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ELSA B. KANIA AND IAN BURNS McCASLIN

# THE PLA'S EVOLVING OUTLOOK ON URBAN WARFARE: LEARNING, TRAINING, AND IMPLICATIONS FOR TAIWAN



MILITARY LEARNING AND  
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Cover: High angle view of illuminated city buildings at night in Taipei. Photo: Adina Olteanu // Getty Images

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# THE PLA'S EVOLVING OUTLOOK ON URBAN WARFARE

## Learning, Training, and Implications for Taiwan

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## Executive Summary

The People's Liberation Army (PLA) has been increasing its study, training, and preparation for future urban warfare over the past decade. The PLA has limited experience with urban warfare and so often relies on observations of other militaries to inform its outlook. Among the drivers for this interest in urban warfare is that any Chinese campaign to force “(re)unification” with Taiwan could involve intense fighting in Taiwanese cities.<sup>1</sup> The current edition of the *Science of Military Strategy* mentions an urban offensive (城市进攻) as a component of island operations (岛上作战) but does not elaborate on the conduct of such an offensive, likely because of the sensitivity of this scenario.<sup>2</sup> This campaign could present a particular challenge, given that over 90 percent of Taiwan's population lives in cities.<sup>3</sup> Beyond the possibility of invading Taiwan, the Chinese Communist Party (CCP) is also concerned about terrorist threats, whether real and imagined, within China's cities or against the security of Chinese citizens and businesses worldwide.<sup>4</sup> Meanwhile, the conduct of urban counterterrorism has become the focus of several exercises and exchanges undertaken by the PLA and the People's Armed Police (PAP).<sup>5</sup>

The PLA's outlook on urban warfare has informed its efforts to introduce new tactics, training, and weapons systems. The continuation or potential acceleration of efforts on these fronts could be critical indicators of its progress toward fulfilling CCP objectives in military modernization, including those targeted against Taiwan. While attacks on cities have been difficult throughout history, modern urban warfare has proven uniquely challenging for even the most powerful militaries. Such operations can be costly, lengthy, and bloody while negatively impacting morale at home and prestige abroad. Chinese military discourse often describes urban warfare as “battling<sup>6</sup> rats in a china shop” (在瓷器店中打老鼠).<sup>7</sup> The complex environment allows adversary combatants to hide among civilians and creates high risks for collateral damage.<sup>8</sup> Fighting in urban terrain inherently benefits defenders or insurgents who operate asymmetrically or can exploit an opponent's aversion to causing collateral damage.

Within the past decade, the PLA has constructed specialized training facilities to simulate operations in urban environments and undertaken exercises that have contributed to establishing baseline proficiency in this style of combat. If China were to invade Taiwan, beyond the initial amphibious operations, the PLA would be confronted with considerable challenges, including considerations of public opinion and international legitimization.

The success of such a campaign could depend upon the PLA's capacity not only to counter potential American intervention but also to seize effective control across Taiwan quickly enough to enable a *fait accompli* that would be difficult to reverse. To that end, the PLA's training exercises in urban warfare, especially by the Eastern Theater Command (ETC), have aimed to enhance the credibility of such capabilities while also advancing aims of coercive signaling. The PLA's capacity to engage effectively in urban warfare at scale is an important benchmark for evaluating its prospects of using force to realize control of Taiwan.

Urban battlefields have often featured new technologies and necessitated the development of novel capabilities. The growing prevalence in urban combat of unmanned aerial and ground systems—drones—is a recent example of that trend. These systems can improve intelligence support at the tactical level, lessen the risks faced by troops, and facilitate the targeting of other weapon systems. The PLA's avid interest in drones that could become more “intelligent” and autonomous in their operations reflects its belief that US, Russian, and Israeli military operations have already proven the efficacy of drones in urban combat. The complexity of the urban environment means that the PLA's preparations for urban warfare will test the utility and reliability of its drone capabilities, as well as its other advanced technologies, and serve as a benchmark



for the PLA's progress toward "military intelligence" (智能化).

This report explores the PLA's history with urban warfare and considers several lessons from the PLA's study of other militaries' operations. Our analysis examines the PLA's outlook on new technologies and emerging capabilities for future urban warfare, discusses several relevant weapon systems and capabilities that the PLA is pursuing, and evaluates the training and recent exercises through which the PLA is seeking to improve its proficiency in urban

warfare. This report concludes by raising questions for future research and includes several recommendations and considerations for US and Taiwanese policy responses. The US military can look to leverage lessons learned from its conflicts over the past twenty years and explore options to contribute to Taiwan's capabilities for robust defense and resistance within its cities. The PLA's progress in preparing for urban warfare will merit continued analytic attention; an improved understanding of these dynamics could inform US and Taiwanese initiatives to bolster deterrence.

### Select Acronyms

AMS	Academy of Military Science
CMC	Central Military Commission
CCP	Chinese Communist Party
EDD	Equipment Development Department
ETC	Eastern Theater Command
KMT	Kuomintang (Guomindang)
MCF	military-civil fusion
NORINCO	China North Industries Group Corporation Ltd.
OPFOR	opposition force
PAP	People's Armed Police
PLA	People's Liberation Army
PLAA	PLA Army (Ground Force)
PLAAF	PLA Air Force
PLAN	PLA Navy
PLANMC	PLAN Marine Corps

PLASAF	PLA Second Artillery Force (now Rocket Force)
PRC	People's Republic of China
PVA	Chinese People's Volunteer Army
ROC	"Resistance Operating Concept"
RMA	Revolution in Military Affairs
SCO	Shanghai Cooperation Organization
SOCEUR	Special Operations Command Europe
SOC PAC	Special Operations Command Pacific
SOF	Special Operations Forces
S&TC	(CMC) Science and Technology Commission
UAV	unmanned aerial vehicle
UGV	unmanned ground vehicle

## Introduction

“The worst policy is to attack cities. Attack cities only when there is no alternative.”  
— Sun Tzu, *The Art of War*<sup>9</sup>

Cities have been decisive battlefields throughout history. The loss or capture of a strategically significant city often heralds a major shift in the balance between a war's combatants. During the Chinese Civil War, the Red Army, the precursor to the modern Chinese People's Liberation Army (PLA), seized the initiative against the military forces of the Nationalists or *Guomindang* (KMT) in several decisive urban battles. Those victories contributed to the ultimate victory of the Chinese

Communist Party (CCP). In an era of dramatic and accelerating urbanization, militaries worldwide are concerned with and preparing for battles waged on urban terrain.

Fighting in cities has been described, initially by RAND, as “combat in hell,” a characterization repeated in Chinese writings on the topic.<sup>10</sup> Beijing is also concerned with building its ability to conduct “counterterrorism operations” against threats in urban environments. Perhaps most consequentially, the PLA has recognized proficiency in fighting in cities could prove important in a future conflict targeting Taiwan.

## Urban Warfare in CCP History

“... any KMT city has no way to escape the attacks of the People's Liberation Army.” — Xinhua Editorial approved by Mao Zedong on “Celebrating the Great Victory of the Liberation of Jinan” in Xinhua, 1948<sup>11</sup>

Cities have been critical centers of gravity in conflicts throughout history, and urban terrain often becomes the stage on which new tactics and technologies are tested in warfare. In more-ancient history, battles over cities often hinged upon the strength of their fortifications, which allowed for a defensive advantage in battles that date back to the Song and Yuan dynasties.<sup>12</sup> The siege and capture of Kaifeng, the capital of the Northern Song dynasty, in 1126 BCE was an inflection point of the era and marked milestone in military technology as one of the earliest instances of gunpowder being used in warfare.<sup>13</sup> Centuries thereafter, Qing dynasty campaigns to suppress the Taiping rebellion featured the introduction of modern firearms, as well as cannons, which improved the dynasty's firepower and enabled its forces to overcome rebel defenses.<sup>14</sup> During

World War II, campaigns targeting major cities, including Shanghai, involved modern airpower and had devastating impacts on civilian populations.<sup>15</sup>

While often closely associated with the countryside, the founding and formative experiences of the Red Army, the predecessor to the PLA, actually occurred within the forge of major battles fought for and in China's cities. The CCP's victory over the KMT in the Chinese Civil War was enabled by its capacity to seize and hold key cities. As this history illustrates, urban warfare presents daunting challenges for any military and often demands significant adaptations in tactics and structure. The necessity of technological and organizational adaptations contributed to the PLA's evolution from its origins as the CCP's Red Army. The legacies of certain decisive battles and campaigns of the Chinese Civil War appear to remain resonant and continue to be invoked in patriotic propaganda and to promote nationalism to this day. This section will review a series of key moments in the PLA's history with urban warfare.

## MILESTONES IN THE CCP'S HISTORY WITH URBAN WARFARE

- 1927: The Red Army, the precursor to the PLA, is created on August 1 through the Nanchang Uprising in the city of the same name.
- 1946–1948: After early failures in cities, the Red Army trains in the northeast to conduct urban warfare with more success and consistency.
- 1948: In CCP history, the Battle of Jinan in September marks a decisive victory that the CCP commemorates for creating the momentum that led to its eventual success against the KMT.
- 1948–1949: Across three critical campaigns, the Liaoshen Campaign, the Huaihai Campaign, and the Pingjin Campaign, the PLA captures major towns, cities, and industrial resources, marking the beginning of the end of the Chinese Civil War.
- 1950–1951: During the Battle of Seoul, Communist forces, including the Chinese People's Volunteer Army (PVA), capture the South Korean capital, lose it, and then fail to re-capture it.
- 1979: During China's invasion of Vietnam, the PLA undertakes a series of skirmishes in cities, including an assault on Lang Son, a key provincial capital.

