in particular, is a visible representation of this struggle due to the increasingly frequent interactions of the Taiwan and PRC militaries in the air domain.

Unfortunately, PLA air power operationalized through relentless Taiwanese Air Defense Identification Zone (ADIZ) incursions creates an asymmetric PRC military advantage by causing operational fatigue within the Taiwanese Air Force (TAF). This is due to the latter’s shortage of military pilots.⁷ This situation complicates USINDOPACOM’s ability to enforce U.S. policy—“to resist any resort to force...that would jeopardize the security...of the people of Taiwan”⁸—at both the operational and theater-strategic levels of war. In short, USINDOPACOM risks losing

⁴ See U.S. Office of the Secretary of Defense, *Military and Security*, 1–4 concerning “Chinese Dream” and two-phase plan; See Jeffrey Engstrom, *Systems Confrontation and System Destruction Warfare: How the Chinese People's Liberation Army Seeks to Wage Modern Warfare* (Santa Monica, CA: Rand Corporation, 2018): 9 concerning “systems of systems.”

⁵ Loren Johnson, “USINDOPACOM Theater: Threat Overview” (Lecture presented at the Naval War College, Newport, RI, 10 August 2022).

⁶ See Michael J. Mazarr, et al., *Measuring the Health of the Liberal International Order* (Santa Monica, CA: RAND Corporation, 2017) for a detailed discussion of the Liberal International Order.

⁷ Cindy Wang, “Taiwan Faces Urgent Fighter Pilot Shortage as Xi Tests Defenses: Increasing warplane incursions near Taiwan risk leading to a broader US-China conflict,” Bloomberg, August 4, 2022, <https://www.bloomberg.com/news/articles/2022-08-04/taiwan-faces-urgent-fighter-pilot-shortage-as-xi-tests-defenses#xj4y7vzkg>. See also “Who will fly Taiwan’s fighter jets? Pilot shortage dire as PLA tests defences,” South China Morning Brief, August 5, 2022, <https://www.scmp.com/news/china/military/article/3187820/who-will-fly-taiwans-fighter-jets-pilot-shortage-dire-pla-tests> which identifies “insufficient training” due to operational tempo as a significant problem. See also Minnie Chan, “Taiwan’s F-16V crash signals pilot training and fatigue problems, analysts say,” South China Morning Post, January 13, 2022, <https://www.scmp.com/news/china/military/article/3163138/taiwans-f-16v-crash-signals-pilot-training-and-fatigue-problems>.

⁸ U.S. Congress, House 1979, Taiwan Relations Act, Public Law 96–8, 94th Congress (10 April 1979), <https://www.congress.gov/bills/96th-congress/house-bill/2479>.

the ability to achieve air control in a military conflict between Taiwan and the PRC if TAF operational fatigue and military pilot shortage remain unaddressed.

Control of the air includes air superiority and air supremacy.⁹ Both elements are important to successful combat operations, as evidenced by military operations from World War II (WWII) onward. Indeed, American military success at Guadalcanal in autumn 1942 and at the Battle of the Philippine Sea in summer 1944 resulted from superior U.S. pilot training and combat experience that is a matter of record.¹⁰ To prevent the TAF from sharing a fate similar to the Imperial Japanese Air Forces, USINDOPACOM should utilize all available means to increase TAF military pilot capacity in support of U.S. policy to defend Taiwan.¹¹ To that end, in concert with the U.S. Air Force Air Education and Training Command (AETC) and the U.S. Navy Naval Air Training Command (NATRACOM), USINDOPACOM should coordinate and lead the implementation of an American-based International Military Education and Training (IMET) aviation training program using ex-military pilots to mitigate the risk of TAF operational fatigue, which could notionally be called the Hoopoe Education-Aviation Readiness Training (HEART) Program.¹² This essay addresses this recommendation in two parts. Operational

⁹ U.S. Office of the Chairman, Joint Chiefs of Staff, *Joint Operations*, Joint Publication (JP) 3-0 (Washington, DC: CJCS, 3 June 2022): III-33. “Air superiority is the degree of control of the air by one force that permits the conduct of its operations at a given time and place without prohibitive interference from air and missile threats. Air supremacy is the degree of control of the air wherein the opposing force is incapable of effective interference within the OA using air and missile threats.”