## The Chinese Civil War

The founding of the Red Army was the outcome of a military action centered upon a city: the Nanchang Uprising on August 1, 1927, a date commemorated by the PLA to this day.<sup>16</sup> The Nanchang Uprising occurred through subversion: Nationalist units that had secretly joined with the Communists revealed their true allegiance, taking control of Nanchang with approximately 30,000 troops.<sup>17</sup> However, this first CCP soviet was short-lived and collapsed three days later.<sup>18</sup> In the next month, the CCP captured the port city of Swatow, but their forces were forced to flee after occupying it for only six days.<sup>19</sup> At that point, deaths and desertions had reduced the force by nearly two-thirds; their numbers continued to diminish.<sup>20</sup> As the civil war continued, the Red Army would be forced to confront its shortcomings as a force that favored guerilla warfare and failed repeatedly to win critical battles on vital urban terrain.<sup>21</sup> From 1927-1930, the Red Army was often reduced to raiding urban areas to kill local leaders and looting to gain supplies, behavior at odds with efforts to win support in urban areas.<sup>22</sup> The CCP's major issues during its first few years of military activity included poor support from the local populace and the lack of an organizational structure capable of managing urban operations.<sup>23</sup> These early urban debacles contributed to a shift in the CCP's focus to rural areas and the peasantry, a shift overseen by Mao Zedong.<sup>24</sup>

The CCP's eventual remedying of its urban warfare shortcomings was critical to its later triumph over the KMT. When the Chinese Civil War reignited after the conclusion of World War II, while the United States attempted to negotiate a peace deal and coalition government between the two combatants, the CCP attempted to achieve an advantage in negotiations through success on the battlefield.<sup>25</sup> This strategy, which involved assaulting towns and cities that were Nationalist strongholds, achieved only limited success.<sup>26</sup> Realizing the necessity of adaptation, the Red Army in China's northeast was forced to become an "army of learning," as one prominent historian of the era characterized its efforts at the time.<sup>27</sup>

The Red Army pursued new initiatives in training that improved its ability to take and hold cities. For example, under the leadership of Lin Biao, one of the Chinese Communists' top military leaders, a number of the CCP's military schools combined to create a military academy that also conducted research. Lin Biao's headquarters drew up tactical principles for urban warfare while bringing in experienced officers to discuss and analyze prior battles to inform training.<sup>28</sup> Lin Biao's forces in the northeast engaged in extensive training that used already-captured urban areas as *de facto* training facilities.<sup>29</sup> These efforts improved their ability to construct defensive works, demolish enemy emplacements, and, perhaps most importantly, operate as small units.<sup>30</sup> The Red Army changed the structure, composition, and employment of small units, which enabled its shift from the crude tactic of flooding an area with troops to a more targeted approach that focused on key zones in a city and concentrated on envelopment and outflanking.<sup>31</sup>

Ultimately, dedicated military learning contributed to the CCP's success in a series of battles and campaigns that would secure the northeast, including its major cities.<sup>32</sup> The "liberation" of Shijiazhuang in November 1947, for example, was praised by then-Commander-in-Chief Zhu De (朱德) as "the first example of the capture of a big city," enabled by concentrating superior forces to "disintegrate" the enemy's defenses.<sup>33</sup> Early in these learning efforts, the Red Army in the northeast had learned to attack cities to draw out reinforcements that could be assaulted while vulnerable in transit.<sup>34</sup> This approach would be later employed in the 1948 Battle of Jinan.<sup>35</sup>

The Battle of Jinan has received considerable attention in China in recent years, especially in CCP references invoking this historical memory.<sup>36</sup> The CCP's victory at the Battle of Jinan in September 1948 is said to have been a critical inflection point in its drive to seize control of the region. The PLA's continued discussion of this battle, which has been more obscure in foreign research, demonstrates that the battle's recorded lessons and legacies are believed to possess contemporary relevance.<sup>37</sup> The

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Battle of Jinan was described as a milestone that marked "a new era of permanent occupation of large cities and unification of large-scale liberated areas," according to Su Yu (粟裕), acting commander and political commissar of the East China Field Army.<sup>38</sup> This battle allowed the CCP to take a city "with heavy defenses and strong fortifications," by "attacking Jinan and striking at its reinforcements" (攻济打援).<sup>39</sup> According to General Xu Shiyou (许世友), the victory at Jinan leveraged the "bull knife tactic" (牛刀子战术), described as follows:

**“Killing cattle requires a fatal blow. Jinan's fortifications are strong, deep, and long... In the campaign with the assault on Jinan, we must seize the vital parts of the enemy, concentration of forces and firepower, killing open a bloody path, going in and striking like a sharp knife, piercing the enemy's heart.”<sup>40</sup>**

Beyond brute force, the CCP's success also came from the use of CCP sympathizers in Jinan. Underground organizers mobilized operatives to provide intelligence



**ABOVE:** *The Jinan Second Regiment, from the 73rd Group Army, was featured at the 2019 parade that marked China's 70th National Day.*

on fortifications and the positioning of KMT troops in the city.<sup>41</sup>

Jinan was the first major city south of the Great Wall to be captured and permanently occupied by the CCP.<sup>42</sup> To commemorate this victory, the Central Military Commission (CMC) awarded the titles “Jinan First Regiment” (济南第一团) to the 73rd Regiment and “Jinan Second Regiment” (济南第二团) to the 109th Regiment.<sup>43</sup> These names and flags are used to this day; the successors to these units are now elements of the Eastern Theater Command, the “war zone” that would oversee a potential invasion of Taiwan.<sup>44</sup> Today, the Jinan First Regiment is the honorary designation of a heavy synthetic brigade of the 71st Group Army, headquartered at Xuzhou in Jiangsu Province, while the Jinan Second Regiment today is within the 73rd Group Army, which is headquartered at Zhangzhou, Fujian.<sup>45</sup> Today, as Xi Jinping considers concluding the Chinese Civil War through forced “unification,” those forces are focused on that contingency and have engaged in major training exercises focused on urban warfare as an element of China’s coercive signaling.

The Red Army’s improved proficiency in urban warfare contributed to a series of victories that shifted the balance in the Chinese Civil War. The Battle of Jinan was a prelude to three major campaigns that destroyed or captured a critical mass of the Nationalists’ best troops. The Liaoshen (Liaoning-Shenyang) campaign that occurred September to November 1948 was the largest military offensive undertaken by the PLA or Red Army up to that point and primarily targeted the Nationalist-held cities of Jinzhou and Shenyang (Mukden).<sup>46</sup> While their urban warfare capabilities had improved considerably since their early days, these capabilities were still maturing. When failing to seize cities quickly and effectively, CCP forces sometimes became tied down in sieges that were often costly in terms of civilian casualties and popular support. During the Liaoshen Campaign, in the infamous siege of Changchun, the Red Army was ordered to “turn Changchun into a

city of death.”<sup>47</sup> CCP forces prevented starving civilians from leaving to put further pressure on KMT supplies.<sup>48</sup> By the time the siege concluded in October 1948, an estimated 150,000 to 300,000 civilians had died as a result of these policies.<sup>49</sup>

The Huaihai Campaign, which occurred from November 1948 to January 1949, is the historic campaign that assured Communist victory in the Chinese Civil War.<sup>50</sup> The Huaihai Campaign focused on the Nationalist head-

quarters at Xuzhou and was the largest military engagement at the time since World War II.<sup>51</sup> The PLA encircled Xuzhou and then used artillery to target the Nationalist troops and civilians fleeing the city on clogged roads.<sup>52</sup> The PLA remembers the Huaihai Campaign for demonstrating the power of “people’s warfare,” as thousands of citizens mobilized to provide logistical support to the PLA, often pushing trolleys with supplies.<sup>53</sup> When Xi Jinping visited the Huaihai memorial in 2017, he remarked: “[the victory] relied on the support and dedication of the people. The Battle of Huaihai was a victory achieved through the launch of trolleys.”<sup>54</sup> That mythos of people’s warfare persists and continues to be invoked in China today, including as the PLA looks to leverage a strategy of military-civil fusion and mobilize civil and commercial assets, such as ferries, that could provide transport and logistics support should the PLA invade Taiwan.<sup>55</sup>

As CCP forces conquered more territory, the PLA refined its approach to operations against urban areas, as seen with the captures of Beijing (then known as Beiping) and Tianjin in the Pingjin Campaign.<sup>56</sup> Whereas Tianjin was captured by force in January 1949, the fall of Beijing was touted as an ideal instance of “peaceful liberation,” in which the CCP’s “magic weapons” of united front work (i.e., attempting to co-opt potential sympathizers and cultivating relationships with other groups that could be exploited for influence) and party-building (i.e., recruiting and developing more robust membership and organization for the CCP) were more

*The Red Army’s improved proficiency in urban warfare contributed to a series of victories that shifted the balance in the Chinese Civil War.*

significant than military power alone.<sup>57</sup> Mao Zedong declared that the conquest of these two cities would represent thereafter a model for the CCP's conquest of cities, known as the "Tianjin pattern" and the "Beiping pattern," in which the former emphasized conquest primarily through military force and the latter success through subversion and exploitation of influence.<sup>58</sup> In each case, the CCP concentrated on the practice of "political work," in which the CCP sought to cultivate allies on the inside—particularly students and Nationalist troops and officers—who could be organized as guides and gather intelligence on Nationalist forces or city defenses.<sup>59</sup> In Beijing, successful subversion, including the turning of the chief of the Nationalist defenders, who agreed to surrender the city and its forces, was the ultimate guarantor of success.<sup>60</sup>