¹⁰ See the following for a discussion of air power at the Battles of Guadalcanal and Philippine Sea: Samuel Eliot Morison, *History of the United States Naval Operations in World War II, Volume V, The Struggle for Guadalcanal: August 1942–February 1943* (Boston, MA: Little, Brown and Company, 1949), 138–139; Bradford A. Lee, “A Pivotal Campaign in a Peripheral Theatre: Guadalcanal and World War II in the Pacific,” in *Naval Power and Expeditionary Wars: Peripheral Campaigns and New Theatres of Naval Warfare*, eds. Elleman, Bruce A., and S. C. M. Paine (London: Routledge, 2010): 96; Samuel Eliot Morison, *History of the United States Naval Operations in World War II, Volume VIII, New Guinea and the Marianas: March 1944–August 1944* (Boston, MA: Little, Brown and Company, 1953), 235, 320–321; Douglas N. Hime, “The Philippines Campaign, 1944–45: A Case Study” (Newport, RI: U.S. Naval War College, Joint Military Operations Department, December 2013): 5, 12, 17.

¹¹ See David Brunnstrom and Trevor Hunnicutt, “Biden says U.S. forces would defend Taiwan in the event of a Chinese invasion,” Reuters, September 19, 2022, <https://www.reuters.com/world/biden-says-us-forces-would-defend-taiwan-event-chinese-invasion-2022-09-18/>.

¹² See Appendix B-1 for a notional HEART Program Organizational Chart.

fatigue and operational risk management (ORM) are discussed in Part I to help explain *why* this type of program is necessary. Part II focuses on *how* this proposed program will provide a force multiplier cadre of volunteer non-state-aligned contracted combat-capable pilots (CCCCP) responsible for Taiwan defensive counterair (DCA). Ultimately, the HEART Program will help deter PRC “new era” reunification efforts and support the USINDOPACOM’s Commander’s Intent to do “everything to ensure we are preventing conflict in the region.”¹³

PART I – WEAPONIZING OPERATIONAL RISK MANAGEMENT

International Military and Education Training

IMET is a Department of State (DOS)-funded program made law in 1976 as an amendment to the Foreign Assistance Act of 1961. The Foreign Assistance Act of 1961 gives the President the authority to “furnish military assistance, on such terms and conditions as he may determine, to any friendly country or international organization, the assisting of which the President finds will strengthen the security of the United States and promote world peace.”¹⁴ Consequently, IMET is designed to provide general and specialized military training and education to civilian and military personnel of foreign countries at schools within the U.S. and abroad that “would contribute to responsible defense resource management.”¹⁵ An October 2011 Government Accountability Office (GAO) report identified the three overarching objectives of the IMET Program as “strengthening recipient nations’ defense capabilities, professionalizing military forces, and increasing foreign militaries’ respect for democratic values and human

¹³ Ronn Blitzer and Jennifer Griffin, “US, allies send thousands of soldiers for Indo-Pacific military drills as China continues Taiwan aggression,” Yahoo News, August 17, 2022, <https://news.yahoo.com/us-allies-send-thousands-soldiers-184418349.html>.

¹⁴ U.S. Congress, House of Representatives and Senate, Committee on International Relations and Committee on Foreign Relations, “Legislation on Foreign Relations Through 2002,” Volume I-A of Volumes I-A and I-B, July 2003, 236, accessed August 20, 2022, <https://www.usaid.gov/sites/default/files/documents/1868/faa.pdf>.

¹⁵ U.S. Congress, House of Representatives and Senate, Committee on International Relations and Committee on Foreign Relations, “Legislation on Foreign Relations Through 2002,” 266, accessed August 20, 2022.

rights.”¹⁶ Moreover, the report specifically identified joint responsibility between DOS and the Department of Defense (DOD) for program management and administration.¹⁷ Indeed, the DOD frequently utilizes the IMET Program for a variety of reasons across many AORs. For instance, U.S. Africa Command proactively advertises the IMET Program as an effective means of achieving regional stability through enriching learning opportunities, including education on democracy, law, and human rights.¹⁸ In addition, both AETC and NATRACOM use IMET authorities to fund military pilot training for foreign countries such as Saudi Arabia, Pakistan, Italy, and Germany.¹⁹ Subsequently, an IMET aviation training program operationalizes the Taiwan Relations Act to provide Taiwan with military pilots to help prevent operational fatigue.

Operational Fatigue

Closely related to combat fatigue, operational fatigue results from cumulative events leading to “abnormal strains being placed on normal individuals.”²⁰ If left unaddressed, operational fatigue can lead to physical and emotional responses, including physical discomfort, fear, anxiety, apprehension, loss of concentration, and poor performance.²¹ Such responses erode

¹⁶ U.S. Government Accountability Office, “International Military Education and Training: Agencies Should Emphasize Human Rights Training and Improve Evaluations,” GAO-12-123, October 27, 2011, <https://www.gao.gov/products/gao-12-123>, 1.

¹⁷ U.S. Government Accountability Office, “International Military Education and Training: Agencies Should Emphasize Human Rights Training and Improve Evaluations,” 1.

¹⁸ U.S. Africa Command, “International Military Education and Training,” accessed August 20, 2022, <https://www.africom.mil/what-we-do/security-cooperation/international-military-and-education-training>.

¹⁹ See U.S. Congress, House of Representatives and Senate, Committee on International Relations and Committee on Foreign Relations, “Legislation on Foreign Relations Through 2002,” 268, accessed August 20, 2022, which identifies “United States flight training schools and programs (including test pilot schools) and comparable flight training schools and programs of foreign countries” as permissible. See also Jonathan Landay, “U.S. to resume military training program for Pakistan: State Department,” Reuters, December 19, 2019, <https://www.reuters.com/article/us-usa-pakistan/u-s-to-resume-military-training-program-for-pakistan-state-department-idUSKBN1YO03S?il=0> and Patricia Mazzei and Eric Schmidt, “Pentagon Restricts Training for Saudi Military Students,” New York Times, December 10, 2019. <https://www.nytimes.com/2019/12/10/us/pensacola-florida-shooting-saudi-students.html>. In addition, the author’s own military pilot training was drawn upon to support Italian and German pilot training in U.S. military aviation training schools.

²⁰ Lessing A. Kahn, “A Discussion of Some Causes of Operational Fatigue in the Army Air Forces,” *Psychological Bulletin* 44, no. 1 (1947): 34, <https://doi.org/10.1037/h0060975>.

²¹ Kahn, “A Discussion of Some Causes of Operational Fatigue in the Army Air Forces,” 36–39.

operational effectiveness and efficiency. The deliberate PLA strategic and operational approach to create TAF operational fatigue is evidenced by hard data and statistical analysis provided by the Taiwan Ministry of National Defense. For example, Figure A.1 shows that the PLA averaged flying nearly 100 aircraft per month into the Taiwan ADIZ between January and July 2022. This sustained tempo becomes more alarming when learning there was over a 150 percent increase in PLA incursions between 2020 and 2021, with 380 incursions occurring in 2020 and 960 incursions occurring in 2021.²²



Figure A.1 ADIZ Incursions (January–July 2022)

Source: <https://www.bloomberg.com/news/articles/2022-08-04/taiwan-faces-urgent-fighter-pilot-shortage-as-xi-tests-defenses#:~:text=Taiwan%20will%20need%20to%20add,by%20the%20Taiwan%20People%27s%20Party>

Compounding PLA ADIZ incursions is a serious lack of TAF military pilots. While the TAF is equipped with modern military aircraft due mainly to U.S. foreign military sales (FMS), it cannot currently train military pilots at a rate commensurate with aircraft acquisition. As illustrated in Figure A.2, it could take the Taiwan military as “many as 50 years at the current rate to train enough pilots to fill the cockpits of the jets they expect to get by the middle of this decade.”²³ A continued lack of TAF pilots presents USINDOCPACOM with theater-strategic

²² Wang, “Taiwan Faces Urgent Fighter Pilot Shortage as Xi Tests Defenses.”

²³ Wang, “Taiwan Faces Urgent Fighter Pilot Shortage as Xi Tests Defenses.”

and operational challenges the PLA enthusiastically exploits as part of a great rejuvenation and national reunification strategy that Xi Jinping says “cannot be halted.”²⁴ The HEART Program provides a principal means to combat PRC efforts to generate TAF operational fatigue by optimizing and weaponizing ORM in support of Taiwanese national defense and sovereignty.

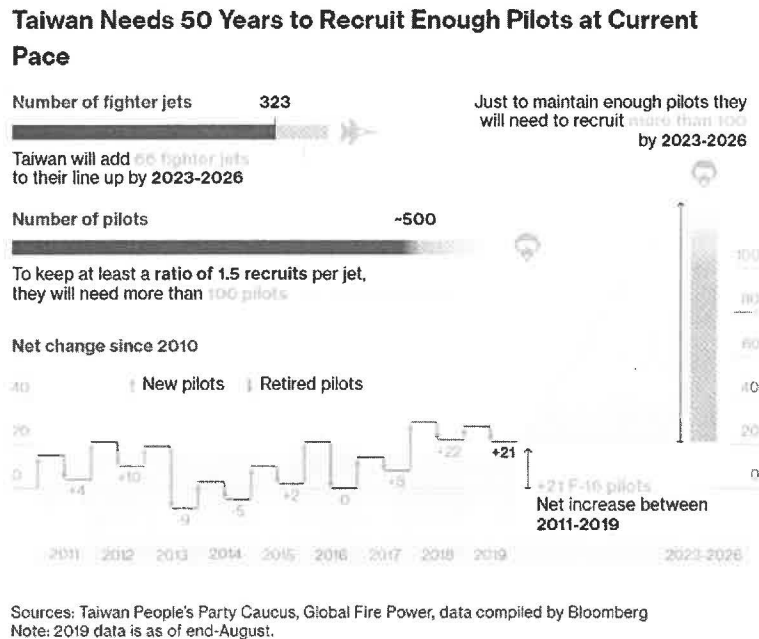


Figure A.2 Taiwan Military Pilot Training Shortfall

Source: <https://www.bloomberg.com/news/articles/2022-08-04/taiwan-faces-urgent-fighter-pilot-shortage-as-xi-tests-defenses#:~:text=Taiwan%20will%20need%20to%20add,by%20the%20Taiwan%20People%27s%20Party>