*The CCP's methods for controlling a society in a post-conflict scenario—for example, Taiwan—could be inspired by China's civil war legacies.*

The battle and capture of Shanghai in May 1949 was another notable engagement that highlighted the CCP's evolving view of urban warfare and struggle. The fight for Shanghai was "not only a military battle but also an excellent political battle; it is necessary not only to destroy the enemy but also preserve the city and also win the hearts of the people," Mao Zedong declared at the time.<sup>61</sup> Shanghai possessed robust defenses and symbolic significance as a cosmopolitan and international city. As Marshal Chen Yi (陈毅), who later served as mayor of Shanghai, said vividly: "The Battle of Shanghai can be aptly compared to battling rats in a china shop; you must catch the rats and must not break the precious porcelain."<sup>62</sup> To that end, the PLA displayed discipline upon entering the city, which was praised by CCP leaders at the time and is recalled in modern remembrances of the battle, which is also described as a "miracle."<sup>63</sup>

The PLA's years of learning through fighting in urban combat played a critical role in the CCP's eventual victory in the civil war. This early history, often overlooked beyond China, possesses continued salience in CCP and PLA thinking in ways that may impact its outlook on contemporary challenges and goals.<sup>64</sup> The CCP viewed its efforts in "wartime political work," which traditionally concentrated

on "disintegrating the enemy force" (瓦解敌军) as critical to its success.<sup>65</sup> This strategy is still relevant and has been used to target Taiwan with attempts to undermine its democratic institutions and compromise its political and military leaders.<sup>66</sup> During the Chinese Civil War, the cultivation of intelligence assets among the enemy and the local population helped the CCP tighten its control of cities taken by the PLA.<sup>67</sup> The CCP's methods for controlling a society in a post-conflict scenario—for example, Taiwan—could be inspired by China's civil war legacies.

The PLA's history of urban warfare is often mythologized in contemporary recountings, but important lessons may prove to be selective, forgotten, or distorted over the decades since.

In the People's Republic of China (PRC), politics and ideology have a history of undercutting military adaptation. The CCP's ability to leverage lessons learned from its critical campaigns, for example during the Chinese Civil War, has at times been undercut by factional struggles that took down integral figures involved, infamously including Lin Biao. As a result, his contributions were diminished or effectively erased from official history for decades.<sup>68</sup> Ultimately, politics impacts what lessons the CCP and its forces may draw from its history, and that continues to be the case in Xi Jinping's new era. So too, ideology may influence the parallels and analogies that arise in China, as elements of history are retold and recounted in propaganda.

## PRC Intervention in the Korean War

The PLA's subsequent experience with urban warfare occurred during the Korean War, in which PRC forces participated as the Chinese People's Volunteer Army (PVA) for plausible deniability. This effort occurred alongside China's North Korean ally, with support from the Soviet Union, against US-led United Nations (UN) forces. While the PLA had achieved successes in the civil war in part

by learning how to capture and occupy urban areas, in this conflict, PVA forces recognized their lesser capabilities compared to their opponents, especially in firepower and airpower, and usually avoided engagements in urban areas. Instead, the PVA reoriented toward more mobile styles of warfare.<sup>69</sup> While Beijing recognized the value and symbolism of capturing major urban areas, the primary concern was instead “annihilating” large groups of enemy troops in an attempt to force other countries to withdraw due to high casualty rates.<sup>70</sup> This emphasis on eliminating enemy troops for political impact would recur in later conflicts, including Chinese skirmishes with India.<sup>71</sup>

Faced with an opponent that was more technologically advanced, the PLA shifted its focus away from urban areas. As a result, Chinese forces participated in only a few city battles during the Korean War. These included the Battle of Seoul and fighting in and around some major towns.<sup>72</sup> When PVA forces launched the attack on Seoul in May 1951, the attack was primarily intended not simply to capture the city, but rather to obscure the PLA’s intentions to attack a UN group far to the east.<sup>73</sup>

While of lesser relevance for the PLA’s outlook on urban warfare, the history of the Korean War possesses enduring symbolic significance for the PLA’s belief that it overcame the US military despite being at a disadvantage.<sup>74</sup> This conflict continues to be raised by PLA and CCP leaders to galvanize nationalism to this day; indeed, a popular 2021 movie depicting one battle from this history became the highest-grossing Chinese movie to date.<sup>75</sup>

## The PRC 1979 Invasion of Vietnam

China’s invasion of Vietnam in 1979 and the border skirmishes during the decade thereafter are generally considered to be the PLA’s most recent experience of warfare. While the battles were fought primarily within Vietnam’s jungles, urban warfare was also

an important component of the conflict. During the invasion, the PLA conquered 17 district towns and the capital cities of three provinces.<sup>76</sup> The provincial capital of Lang Son lay on a route used by past Chinese empires invading Vietnam and was the PLA’s primary target.<sup>77</sup> In the assault on Lang Son, the PLA first captured the three mountains and a key hill surrounding it—the city’s primary defensive elements—before beginning an assault on the city itself.<sup>78</sup>

*The difficulties inherent to urban warfare, including distinguishing combatants from civilians, appeared to produce frustration among PLA forces.*

Unlike in many of its assaults on cities during the Chinese Civil War, the PLA did not prioritize limiting civilian casualties or destruction of infrastructure in Lang Son. The assault on Lang Son started with a large-scale artillery barrage; in the words of the PLA commander, the intention was to “raze every house in Lang Son.”<sup>79</sup> After entering the city, PLA troops initially captured government buildings and nearby heights, which allowed

for improved intelligence in support of artillery strikes.<sup>80</sup> The Vietnamese forces operating from close defensive works, such as the city’s caves, were eliminated with gasoline, flamethrowers, and explosives.<sup>81</sup> When the PLA later withdrew from Lang Son, its 55th Army destroyed thousands of military and public facilities, reportedly reducing much of the city to ruins.<sup>82</sup> The PLA looted what was not destroyed and reportedly repeated this same pattern of deliberate damage and looting against other urban areas it assaulted in Vietnam.<sup>83</sup> The overall impact of this destruction was reported to have badly impacted Vietnam’s economy for the next 15 years.<sup>84</sup> The PLA later called this destruction a “goodbye kiss” for the country.<sup>85</sup> China’s goal had been to “teach Vietnam a lesson,” and any concern for collateral damage or damage limitation was quickly abandoned.<sup>86</sup>

The PLA tends to remember its invasion of Vietnam as relatively successful because the outcome was consistent with its political objective: to impose punishment.<sup>87</sup> By contrast, the accounts of foreign analysts typically concentrate on the PLA’s difficulty in conducting the operation, even so close to

China's borders, as well as the PLA's high number of casualties.<sup>88</sup> The difficulties inherent to urban warfare, including distinguishing combatants from civilians, appeared to produce frustration among PLA forces, which manifested in reports of the PLA shooting prisoners and reportedly killing civilians.<sup>89</sup> The PLA's punitive approach was intended to devastate important urban areas.<sup>90</sup> Such conduct, as well as accounts of violence targeting noncombatants,

adversely impacted the Vietnamese public's view of the PLA, contributing to an intense hatred toward China that persisted for decades. The PLA has since highlighted the importance of avoiding collateral damage in its discourse on and training for urban warfare, but discipline and adherence to norms of professional conduct can break down despite—or because of—political education and indoctrination.

## PLA Perspectives on Urban Warfare

“...The street battles with hand-to-hand combat, the brutal battlefield environment, and the bloody scenes of warfare will have a psychological shock effect on the US military, which has always sought to avoid casualties as taboo, thus weakening the fighting spirit of the US military.” —Wang Yijiang (王—江), Department of Foreign Military Studies, Academy of Military Sciences (2003)<sup>91</sup>

Beyond those historical experiences, the subsequent direction of Chinese military modernization did not emphasize urban warfare for decades thereafter. The PLA's outlook on future conflict in cities has reflected lessons learned from the study of more recent foreign battles, especially by the United States and Russia, occurring between the 1990s through the early 2020s in cities ranging from Grozny and Mogadishu to Kabul and Fallujah.<sup>92</sup> The PLA has systematically examined the conduct of major battles to evaluate the form and changing features of modern warfare. The PLA's assessments of these operations range from accurate to relatively idiosyncratic. Often, the PLA's analysis and assessments of future urban warfare cite and display the influence of close reading of US doctrine, as well as debates among American specialists.<sup>93</sup> For that reason, the PLA's outlook on urban warfare could be characterized as relatively consistent with or even imitative of mainstream thinking in the United States. However, PLA efforts to study urban warfare, occurring without firsthand experience of combat,

may not recognize the full extent of the challenges that arise within the fog and frictions of an active urban battlefield.