Operational Risk Management

ORM is a process-oriented, decision-making tool designed to manage risk through in-depth, deliberate, and time-critical analysis to increase the probability of mission success and efficiently utilize resources.²⁵ In effect, the HEART Program is an in-depth risk reduction

²⁴ Alex Millson, “China’s First White Paper on Taiwan Since Xi Came to Power — In Full,” Bloomberg, August 10, 2022, <https://www.bloomberg.com/news/articles/2022-08-10/china-s-first-white-paper-on-taiwan-since-xi-came-to-power-in-full#xj4y7vzkg>.

²⁵ Department of the Navy, Chief of Naval Operations, “Operational Risk Management,” OPNAVINST 3500.39D, March 29, 2018, 9, Enclosure (5), 3, <https://www.secnav.navy.mil/doni/Directives/03000%20Naval%20Operations%20and%20Readiness/03-500%20Training%20and%20Readiness%20Services/3500.39D.pdf>.

program that USINDOPACOM can use to mitigate the growing operational risk associated with Taiwanese air defense. A sustained shortage of TAF pilots increases risk by reducing pilot crew rest and increasing flight time beyond acceptable levels. TAF ability to adhere to crew rest requirements is an obvious challenge given relentless PLA ADIZ incursions. In the U.S., crew rest is the “non-duty time before a flight duty period begins...and must include an opportunity for 8 hours of uninterrupted sleep for every 24-hour period. Crew rest does not begin until after termination of official duties and is required prior to reporting for preflight preparations.”²⁶ Moreover, “If it becomes necessary to exceed the 18-hour rule, 15 hours of continuous off-duty time shall be provided prior to scheduling the member for any flight duties.”²⁷

PERIOD (DAYS)	SINGLE PILOTED AIRCRAFT	MULTI-PILOTED (PRESSURIZED) EJECTION SEAT AIRCRAFT	MULTI-PILOTED NON-PRESSURIZED AIRCRAFT	MULTI-PILOTED PRESSURIZED AIRCRAFT
1	6.5	12	12	12
7	30	50	50	50
30	65	80	100	120
90	165	200	265	320
365	595	720	960	1120

Figure A.3 Maximum Recommended Flight Time

Source: <https://www.cnatra.navy.mil/tw4/vt27/assets/docs/flight-planning/OPNAVINST-3710.7U.pdf>

Additionally, increased operational tempo and limited pilot availability drive higher flight time demands that can cause “profound physiological effect[s]” and exacerbate the inherent risk of flight operations.²⁸ This is especially true if the maximum flight time requirements shown in Figure A.3 are exceeded.²⁹ The TAF adheres to similar crew rest and maximum flight time standards as outlined in Taiwan Aircraft Flight Operations Regulations.³⁰ Understanding the

²⁶ Department of the Navy, Chief of Naval Operations, “NATOPS General and Flight Operating Instructions,” OPNAVINST 3710.7U, November 23, 2009, 8–15, <https://www.cnatra.navy.mil/tw4/vt27/assets/docs/flight-planning/OPNAVINST-3710.7U.pdf>.

²⁷ Department of the Navy, Chief of Naval Operations, “NATOPS General and Flight Operating Instructions,” 8–15.

²⁸ Department of the Navy, Chief of Naval Operations, “NATOPS General and Flight Operating Instructions,” 8–17.

²⁹ Department of the Navy, Chief of Naval Operations, “NATOPS General and Flight Operating Instructions,” 8–17.

³⁰ “Aircraft Flight Operations Regulations,” accessed September 30, 2022, <https://www.global-regulation.com/law/taiwan/9331007/aircraft-flight-operation-regulations.html>.

conceptual foundations of the HEART Program is the basis for informed discussion about implementation.

PART II – HEART PROGRAM IMPLEMENTATION

What is the HEART Program?

The HEART Program is envisioned as an American-based IMET aviation training program that utilizes existing AETC and NATRACOM infrastructure. The HEART acronym is emblematic and symbolic. The Eurasian Hoopoe depicted in Image 1 is a medium-sized and colorful bird native to Taiwan and other surrounding countries. The head of the Hoopoe is adorned with a crown of feathers that symbolizes the mission of the HEART Program to increase air defense capacity atop Taiwan through CCCPs. CCCPs allow the HEART Program to capitalize upon combat fighter aircraft experience to reduce time-to-train (TTT).