China's Central Military Commission (CMC) concluded that changes in the form of warfare catalyzed a Revolution in Military Affairs (RMA) starting from the 1990s. The CMC chairman at the time, Jiang Zemin, initially highlighted this assessment, which was informed by PRC reactions to the capabilities displayed by the US military during the Gulf War and later in US campaigns of the Global War on Terror.<sup>94</sup> The PLA closely observed the US military's initial operations in Afghanistan and Iraq, which introduced an era of “network-centric warfare,” including the adaptations in tactics, training, and systems that were required to achieve success.<sup>95</sup> The PLA's outlook on warfare tends to be technologically deterministic but also emphasizes human and psychological considerations. The PLA's technological determinism is reflected by the recurring notion in PLA writing that “technology decides tactics” (技术决定战术), thereby determining the conduct of conflict.<sup>96</sup>

The PLA has analyzed battles and campaigns that could be relevant to its future operations. Russia's battle for Grozny in 1994 is remembered as bloody and difficult.<sup>97</sup> As the US military waged wars in Iraq and Afghanistan, the PLA's attention was often drawn to the successes of adversaries with lesser capabilities that nonetheless managed to impose severe casualties upon the US military, undercutting US morale in the process.<sup>98</sup> In the 2010s, the PLA followed developments in the civil war



in Syria with intense interest, regarding the conflict as “apocalyptic” in character but informative, given the tactics and adaptations displayed by US, Russian, and Syrian forces, according to Ma Jianguang (马建光), a professor with the PLA’s National University of Defense Technology.<sup>99</sup> Chinese military writings have noted how Russia used its experiences in the Syrian civil war to explore new tactics and leverage firsthand experience among its personnel.<sup>100</sup> In the process, PLA thinkers have also explored concepts of “hybrid warfare” (混合战争) based on foreign militaries’ approaches, a concept that aligns and is relatively consistent with the PLA and the CCP’s traditional emphasis on the importance of integrating political and military objectives.<sup>101</sup>

A review of the available literature illuminates several notable features that have arisen in a selection of writings by PLA analysts, including on the utility of intelligence, information attacks, precision strikes, close combat and mobility, hybridity and integration of forces, and morale and public opinion. Even from afar, the PLA has recognized the need for fundamental improvements in its capabilities for urban warfare given these contemporary challenges.

## Intelligence

PLA observers have recognized that the complexity of the modern urban environment creates new demands for intelligence support to operations. Conflict in cities has created significant challenges even for the US military, highlighting the difficulty of decision-making under complex conditions in the PLA’s view.<sup>102</sup> Urban warfare in the “network age” has increased complexity, and there is greater difficulty in distinguishing adversary signals and communications when civilian networks can be used to disseminate information, which exacerbates the challenge in “whether operational intelligence can be mined accurately in the information fog,” according to one

*As the US military waged wars in Iraq and Afghanistan, the PLA’s attention was often drawn to the successes of adversaries with lesser capabilities that nonetheless managed to impose severe casualties upon the US military, undercutting US morale in the process.*

commentary.<sup>103</sup> Greater precision in warfare also requires new advances in data fusion and sharing.<sup>104</sup> PLA writers believe that drones can enable advances in technical reconnaissance, a dynamic identified in PLA analysis and commentary from events as early as the 2002 offensive launched by the Israeli Defense Forces against several towns in the West Bank.<sup>105</sup> Yet, even as technology can seem to increase the transparency of the battlefield, the management of human intelligence continues to present distinct challenges, as PLA coverage of these conflicts has reflected.<sup>106</sup>

## Information Attacks

Urban warfare can start in the domain of information, which can reshape the urban environment, as the US joint publication on urban warfare (as cited in PLA writing) has highlighted.<sup>107</sup> PLA scholars have emphasized that the launch of “soft kill” attacks,

including electronic warfare, cyber warfare, and psychological warfare, to paralyze a city’s defenses can lessen collateral damage and create conditions for later strikes that leverage firepower.<sup>108</sup> For instance, PLA writers see the US intervention in Libya as having demonstrated the importance and potential advantages of cyber-attacks in urban warfare.<sup>109</sup> US military capabilities in cyber warfare have provoked PLA concerns about the benefits such capabilities could create, including in future megacities, where the capacity to access and exploit the enemy’s digital communications will be critical.<sup>110</sup>

## Precision Strikes

Precision is essential within an urban environment. PLA discussions of the importance of precision in urban warfare today still use the phrase “battling a rat in a china shop” that was initially invoked in reference to CCP efforts in the battle of Shanghai, as Qian Daichao (钱代朝) and Zhao Xiangang (赵先刚) of the PLA’s National Defense University

have noted.<sup>111</sup> The PLA sees air power as a means to provide precision support to ground forces and create coercive effects that impact defenders psychologically, all while avoiding politically and economically costly collateral damage, especially in major cities.

Beyond traditional airpower, the PLA believes unmanned systems will offer new utility and flexibility.<sup>112</sup> In particular, the PLA expects “intelligent unmanned combat equipment” will continue to “reduce personnel collateral damage and quickly achieve decisive combat effects.”<sup>113</sup> PLA writers have pointed to the Israeli military’s use of the SkyLite B mini-unmanned aerial vehicle (UAV), which can be hand-carried, as an example of a cheap system that has proven capable and impactful.<sup>114</sup>

## Close Combat and Mobility

Despite the contributions of airpower, close combat remains a central feature of urban warfare and counterterrorism operations; PLA writings recognize this reality.<sup>115</sup> The urban environment tends to undercut militaries engaged in offensive conventional operations and generally benefits defenders and forces that fight asymmetrically, as one PLA commentary on the topic highlighted.<sup>116</sup> PLA coverage of these conflicts also noted that training and specialized equipment at the unit level, whether body armor, night vision, or sniper rifles, are necessary for successful close combat operations.<sup>117</sup> This conclusion stems from observations of the Israeli military’s experiences, such as Operation Cast Lead, that employed heavy artillery for firepower, drones for battlefield reconnaissance, and special forces for close combat, a combination that the PLA deemed effective.<sup>118</sup> American techniques in night fighting have also drawn the PLA’s attention.<sup>119</sup>

*The PLA regards this notion of hybrid warfare as both a style of warfighting from which the PLA should learn as well as a threat for which the PLA must prepare in its own defense.*

Mobility is critical within a complex, dynamic operational environment. In cities, the use of tanks and light infantry vehicles can enable mobility and be adapted to the terrain and threats. For instance, PLA accounts of the Syrian war noted that the Syrian government equipped its tanks and armored vehicles with added protection to prepare for urban street fighting, including anti-theft nets, steel bars, and other supporting materials.<sup>120</sup> PLA observers also praised the “flexible use of motorcycles” as an important tool in Syrian operations to retake Salma, as motorcycles were well-suited to the terrain.<sup>121</sup> The adaptation of armored vehicles to the demands of urban operations remains a focus of the PLA, as described in several studies concentrating on options for the design and employment of armored vehicles in urban combat.<sup>122</sup>

## Hybridity and Integration of Forces

PLA scholars believe that the blurring of political and military struggle in urban combat creates dynamics of “hybrid warfare” (混合战争).<sup>123</sup> The PLA has explored concepts of hybrid warfare, which, in its view, originated from American antecedents but took shape through Russian implementations in Ukraine and beyond.<sup>124</sup> The PLA regards this notion of hybrid warfare as both a style of warfighting from which the PLA should learn as well as a threat for which the PLA must prepare in its own defense. Urban warfare must leverage units and forces across domains and integrate otherwise disparate efforts, as a prominent commentary by Chen Wenchao (陈文超) and Wen Xiaopeng (温晓鹏) argued.<sup>125</sup> In their view, “multi-domain synchronization” as well as the coordination of information strikes and firepower, will be critical to success in urban environments.<sup>126</sup>

## Morale and Public Opinion

In urban warfare, intangible influences can be integral to success. For instance, the PLA observed Iraqi militia fighters demonstrate great “combat spirit” in battles with US forces, such as south of Baghdad at Diwaniya in October 2006.<sup>127</sup> In retrospect, the outcome of the war in Afghanistan revealed that the Taliban’s “will to fight” overcame their disadvantages in numbers and weaponry. Coverage in PLA Daily concluded that the Taliban’s focus on “protracted warfare, public opinion warfare, and psychological warfare” enabled the group to eventually seize power.<sup>128</sup> PRC observers have compared the Taliban’s success in taking control of Afghanistan to the CCP’s victory in the Chinese Civil War,<sup>129</sup> insofar as a force of inferior capabilities eventually prevailed over a superior military weakened by poor morale and limited public support,” as scholar Geremie R. Barmé has noted.<sup>130</sup>

*PRC observers have compared the Taliban’s success in taking control of Afghanistan to the CCP’s victory in the Chinese Civil War.*

Beyond morale on the battlefield, public opinion is critical to the legitimacy of operations in the long term. While the use of traditional media has long been a feature of modern warfare, social media has become a new arena of competition. The PLA has highlighted Israel’s “Operation Cast Lead” as a conflict worthy of review and study in that regard, including the “second battlefield” of a “social media” war in which Israel and Hamas contested the narrative on the battlefield of public opinion, and Israel’s approach to psychological operations aimed to limit the adverse impacts in global public opinion.<sup>131</sup> The

PLA’s espoused concerns about public opinion and legitimacy in domestic and global public opinion are notably at odds with its notion of cyberattacks or targeting of critical infrastructure to undercut the morale of civilian populations.

## The PLA’s Training for Urban Warfare

**“The city is not an ideal battlefield, but soldiers must be prepared for war to start anywhere... For urban combat, we still have a lot of lessons to make up.”<sup>132</sup> —Yu Xiangxi, brigade chief of staff with Beijing Military Region, at the 2015 Stride exercise.**

The PLA’s studies of urban warfare have created a foundation for training and experimentation with new tactics. Despite the CCP’s early history with urban warfare, its current interest is a contemporary phenomenon that came into focus in the mid-2000s, and the PLA has since pursued several dedicated initiatives to prepare for future

urban combat. In the process, the PLA took note of the US military’s investments in training for urban warfare after the initial challenges US forces encountered in Iraq and Afghanistan.<sup>133</sup> Not unlike other elements of its training, the PLA’s urban warfare training efforts have been strongly informed by American initiatives, including its use of opposing force (OPFOR) programs and specialized training facilities.<sup>134</sup> Urban warfare exercises as reported in PRC state media have also become notable instruments in signaling for purposes of political warfare and propaganda.

## Several Milestones in PLA Urban Warfare Training

**2001s-ongoing:** PLA military strategists and foreign military experts, including from the Academy of Military Science, study and evaluate US military operations in Afghanistan and Iraq.

**~2006:** The Zhurihe Training Base builds a replica of a city for urban warfare training.

**2008:** The Beijing Military Region starts a preliminary program focused on tactics and training for urban warfare.

**2009:** The PLA formally launches its urban warfare training ground at the Zhurihe Training Base.

**2009-2010:** PLA units from the Beijing Military Region and Nanjing Military Region engage in urban warfare exercises.

**2010:** The PLA and the Thai military organize joint training and exchanges on urban counterterrorism operations.

**2014:** Peace Mission 2014, convened through the Shanghai Cooperation Organization (SCO), focuses on a scenario of urban counterterrorism.

**2014:** The PLA participates in exchanges focused on urban counterterrorism with the Philippines.

**~2013-2015:** The Zhurihe Urban Combat Training Ground continues to expand its training facilities to include buildings that mimic Taiwan.

**2015:** The PLA's annual "Stride" (跨越) exercise includes a scenario of urban warfare.

**2016:** A competition for PLA Army Special Forces focuses on missions of urban counterterrorism.

**2016:** The PLA Army Equipment Development Department organizes a challenge, "Crossing Obstacles" (跨越险阻), which continues annually, to promote the development of unmanned ground vehicles (UGVs), including for urban battlefield reconnaissance.

**2018:** The PLA participates in Russia's "Vostok" exercises, which include an emphasis on Russia's lessons learned from Syria.

**2019:** The PLA's parade to mark National Day features a new uniform with a camouflage pattern designed for urban warfare.

**2019:** The PLA engages in exchanges on urban counterterrorism operations with the Singaporean Armed Forces.

**2020:** The Eastern Theater Command participates in major urban warfare exercises, which are featured on a China Central Television (CCTV) program titled, "Strike the City—Offensive and Defensive Battles" (直击城市'攻防战').

**2021:** As PRC coercion against Taiwan continues to expand and escalate, PLA units from the Eastern Theater Command engage in several exercises focused on urban warfare.

## Experimentation, Specialized Facilities, and Other Initiatives

The PLA's urban warfare training exercises have improved in scale, complexity, and realism in recent years. This trend has been bolstered by the creation and improvement of forces dedicated to simulating adversaries ("blue forces" in the PLA's parlance) and the shift toward "base-ized training" (基地化训练), which allows for the development of more realistic "training opponents" and environments for the PLA.<sup>135</sup> To date, only a small number of militaries have invested the resources to build facilities geared toward urban warfare training. The PLA joins the US military in creating dedicated environments that mimic cities in which it might someday fight.<sup>136</sup> Nonetheless, as the American experience has demonstrated, even the most rigorous or realistic training cannot provide complete preparation for the demands of fighting on urban terrain. The PLA's urban warfare training facilities and activities have mainly centered on the Zhurihe Training Base in Inner Mongolia. Zhurihe, initially established in 1957, started to visibly emphasize urban operations in its facilities by the mid-2000s.<sup>137</sup> By 2006, a replica of a city center had also been constructed at Zhurihe.<sup>138</sup>

Over time, the PLA's training for urban warfare has evolved and gradually increased in sophistication.<sup>139</sup> In March 2008, the Beijing Military Region, since superseded by the Central Theater Command, launched a pilot initiative focused on "training on new topics in urban warfare."<sup>140</sup> In particular, a specific motorized infantry brigade was designated to serve as a pioneer in determining new "content, methods, procedures, and combat plans for urban warfare training."<sup>141</sup> This inquiry initially involved primarily theoretical initiatives, as the PLA was starting without prior materials or experience. The urban warfare training facility at Zhurihe hosted its first major exercise focused on urban operations in 2009. At the time, the Beijing Military Region organized urban combat exercises focused on offensive operations between red (PLA) and blue (adversary) forces contesting control of a mock city that the red force had to seize control of and restore order within.<sup>142</sup>

The first major confrontation exercise at the Zhurihe Urban Combat Training Ground in 2009 reportedly involved an urban assault scenario. In

this exercise, the red force had to defeat the blue force and then rescue the wounded; clear the battlefield; restore order; organize a watch of the periphery, important roads, and buildings; and organize local defense and public security forces.<sup>143</sup> The red force's assault on the city involved a "special mixed combat team" composed of tanks and mechanized units.<sup>144</sup> While the exercise primarily involved units from the Beijing Military Region, the red force also involved a People's Liberation Army Air Force (PLAAF) division, a People's Armed Police (PAP) unit, and a PLA Second Artillery Force (now known as the PLA Rocket Force) unit, thus reflecting a joint approach.<sup>145</sup> The exercise was convened on a training ground with a large urban area and occurred in a "realistic and complex electromagnetic environment." PLA observers said the reported success of this exercise demonstrated the facility was an "ideal training platform."<sup>146</sup>

However, these initial efforts raised several problems. During the 2009 exercise, the "city battle" did not center on the city enough to allow for realistic simulation of urban combat. Despite its early history with urban warfare, the PLA's lack of recent experience with this style of combat was recognized as a considerable challenge at the time. "Traditional thinking must be changed. The examples of old battles do not explain the problem....To study modern urban warfare, we must have a broad vision and brains," urged Wang Bing, a brigade chief from the Beijing Military Region.<sup>147</sup>

The then-Jinan Military Region pursued studies to evaluate new theories and tactics for urban warfare.<sup>148</sup> For instance, experts were dispatched to operations departments across different military regions and engaged with military academic institutions, including the Shijiazhuang Army Command Academy, to collect data and review recent episodes of urban warfare around the world, as well as simulate these operations.<sup>149</sup> This effort explored recent events and studied cases of city battles, including tactics, for different types of targets, such as urban buildings, overpasses, underground facilities, and energy infrastructure.<sup>150</sup> When the Jinan Military Region convened an "urban offensive combat exercise" involving an armored brigade in November 2010, the exercise was described as among the first urban assault combat exercises since the PRC's founding.<sup>151</sup> During

the exercise, the red force used “comprehensive” firepower, including PLAAF aircraft, army aircraft, and ground artillery, to degrade key blue force targets, such as its command systems and reconnaissance capabilities. The brigade involved in the assault was equipped with multifaceted reconnaissance capabilities, including a drone team and radar, cameras, and other sensors. The brigade included special operations teams that engaged in clandestine operations and leveraged intelligence information to enable targeting. The red force also concentrated on gaining psychological advantages during this exercise, including through electromagnetic attacks and deceptive or disruptive measures intended to cause confusion or undermine adversaries emotionally. Their political commissar noted at the time that “[w]ith the development of technology, deterrence has been gradually upgraded from traditional tactical actions... to the strategic level. It is no longer a written theory to subdue (enemy) soldiers without fighting.”<sup>152</sup>

After its initial reported exercises, the “Zhurihe Urban Combat Training Ground” (朱日和城市作战训练场) expanded to enable more sophisticated training operations over the coming years.<sup>153</sup> Peculiarly, these installations included the addition of a scaled-down replica

of France’s Eiffel Tower around 2010-2011.<sup>154</sup> The urban training facilities at Zhurihe notably expanded between 2013 and 2015, with a shift from more generic facilities to those focused on simulating urban warfare in Taiwan. In 2013, Zhurihe added a highway cloverleaf interchange that resembles two interchanges near Taiwan’s Taichung International Airport and the Taiwanese Air Force’s adjacent Ching Chuan Kang (CCK) Air Base.<sup>155</sup> A replica airfield that appeared to mimic another Taiwanese Air Force base near Taitung had been constructed by October 2014.<sup>156</sup> By 2015, the urban training area at Zhurihe had added replicas of Taiwan’s Presidential Office Building and its Ministry of Foreign Affairs building, as well as their surroundings.<sup>157</sup>

Zhurihe has been the primary center for the PLA’s urban warfare training, but the PLA has expanded its facilities in other regions as well. The former Nanjing Military Region (Eastern Theater Command), which would have primary responsibility in a Taiwan conflict scenario, has an urban training facility that was created on the home training ground of one of its units in the 2010s.<sup>159</sup> That facility hosted training for a brigade of the 12th Group Army (now the 71st Group Army) in 2014 for instance.<sup>160</sup>



ABOVE: These images show the urban training ground at Zhurihe as of 2015.<sup>158</sup>



**ABOVE:** The urban warfare training facility was the venue for 2014 exercises by a brigade in the then-12th Group Army.<sup>161</sup>

The PLA has sought to promote “urbanization” in military training, as the commander of a brigade involved in the 2014 training urged at the time.<sup>162</sup> In particular, the PLA notes that “shifts in terrain have become an indispensable starting point for changing the mode of generating combat power and improving the quality of preparations for military struggle.”<sup>163</sup> The red force reportedly concentrated on demolition and breaching and entering buildings; combat methods of “psych(ological) war(-fare) to break the enemy” (心战破敌); and controlling landing points for aircraft, among other efforts.<sup>164</sup>



**ABOVE:** The red force takes over a building in a confrontation exercise organized by a brigade of the then-12th Group Army.<sup>165</sup>