Image 1 Eurasian Hoopoe

Source: <https://www.liveanimalslist.com/birds/hoopoe-bird.php>

Training location and program matriculation are two essential program requirements for three reasons. First, AETC and NATRACOM are designed and organized to provide high-end aerial combat training through an established network of U.S. military training commands. For instance, NATRACOM comprises 17 training squadrons spread across five training wings that

graduated 1,122 pilots and Naval Flight Officers in 2021.³¹ Similarly, in Fiscal Year 2021, AETC graduated 1,350 pilots whose training was administered by ten wings and five groups.³² This training capacity is projected to increase in the coming years with a reduction in TTT afforded by Air Force and Navy flight training modernization programs incorporating competency-based training, cyclical learning, cohesive cohorts, and advanced technology.³³

Second, American-based military flight training locations are regularly utilized for advanced flight training of foreign military personnel. This utilization leverages the legal authorizations of the Foreign Assistance Act and the Taiwan Relations Act to provide a safe, controlled, and depressurized training environment far removed from the South China Sea (SCS). Moreover, a HEART Program conducted outside Taiwan prevents a false flag PRC retaliation against Taiwan due to a perceived territorial invasion.

Third, a cadre of CCCPs comprised of volunteers from Western Pacific countries is a critical element of the HEART Program since the PRC seeks “compelling circumstances” to justify reunification as a “guard against [American] interference and separatist activities.”³⁴ Strategic communication and messaging considerations such as CCCP multilateral Western Pacific regional diversity are crucial on the modern battlefield increasingly dominated by grey

³¹ Chief of Naval Aviation Training, “Mission,” accessed August 20, 2022, <https://www.cnatra.navy.mil/mission.asp>.

³² Stephen Losey, “The Air Force Is Still Short on Pilots and Hopes Tech Will Help Close the Gap,” *Military Times*, September 20, 2021, <https://www.military.com/daily-news/2021/09/20/air-force-still-short-pilots-and-hopes-tech-will-help-close-gap.html>; Air Education and Training Command, “AETC Snapshot,” accessed September 19, 2022, https://www.aetc.af.mil/Portals/88/Snapshot%202020/AETC%20Snapshot%20FY21_Final%20edit%20July%2022_updated.pdf.

³³ Todd Seech and Michael Natali, “Naval Aviation Training Next: The Modernization of Flight Instruction.” *Future Force* 8, no. 2 (2022): 8–13.

³⁴ See Helen Davidson, “China halts military drills around Taiwan but ‘war preparation’ continues,” *The Guardian*, August 10, 2022, <https://www.theguardian.com/world/2022/aug/10/china-halts-military-drills-around-taiwan-but-war-preparation-continues> concerning “external interference.” See Millson, “China’s First White Paper on Taiwan Since Xi Came to Power — In Full” concerning “compelling circumstances.” In the third PRC White Paper on Taiwan, and concomitantly the first under Xi Jinping, the words interference and separatist appear 14 and 20 times, respectively.

zone warfare.

Grey zone warfare is defined as “an operational space between peace and war, involving coercive actions to change the status quo below a threshold that, in most cases, would prompt a conventional military response, often by blurring the line between military and nonmilitary actions and the attribution for events.”³⁵ Russia, for example, employed “little green men” during the annexation of the Crimean Peninsula in 2014. Russian President Vladimir Putin’s characterization of these disguised soldiers as “self-defence groups”³⁶ sought to exploit grey zone warfare for operational and strategic advantage.

China, too, employs gray zone warfare with surprising effect, utilizing military intimidation, paramilitary activities, information operations, legal and diplomatic measures, and economic coercion to help achieve desired end states, as described in a 2019 RAND report.³⁷ In order to successfully defend Taiwan from PRC unification efforts that exploit competition below the level of armed conflict and grey zone warfare, the U.S. should proactively seek opportunity to operate in the grey zone “to gain strategic advantage.”³⁸ American-trained and Taiwan-employed CCCPs represent an easily implemented and innovative grey zone competition mechanism to gain the initiative in support of operational and theater-strategic objectives.

CCCP Operational Employment – Defensive Counterair

CCCPs will fulfill a non-state military DCA role to close the gap between Taiwan and

³⁵ Lyle J. Morris, Michael J. Mazarr, Jeffrey W. Hornung, Stephanie Pezard, Anika Binnendijk, and Marta Kepe, *Gaining Competitive Advantage in the Gray Zone: Response Options for Coercive Aggression Below the Threshold of Major War* (Santa Monica, CA: RAND Corporation, 2019): 8, https://www.rand.org/pubs/research_reports/RR2942.html.