Even parts of the PLA not previously involved in urban warfare have recently begun to be so. For example, the PLA Navy Marine Corps (PLANMC) has expanded its operational engagements beyond beaches to include urban areas, jungles, and

mountains.<sup>166</sup> As of 2014, the PLANMC’s training included urban offensive combat, as well as long-range mobility and cold weather.<sup>167</sup>

The PLA has showcased its urban warfare training facilities in both training and propaganda. In particular, a replica of the Taiwanese Presidential Office Building was featured in footage of the 2015 Stride (跨越) exercise.<sup>168</sup> The exercise involved a motorized infantry brigade from the Beijing Military Region confronting a blue force that had occupied a city. This operation centered upon a “decapitation” offensive targeting the blue force commander based on triangulating their position in a vehicle, attacking the convoy, forcing the commander to evacuate into a municipal building, and finally killing the commander.<sup>169</sup> A participating brigade commander compared it to trying to “capture a rat in a china shop” (“瓷器店里捉老鼠”) a variant of the famous phrase regarding the difficulty of urban warfare initially used by Chen Yi.<sup>170</sup> The exercise featured fierce street fighting, and the brigade directly commanded Army aviation and special operations forces.<sup>171</sup> In the process, the red force used video reconnaissance from UAVs to support command decision-making.<sup>172</sup> Notably, CCTV released footage from this exercise showing a replica of Taiwan’s Presidential Office Building at Zhurihe under attack by a red force, a signal perhaps intended for coercive purposes against the backdrop of then-upcoming Taiwanese presidential elections.<sup>173</sup> Building upon this training, Stride-2017 also included elements of the exercise devoted to “position offensive operations,” “urban area offensive operations,” and “position defensive operations.”<sup>174</sup>

### *Aviation in Urban Warfare Training*

The PLA regards its aviation assets, especially helicopters, as key components of combined arms and joint operations in urban environments. In 2018, an army aviation brigade of the 79th Group Army trained in an urban setting, preparing for challenges such as takeoff and landing in constrained

*The PLA regards its aviation assets, especially helicopters, as key components of combined arms and joint operations in urban environments*

spaces.<sup>175</sup> Their training highlighted the importance of maneuverability and leveraged a small “networked” approach to organization. While the PLA’s helicopters previously concentrated on operations in open, rural environments, they have started to shift their focus toward operations within urban environments.<sup>176</sup> As of 2018, new military training guidance apparently included guidance that PLA Army Aviation helicopters introduce “urban operations training content including landing and taking off from the roofs of buildings, landing in very narrow areas, and electronic warfare” to their training regime.<sup>177</sup>

A city’s complex geography and contested electromagnetic environment can undercut situational awareness and present a major challenge for aircraft. In focusing more on urban warfare, PLA helicopters have encountered the unique challenges of operating in such an environment. The constraints of space and electromagnetic interference have required learning and adaptation to deal with these issues.<sup>178</sup> For the PLA, resolving such challenges would be particularly important in a Taiwan scenario given the extensive urbanization that is characteristic of Taiwan’s cities. For example, the PLA would need to keep ground teams leaner to avoid congestion on city roads.<sup>179</sup> Helicopters would be critical for delivering special operations force (SOF) units to objectives in urban areas in the early stages of an assault.<sup>180</sup>

### *Urban Warfare on Display*

The PLA’s increased interest in urban warfare was featured when it showed off its new set of camouflage pattern uniforms in 2019 during the military parade that marked the 70th anniversary of the PRC’s founding. Unlike in the past, when camo patterns were determined by service or branch, this new set of uniforms was designed to be worn based on the environment in which troops would operate, with a gray pattern for urban terrain featured among the five options.<sup>181</sup> PRC media explained at the time the new pattern was motivated by the fact that many current conflicts are fought in urban areas and that the PLA has expanded its training in urban environments.<sup>182</sup>



**ABOVE:** *The PLA’s new uniforms, including this urban camouflage pattern, were introduced during the 70th National Day parade in 2019.*<sup>183</sup>

PRC state media has highlighted improvements in the sophistication of PLA training and exercises for urban warfare, narratives that contribute to coercion and propaganda. In December 2020, CCTV released a feature titled “Strike the City: ‘Offensive and Defensive Battles’” that included Type 96A main battle tanks and Type 04 and 04A infantry fighting vehicles engaged in a combat exercise.<sup>184</sup> The forces involved came primarily from the 72nd Group Army of the Eastern Theater Command, the command with primary responsibility for a potential invasion of Taiwan. As recounted in this military documentary, the red force ultimately succeeded in seizing the city within hours.<sup>185</sup> This program conveyed that urban warfare is not only a vital form of modern warfare but also among the “the hardest battles to fight,” including because of the constraints on space and maneuverability and intense difficulty of using fire support with the risks of collateral damage.<sup>186</sup>

The Eastern Theater Command engaged in an urban offensive and defensive exercise in 2021. In May, state media reports on the exercise showed a brigade from the 72nd Group Army using an urban warfare training ground that appeared particularly extensive (the precise location and designation of the facility was unspecified).<sup>187</sup> The structures appeared wider and taller than those shown at other sites shown in past years, a feature that could enhance the level of realism for training for combat in a modern, developed city.





**ABOVE:** In May 2021, a brigade from the 72nd Group Army trained in an urban warfare training complex.<sup>188</sup>

*The PLA's special operations forces (SOF) have increased their focus on training for urban warfare and urban counterinsurgency.*

For the exercise as a whole, “a number of UAVs and UGVs played a key role in cracking the ‘code’ to city offensive and defensive warfare,” according to media coverage of the event.<sup>189</sup> To enable effective reconnaissance under those conditions, the red force deployed the CH-902, a short-range UAV that helped pinpoint the location of the blue command post, artillery positions, and other important targets.<sup>190</sup> The “RoboMaster S1” (机甲大师 S1) UGV was also used to help clear buildings.<sup>191</sup>

In August 2021, the 73rd Group Army engaged in a live-fire exercise with an “amphibious heavy synthetic brigade.” This group army is the successor to and bears the pendant of the Jinan Second Regiment, tracing its history directly back to the Battle of Jinan, which the CCP remembers as a critical turning point in the Chinese Civil War.<sup>192</sup> This historical connection may possess a certain symbolism for the CCP as Xi Jinping aspires to conclude that conflict decades later through what he characterizes as “reunification” with Taiwan. The 72nd Group Army has also explored new models for “manned and unmanned coordinated operations” (有人无人协同作战), using UAVs for missions that include high-altitude reconnaissance, fixed-point strikes, mine sweeping and detonation, and fire support.<sup>193</sup>

## Urban Counterterrorism Operations

The PLA's special operations forces (SOF) have increased their focus on training for urban warfare and urban counterinsurgency. For instance, in the PLA's first comprehensive competition among all of its SOF forces in 2013, one of the contests involved “city indoor counterterrorism proficiency” (城市室内反恐技能) with daytime and nighttime scenarios.<sup>194</sup> The Qingtongxia Training Base at Queshan in Henan Province, which serves as the PLA's main SOF training site, has incorporated facilities dedicated to missions such as “counterterrorism operations.”<sup>195</sup>

The People's Armed Police (PAP), which bolsters the PRC's coercive capability as a paramilitary organization under the CMC, has trained for urban counterterrorism. This emphasis is consistent with PAP's core mission and primary responsibility for the maintenance of domestic stability.<sup>196</sup> Over the past decade, the PAP, including its special forces, has organized a series of exercises focused on urban counterterrorism.<sup>197</sup> For

instance, the Beijing Armed Police Corps and Shanghai Armed Police Corps have practiced “combat methods” that aim to ensure their response to a terrorist incident would be targeted and effective.<sup>198</sup> The Xinjiang Armed Police Corps, which has been among the most heavily militarized and well-resourced of the PAP elements, has engaged in “actual combat training” that involved special forces focused on “fast maneuvering, position determination, terrain interpretation, firepower utilization, and night combat.”<sup>199</sup> Potentially, the PAP could contribute to efforts to suppress unrest and resistance in the aftermath of a Chinese invasion of Taiwan.

## Exchanges in Urban Counterterrorism Operations

Urban counterterrorism has been the topic of several exchanges and joint training exercises that have occurred over the past decade as part of the PLA’s expanding military diplomacy and engagement within the Indo-Pacific and globally.<sup>200</sup> These efforts allow the PLA to learn directly from other militaries’ practices and experiences, including from training with militaries that conduct regular exercises with the United States. However, the actual impact of these activities is difficult to evaluate from available accounts. The PRC’s promotes urban counterterrorism as a shared concern to encourage partnerships with regional militaries. This trend is troubling from a human rights perspective as the PRC’s approach to “counterterrorism” within China, especially in Xinjiang, and perhaps beyond its borders in the future raise grave concerns about human rights abuses.

*Urban counterterrorism has been the topic of several exchanges and joint training exercises that have occurred over the past decade as part of the PLA’s expanding military diplomacy and engagement within the Indo-Pacific and globally.*

### Peace Mission-2009

In July 2009, China and Russia convened “Peace Mission (和平使命)-2009,” an exercise organized through the Shanghai Cooperation Organization (SCO) based on a scenario in which international terrorists infiltrated a major city and then organized mass riots.<sup>201</sup> The exercise concentrated on eliminating the terrorists and suppressing the riots.<sup>202</sup>

### Sino-Thai Joint Training

In 2010, the PLA Navy Marine Corps (PLANMC) and the Thai Marine Corps pursued joint training that focused on counterterrorism operations. The PLA forces participating came primarily from the Guangzhou Military Region. During the program, officers and personnel demonstrated how to search houses, arrest terrorist suspects, and use mixed martial arts.<sup>203</sup> The Thai military, which has experience in counterterrorism from its recent operations in southern Thailand, practiced and demonstrated urban combat, including street patrols.<sup>204</sup> The engagement also included “theoretical exchanges on urban counterterrorism operations.”<sup>205</sup>

### Peace Mission-2014

Peace Mission-2014 involved a major exercise focused on counterterrorism operations among SCO member states. The exercise occurred across mountainous and urban terrain.<sup>206</sup> The urban element of the exercise was convened at the Urban Combat Training Center at Zhurihe.<sup>207</sup> During that component of the exercise, special forces from the five militaries participating concentrated on efforts including “multidimensional containment” (“立体封控”) of urban areas, assault for the rescue of hostages, and rescues of the wounded. At the time, teams of snipers and special forces from China, Russia, and Kazakhstan engaged in a helicopter landing and hunted down “terrorists.”<sup>208</sup> The special forces reportedly employed a radar specialized for reconnaissance and used a small robot to evaluate the situation within a building.<sup>209</sup>

### Sino-Philippine Joint Training

In 2017, the PLA engaged in an exchange with the Philippine military on urban counterterrorism.<sup>210</sup> Participating Filipino personnel shared lessons learned from their firsthand experience with counterterrorism, which has occurred primarily in Mindanao.<sup>211</sup> Reportedly, Chinese military instructors also shared tactics and methods of urban warfare

with their counterparts. At the time, the Philippines' minister of national defense formally proposed further exchanges with the PLA to train in urban warfare and insurgency capabilities.<sup>212</sup> Likewise, China has looked to expand counterterrorism cooperation with the Philippines, including through the transfer of aid and new weapons systems.<sup>213</sup>

### **Cooperation-2017**

The Sino-Russian exercise "Cooperation-2017" ("合作-2017") focused on urban counterterrorism in December 2017. The exercise included assaults on buildings, block searches, suppression battles, and bus anti-hijacking.<sup>214</sup>

### **Cooperation-2019**

The Sino-Singaporean joint training exercise "Cooperation-2019" focused on scenarios of urban counterterrorism in August 2019.<sup>215</sup> PLA and Singaporean military forces demonstrated methods for clearing houses in urban environments. This marked the first time these two militaries had engaged in joint training on urban counterterrorism, focusing on skills that included target surveys and camouflage infiltration. The PRC has leveraged urban counterterrorism as a means of pursuing engagement with ASEAN.<sup>216</sup>

## **Technology and Transformation in Urban Warfare**

“Future urban operations represent a shift from a traditional mode of combat where attacks in the physical domain are the focus to a new mode of combat where virtual and physical space are fused, and psychological attacks are more prominent, and collateral damage is low.”<sup>217</sup> —Wu Mingxi (吴明曦), author of *Intelligent Warfare*

The PLA seeks to leverage new technologies to facilitate future urban warfare. As rapid advances occur in emerging and commercial technologies, the capabilities available to major militaries, as well as non-state actors, are evolving dynamically in ways that may change the conduct and character of these operations

in the long term. Advances in drones and artificial intelligence (AI) technologies are creating new capabilities for militaries. The creation of smart cities and the expansion of existing cities underground promises to change the physical terrain of urban battlefields and heighten their existing complexity. Within the PLA, new concepts of operations and guidance for the conduct of urban operations may accompany revisions and expansions upon the doctrines established by previous generations of campaigns.<sup>218</sup> The PLA believes that future combat will be characterized by the accelerated integration of unmanned systems and the progression of "intelligentization," which has been made a priority in Chinese military strategy and modernization. The application of emerging technologies to create new capabilities could contribute to the PLA's capacity in future urban warfare. However, the complexity of the urban environment may also create distinctive challenges for the realization of the potential of such trends in practice.

### **"Dronification" of Combat**

The PLA's discussion of urban warfare often focuses on the trend toward "dronification" (无人化). The PLA anticipates urban operations will continue to evolve in the direction of "unmanned, intangible (i.e., stealthy), and silent" (无人、无形(隐形) 无声) operations in which remotely operated assets are at the forefront of combat.<sup>219</sup> This assessment is influenced by the PLA's attention to the US military's drive to promote the use of drones and manned-unmanned teaming, as well as the prominent employment of these capabilities by the Israeli military.<sup>220</sup> The PLA views "swarm tactics" with "smart drones" as battle-proven based on their employment in local wars, such as by Azerbaijan against Armenian forces in their 2020 conflict.<sup>221</sup>

PLA scientists and strategists envision fighting unmanned operations in future cities. In one prominent commentary on the topic, PLA analysts anticipated continued technological advancement will make the integration of unmanned intelligent weapons systems into urban operations critical to "minimize casualties and improve combat efficiency," including through enabling precision strikes.<sup>222</sup> The new concepts contemplated but not elaborated upon include ideas of "unmanned denial warfare" (无人

值守拒止战), “urban isolation blockade warfare” (城区隔离封锁战), “psychological cognitive control warfare” (心理认知控制战), and “swarm decapitation warfare” (蜂群斩首破击战).<sup>223</sup> While these concepts are not explained or elaborated upon, these provide indications of the attempts to generate new and more creative approaches. Going forward, the PLA expects swarms of drones to allow for “higher combat effectiveness” and to “perform a variety of tasks in high-risk and complex environments.”<sup>224</sup> The PLA also sees the level of control and safety that can come from using drones ahead of troops as an important instrument to navigate the complex warfare inherent to an urban environment and to manage the political impacts of operations by minimizing collateral damage.<sup>225</sup>

### *Revolutionary Intelligentization*

The PLA believes a revolution in military affairs (RMA) is underway with the advent of “intelligent warfare” and is pursuing military “intelligentization” to develop the capabilities to win future conflicts. Chinese defense experts have described cities as complex potential battlegrounds in which the “boundaries between the front lines and rear areas have become increasingly blurred.”<sup>226</sup> Wu Mingxi (吴明曦), the author of *Intelligent Warfare* who has served as a technical expert to the CMC Equipment Development Department (EDD) and its Science and Technology Commission (S&TC), writes: “At the tactical level, future urban operations will very likely be based on three-dimensional, precision operations with human operators in command but dominated by unmanned systems connected by a network information system, requiring higher levels of intelligentization.”<sup>227</sup>

The initial potential of intelligent operations may manifest in virtual domains, whether in cyber security and electronic warfare or in the “cognitive domain,” which refers to the space of mentality and psychology that influences resolve and decision-making.<sup>228</sup> Chinese military scientists and strategists have urged: “In the cognitive domain, we should give full play to the military’s advantages in political work and make full use of various military and local methods, such as the use of AI face-swapping technology to implement psychological warfare, seizing dominance of the enemy’s will, ideas, psychology, and thinking.”<sup>229</sup> Attempts to wage psychological operations, including

possibly leveraging advances in AI to that end, would feature in any PRC conflict.

### *The Advent of Smart Cities*

The construction of smart cities will reshape the terrain for future warfare, and China has been at the forefront of this trend. The idea of “smart cities” refers to urban design in which cities are highly networked and leverage digital technology to improve services. PLA researchers have explored developing equipment suited for use in future smart cities.<sup>230</sup> In the future, joint operations in smart cities may be particularly challenging but will also present unique opportunities for the exploitation of those environments.<sup>231</sup> PLA scientists and strategists are also exploring the idea that “the winning mechanism of war may change to effective control of the rhythm of war,” arguing that weaker militaries could succeed against stronger ones by more effectively leveraging urban environments.<sup>232</sup>

Within future smart cities that have the requisite digital infrastructure, the development of self-driving vehicles for urban transportation, whether on land or air, will improve the efficiency of transport and contribute to urban combat capabilities. Chinese academics have argued that self-driving vehicles are a promising direction for military-civil fusion (MCF), a national strategy that seeks to create synergies between the civilian and defense economies.<sup>233</sup> Li Deyi, a senior academician in the PLA currently assigned to the Academy of Military Science (AMS) and who has served as president of the Chinese Association for Artificial Intelligence, has promoted developments in self-driving cars and unmanned vehicles in both civilian and military capacities.<sup>234</sup> The PLA seeks to upgrade its light tactical vehicles to embrace “informatization and intelligentization,” including by developing an unmanned vehicle to transport troops.<sup>235</sup>

China’s design of future smart cities can align interests of domestic security and defense with the potential benefits for livability and development. Beyond being designed to maintain CCP control, aspects of China’s smart cities are also aimed at facilitating military operations. China’s system for national defense mobilization looks to utilize data resources to reorient physical resources and maximize production to support a war effort.<sup>236</sup> “Urban

protection and construction,” including how to improve civil air defense, is a traditional and continuing consideration, given China’s experience of foreign invasion.<sup>237</sup> In recent years, major cities, such as Shanghai, have bolstered and upgraded their efforts to improve civil air defense with advanced technology to provide so-called “smart civil air defense.”<sup>238</sup> China has also been pursuing drills and integrating civil air defense and other forms of civilian defenses with military operations for its cities.<sup>239</sup>

### ***Underground Warfighting***

PLA analysts predict operations in an underground environment will compound the challenges of urban warfare while boosting the preexisting advantage cities confer upon defenders.<sup>240</sup> One PLA commentator urged the PLA to prepare for battles underground, predicting that “[f]uture underground operations will be mainly carried out in the underground spaces of megacities and strategic cities.”<sup>241</sup> Other commentators concluded that the continued expansion of space underground presents advantages that are expected to change the conduct of operations.<sup>242</sup> The PLA has taken note that the US military has pursued training for urban combat underground.<sup>243</sup>

## **Ongoing Armaments Development for Urban Warfare**

Beyond the PLA, Chinese companies involved in the defense industry have started to develop weapons and equipment specifically for urban operations. As more-successful systems are produced and deployed, the PLA’s capabilities to engage in operations in an urban environment will improve.