³⁶ Vitaly Shevchenko, “‘Little green men’ or ‘Russian invaders’?” BBC News, March 11, 2014, <https://www.bbc.com/news/world-europe-26532154>.

³⁷ Morris, Mazarr, Hornung, Pezard, Binnendijk, and Kepe, *Gaining Competitive Advantage in the Gray Zone*, 27–41.

³⁸ Morris, Mazarr, Hornung, Pezard, Binnendijk, and Kepe, *Gaining Competitive Advantage in the Gray Zone*, xiii.

PRC military capacity exacerbated by a growing imbalance in defense spending, as shown in Figure A.4. Taiwan, for instance, has maintained a consistent level of defense spending for the previous 31 years, averaging approximately 11.9 billion U.S. dollars (USD) per year. On the other hand, the PRC has exponentially grown defense spending from a low point of 21.8 billion USD in 1990 to an all-time high of 270 billion USD in 2021.³⁹

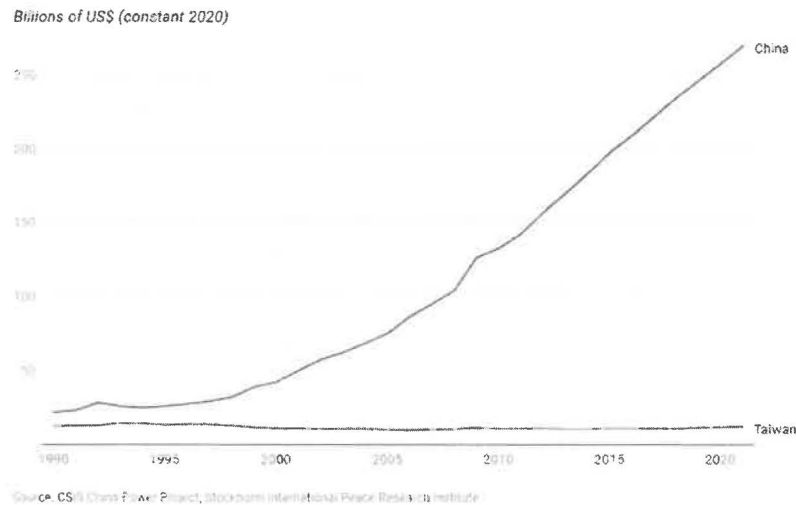


Figure A.4 China vs. Taiwan Defense Spending

Source: <https://chinapower.csis.org/tracking-the-fourth-taiwan-strait-crisis/>

This 170 percent defense spending disparity is concerning and, despite U.S. FMS and planned military aid, will only increase since the CCP is determined to make the PRC a “global leader in terms of comprehensive national strength and international influence” during the 2035 to 2049 timeframe.⁴⁰ Consequently, a static Taiwan defense budget coupled with a continued military pilot shortage is a recipe for disaster.

Furthermore, theater-specific geometry places Taiwan in a precarious position. The close-proximity PRC exterior position supports converging lines of operation along an oblique

³⁹ Lin, Hart, Funaiolo, Lu, Price, and Kaufman, “Tracking the Fourth Taiwan Strait Crisis.”

⁴⁰ See U.S. Office of the Secretary of Defense, *Military and Security*, 4 concerning “global leader;” Bryant Harris, “Senate Advances \$6.5 billion Taiwan military aid bill,” *Defense News*, September 14, 2022. <https://www.defensenews.com/congress/2022/09/14/senate-advances-65-billion-taiwan-military-aid-bill/> concerning planned military aid.

straight-line base of operations.⁴¹ This military topography greatly complicates air defense. For example, in an August 2022 Taiwan war game conducted at the Center for Strategic and International Studies in Washington, D.C., the U.S. lost over 700 aircraft during a three-week conflict against China.⁴² This stark figure compels greater TAF capacity to unilaterally withstand PLA air assault in the INDOPACOM AOR since time-force and space-force challenges will likely prevent a quick U.S. response.

Operationally utilizing CCCPs for DCA will allow the TAF to aggressively engage PLA aircraft at a distance and alter the time-force and space-force imbalance that currently favors China. The mission of DCA is to “defend friendly lines of communication, protect friendly forces and assets by denying the enemy the freedom to carry out offensive attacks from the air, and provide a secure area from which all elements of the joint force can operate effectively. DCA operations can be conducted in conjunction with or independent of [offensive counterair] operations.”⁴³

Using CCCPs for DCA to achieve at least air parity with the PLA is not improbable since the “force-to-space ratio is changeable. It is highly dependent on, among other things, the quality of the leaders, weapons, equipment, and doctrine; the training of one’s forces; air superiority; the characteristics of the terrain; and the security in the rear operating area.”⁴⁴ In short, CCCPs will

⁴¹ Milan Vego, “Joint Operational Warfare, Theory and Practice,” Newport, RI: Naval War College, reprint, 2009, Part III, “Theater Geometry,” IV–52.

⁴² Todd South, “In think tank’s Taiwan war game, US beats China at high cost,” Yahoo News, August 12, 2022, <https://news.yahoo.com/think-tank-taiwan-war-game-185802323.html>.

⁴³ U.S. Air Force, “Counterair Operations,” Air Force Doctrine Publication 3-01 Counterair Operations, September 6, 2019, 29, https://www.doctrine.af.mil/Portals/61/documents/AFDP_3-01/3-01-AFDP-COUNTERAIR.pdf.

⁴⁴ Milan Vego, “Joint Operational Warfare, Theory and Practice,” Newport, RI: Naval War College, reprint, 2009, Part III, “Operational Factors,” III–52. See also U.S. Airforce, “Counterair Operations,” 5, which defines air parity as “as a condition in which no force has control of the air. This represents a situation in which both friendly and adversary land, maritime, and air operations may encounter significant interference by the opposing force. Parity is not a standoff, nor does it mean aerial maneuver or ballistic missile operations have halted. On the contrary, parity may be typified by fleeting, intensely contested battles at critical points during an operation with maximum effort exerted between combatants in their attempt to achieve some level of favorable control.”

increase Taiwan's available air combat potential, complicate PLA air combat operations, and compel the PRC to rethink the Chinese Dream feasibility.

Economy of Force

CCCPs are a means to conduct competition below the level of armed conflict and in the grey zone to solve a complex operational problem through an economy of force. Economy of force is "the judicious employment and distribution of forces to achieve campaign objectives."⁴⁵ It is absolutely essential for operational commanders to optimize available forces in resource-constrained environments where adversaries possess geostrategic and total force advantages. Ironically, CCCPs will fulfill a role eerily similar to that of the Flying Tigers during WWII. The Flying Tigers was an American Volunteer Group that helped defend China from Japanese invasion. Similar contemporary examples exist. Some American military veterans, for instance, have volunteered to fight alongside the Ukrainian military forces following Russia's invasion of Ukraine in February 2022.⁴⁶

Likewise, in an example portending the utility of the HEART Program, retired U.S. A-10 pilots have been clandestinely training a group of Ukrainian pilots since May 2022 to fly the A-10 using advanced flight simulators like those utilized by AETC and NATRACOM.⁴⁷ Additionally, the Constellis family of companies, including the former Blackwater private military contracting company, Academi, is actively employed by the U.S. government and other countries for various missions. Some of these missions include national security and critical infrastructure protection, command center operations, high consequence protection, and risk,

⁴⁵ U.S. Office of the Chairman, Joint Chiefs of Staff, *Joint Operations*, Joint Publication (JP) 5-0 (Washington, DC: CJCS, 1 December 2020): xxvi.

⁴⁶ Helen Britzky, "What Russia's capture of US vets means for Americans fighting in Ukraine," Task and Purpose, June 23, 2022, <https://taskandpurpose.com/news/russia-capture-us-veterans-ukraine/>.

⁴⁷ Brian Bennett, "Exclusive: Inside Ukraine's Secret Effort to Train Pilots for U.S. Fighter Jets," Time, August 19, 2022, <https://www.msn.com/en-us/news/world/exclusive-inside-ukraine-e2-80-99s-secret-effort-to-train-pilots-for-us-fighter-jets/ar-AA10QzPL>.

crisis and resilience services.⁴⁸

As all these examples demonstrate, the contemporary battlespace is full of complex operational problems necessitating innovative economy of force competition mechanisms. Generating a cadre of volunteer CCCPs through the HEART Program is one such mechanism that USINDOPACOM can leverage to raise the cost of PRC unification efforts.

COUNTERARGUMENT

Some members of the national security establishment may argue that an IMET-funded HEART Program is implausible due to cost, aviation TTT, lack of post-training regulatory oversight, and the threat of aggressive PRC response. Each of these counterarguments has merit.

Cost, for instance, is a perennial issue stemming from competing requirements and limited financial resources. Indeed, an additional IMET funding requirement could further strain the limited DOS budget, which has been reduced by more than half since 1984.⁴⁹

Like cost, time is another resource in short supply given the urgency of fielding competition mechanisms to combat PRC authoritarian drive to control the SCS. In particular, proponents of this counterargument will undoubtedly point to aviation TTT as a constraining factor since training CCCPs could impede U.S. military aviation training goals. This argument is grounded in data. For instance, it takes on average four and a half years to fully train a U.S. F/A-18 Hornet strike fighter pilot.⁵⁰

More importantly, some opponents to an IMET-funded HEART Program may express concern over the lack of post-training regulatory oversight. Undeniably, the U.S. does have a “controversial history of helping to train foreign military personnel at the infamous School of the

⁴⁸ “Constellis,” accessed August 20, 2022, <https://www.constellis.com/>.

⁴⁹ Barry R. Posen and Andrew L. Ross, “Competing Visions for U.S. Grand Strategy,” *International Security* 21, no. 3 (1996): 48, <https://doi.org/10.2307/2539272>.

⁵⁰ Seech and Natali, “Naval Aviation Training Next”: 10.

Americas (SOA), some of whom went on to commit human rights abuses in their home countries.”⁵¹

Finally, unpredictable PRC response to CCCP operational employment in Taiwan is a genuine cause for concern and apprehension since the SCS is a highly volatile tinderbox of overlapping sovereignty claims.

REBUTTAL

These counterarguments notwithstanding, an IMET-funded HEART Program is worth pursuing since the benefits outweigh the costs and provide USINDOPACOM with a competition mechanism easily implemented. While cost is always a factor, it is reduced through the use of existing AETC and NATRACOM infrastructure that is well-established and tested. Moreover, and a rebuttal to the TTT counterargument, is the advent of Pilot Training Next programs that the Air Force and Navy are currently employing to increase aviation training capacity. The Air Force, for instance, has implemented an Accelerated Path to Wings Program that is designed to reduce undergraduate flight training from a year to nine or ten months.⁵² Plus, the HEART Program is specifically designed for military pilots with combat fighter aircraft experience. Because of this, aviation TTT is of minimal concern. Similarly, due to the special nature of the U.S. and Taiwan relationship, in which both countries support and defend the LIO, IMET post-regulatory oversight concerns are also lessened since the mission of CCCPs is not easily replicated in other environments without access to highly-advanced combat aircraft. This control reduces the chance for a repeat of human rights abuses perpetrated by SOA graduates in the past.

Most importantly, we must not allow ourselves to fall victim to fear of PRC response

⁵¹ “International Military Education & Training (IMET),” AllGov: Everything Our Government Really Does, accessed August 20, 2002, <http://www.allgov.com/departments/department-of-defense/international-military-education-training-imet?agencyid=7378>.

⁵² Losey, “The Air Force Is Still Short on Pilots and Hopes Tech Will Help Close the Gap.”

since our ability to maintain a free and open Western Pacific hinges upon initiative, freedom of maneuver, and operational fires. HEART-trained CCCPs enable these three factors and provide a unique operational approach to bolster the defense of Taiwan.

CONCLUSION

The defense of Taiwan is a microcosm of contemporary warfare. Traditional conventional warfare methods no longer satisfy complex operational objectives challenged by competition below the level of armed conflict and grey zone warfare. Deliberate PRC attempts to produce TAF operational fatigue and strain Taiwan's air defense capacity through continuous ADIZ incursions demand an innovative and sustainable operational approach to mitigate risk.

The HEART Program fulfills this need through in-depth ORM by leveraging existing U.S. aviation training infrastructure to produce a cadre of non-state-aligned CCCPs. CCCPs will increase the number of Taiwan military pilots available for the defense of Taiwan and circumvent PRC false flag operations used to justify an invasion. This competition mechanism improves Taiwan's air combat operational flexibility and provides USINDOPACOM with more options at the theater-strategic and operational level of war.

Economy of force benefits derived from CCCPs justifies the risk of a negative PRC response since there are currently no other options to address Taiwanese air defense operational fatigue and military pilot shortage beyond an increase in U.S. military aid and FMS. Moreover, well-communicated Chinese Dream timelines demand easily implemented USINDOPACOM operational response options addressing SCS time-force and space-force challenges. All the components exist for the HEART Program to take flight and help deter PRC "new era" reunification efforts. Implementation, on the other hand, is a matter of choice. Nevertheless, implementing the HEART Program is the obvious choice since it supports a free and open

Pacific and the Taiwan Relations Act.

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APPENDIX A**ACRONYMS**

ADIZ	Air Defense Identification Zone
AETC	Air Education and Training Command
AOR	Area of Responsibility
CCCP	Contracted Combat-Capable Pilots
CCP	Chinese Communist Party
DCA	Defensive Counterair
DOS	Department of State
DOD	Department of Defense
FMS	Foreign Military Sales
GAO	Government Accountability Office
HEART	Hoopoe Education-Aviation Readiness Training Program
IMET	International Military Education and Training
LIO	Liberal International Order
NATRACOM	Naval Air Training Command
ORM	Operational Risk Management
PLA	People's Liberation Army
PRC	People's Republic of China
RAND	Research and Development
SCS	South China Sea
SOA	School of the Americas
TAF	Taiwanese Air Force
TTT	Time-to-train
USINDOPACOM	U.S. Indo-Pacific Command
WWII	World War II

APPENDIX B

HEART PROGRAM ORGANIZATIONAL CHART