### ***Tanks and Armored Vehicles***

While new vehicles tend to grab the spotlight, the PLA has been upgrading existing models of tanks to be suited better for operations in an urban environment. For example, the Type 96A, a main battle tank, has been improved with “new modular composite armor and reactive armor” and metal grilles, as well as equipped with an advanced fire control apparatus and night vision system. This upgraded model was shown in use

in urban warfare training in 2020.<sup>244</sup> The design is said to reflect the PLA’s perspective on lessons learned from previous instances of urban warfare that highlighted the importance of tank survivability.<sup>245</sup> The changes in armor and the addition of metal grilles improve the vehicle’s ability to deal with rockets and Molotov cocktails—dangerous threats to armored vehicles in a hostile urban environment, according to media reporting.<sup>246</sup> Other tanks, such as the Type 96B, have had “remote control weapons stations” installed to enable tank crews to operate machine guns and other weapons designed to deal with targets closer to the tank more safely and effectively than the main gun can hit.<sup>247</sup>

Beyond upgrading older models, the PLA is also introducing new tanks into wider service. The Type 15, China’s most advanced lightweight tank, entered service with the PLA Navy’s Marine Corps as of June 2021.<sup>248</sup> Previously, only the PLA Army was equipped with the Type 15.<sup>249</sup> The Type 15 is designed to be suited to “amphibious landing and fast reaction tasks” and could also operate in urban warfare scenarios.<sup>250</sup>

China North Industries Group Corporation Ltd. (NORINCO) has been at the forefront of developing and exporting tanks and armored vehicles as well as unmanned systems. Beyond the PLA’s own demands, overseas customers are reportedly seeking improved urban warfare protections for Chinese tanks, such as the VT-5.<sup>251</sup> Other specialized vehicles are also under development, such as the PT3 Type 4X4 Light-duty Armored Vehicle, which includes protection against mines and improvised explosive devices (IEDs) and is advertised as “internationally leading” and as being suitable for military operations and military operations other than war, including urban operations.<sup>252</sup>

### ***Rockets***

Beyond the PLA’s existing armaments, specialized rockets may be necessary for the urban environment. For instance, the “Assault Hand-1” rocket (“突击手-1”火箭弹), debuted in 2014 by the China Poly Group, is China’s first domestically produced rocket specifically designed for urban warfare.<sup>253</sup> The rocket includes a warhead designed to cause minimal collateral damage, to be reliable at close ranges, and to be launchable with limited space. The rocket is also advertised as producing “micro” sound, light, flame, and recoil.<sup>254</sup>

## Drones

The PLA has increasingly incorporated drones, both aerial and ground, into its urban warfare training in recent years, having found them to be critical to effectively conducting operations. PLA drones include DJI's "RoboMaster S1" (机甲大师S1), a small UGV that the 72nd Group Army has used in urban warfare training.<sup>255</sup> The PLA uses the RoboMaster S1, which is also available commercially, for reconnaissance in simulated urban environments and has praised its maneuverability, which allows it to advance ahead of soldiers to areas where visibility would be limited, such as building entrances and intersections.<sup>256</sup>



**ABOVE:** DJI's "RoboMaster S1" small UGV was used in a May 2021 exercise to facilitate clearing a building.<sup>257</sup>

The PLA is also actively working to promote the development of drones through competitions it hosts and organizes, which have been convened both by the CMC and through individual services. For example, the PLA Army Equipment Development Department organized the first "Crossing Obstacles" (跨越险阻) event in 2016, an annual challenge series intended to promote the development of UGVs.<sup>258</sup> One of the components in the first iteration of Crossing Obstacles was "urban battlefield reconnaissance and search."<sup>259</sup> Like many of the defense equipment and technology competitions that the PLA has sponsored, this series benefits from the competition introduced through the involvement of research institutes, private enterprises, and other stakeholders in addition to traditional state-owned enterprises.<sup>260</sup>

Beyond the development of drones for use by the PRC armed forces, certain systems are being created and primarily promoted for export to foreign militaries. This effort could make these weapon systems relevant to current and future conflicts worldwide, even those

that do not involve the PLA. For instance, Tianjin Zhongwei Aerospace Data System Technology is developing a mini quadcopter, "Tianyi" for export. Tianyi is "designed to carry out both reconnaissance missions and close-range strikes against armored vehicles or individuals in an urban environment."<sup>261</sup>

## Training Environments

To complement its dedicated urban warfare training facilities, the PLA has been working with Chinese technology companies to enhance the realism and impact of PLA training environments. The Beijing Aerospace Changfeng Corporation, for example, has been responsible for several technologies introduced to Zhurihe's urban warfare training ground, such as a video surveillance network and the "Joint Situation Display System" that helps improve awareness of ongoing operations.<sup>262</sup> Zhurihe has also introduced a "laser simulation system" that makes it so struck troops lose their ability to attack and are identified by smoke.<sup>263</sup>

Several Chinese companies also supply the PLA with battlefield simulation systems to facilitate training. For instance, Huaru Technology provides a system that can simulate the impact of cities "on the effectiveness of troops' operations and equipment, creating actual weapons and ammunition explosions, personnel injury, equipment actual damage and other battlefield atmospheres."<sup>264</sup> Beijing Qingyun Technology Co., Ltd. (北京青云科技股份有限公司) has developed an "urban combat digital training environment system platform" that integrates a three-dimensional situation display, a synchronized video display, and the synchronous acquisition and storage of combat data.<sup>265</sup> The PLA's National University of Defense Technology also sought to acquire an urban warfare visual simulation system as of fall 2021, but the details were limited.<sup>266</sup>

*Beyond the development of drones for use by the PRC armed forces, certain systems are being created and primarily promoted for export to foreign militaries.*

## Concluding Assessments

The PLA's history with urban warfare informs its current thinking and outlook on future operational challenges. During the Chinese Civil War, after the initial failures of the Red Army, the Red Army/PLA's capacity to learn to conquer and hold urban areas proved crucial for its eventual victory. In China's later conflicts beyond its borders, the PLA's approach to urban areas adapted, introducing coercive tactics, such as attempts to eliminate enemy troops to achieve political objectives. Beyond such historical experiences, the PLA's efforts to adapt have been influenced by studying foreign militaries, including that of the United States, and through ongoing experimentation. The continued development of training facilities, such as the Zhurihe urban warfare training ground, further supports this learning effort by providing an environment for more realistic training that can improve combat readiness.

As Taiwan and the United States evaluate CCP intentions and the PLA's readiness for an invasion scenario, its potential preparedness for urban warfare will be a salient consideration. At present, the PLA's prospects for success in such a contingency remain inherently uncertain. During the Chinese Civil War, the Red Army "learned about warfare in warfare" (在战争中学习战争), as Mao Zedong famously emphasized. By contrast, the PLA today can learn only from its study of other militaries' operations and seeks to place those lessons into practice by pursuing realistic combat training. The PLA's outlook on urban warfare is particularly informed by a close study of American debates and experiences, such that elements of its strategic thinking and approach tend to emulate or respond to these influences.<sup>267</sup> Beyond the façade of confidence portrayed in CCP propaganda, the PLA may have reasons for concern about the challenges and unpredictability of operations in an urban environment.

As recent history has demonstrated, urban warfare is an art often unmastered by even the most experienced militaries, and the PLA's capacity to learn and prepare during peacetime remains to be tested. From training to experimentation with emerging capabilities, the PLA's improving proficiency in urban warfare and the PAP's capacity to engage in "counterterrorism" operations to force stability will be important benchmarks to consider in evaluating its modernization and readiness for potential conflict contingencies in the years to come. The PLA's apparent improvements in its preparation for urban warfare may belie notable difficulties. Potential shortcomings could include the still-limited realism of its training environments, particularly those geared toward Taiwan.

As the PLA displays its increasing operational capabilities, including for urban warfare, Taiwan has reacted by looking to bolster its capacity for defense. Taiwan's military strategy has introduced an emphasis on "Resolute Defense and Multi-Domain Deterrence," and Taiwanese military exercises also reflect growing concerns with these challenges.<sup>268</sup> The fall 2021 iteration of Taiwan's annual Han Kuang exercises involved a simulated decapitation attack and preparations for urban warfare, electronic warfare, and cyberattacks.<sup>269</sup> The Taiwanese armed forces are also building new combat training facilities that incorporate mock gas attacks, nighttime combat, and urban warfare to improve troops' capacity to manage stress and demanding combat conditions.<sup>270</sup> In January 2022, Taiwan's Ministry of National Defense launched a new agency, the All-out Defense Mobilization Agency (全民防衛動員署), to further improve the capabilities of Taiwan's reserves. The agency was created by upgrading and expanding the existing All-out Defense Mobilization Office that had been under the ministry's headquarters.<sup>271</sup> Prior to the agency's launch, it was reported that members were going to travel to the United States for talks,

training, and exchanges to learn from America's experiences on the topic.<sup>272</sup>

## Considerations and Recommendations for US Responses

To date, the PRC's approach to urban warfare and options for improving Taiwan's urban defenses have been relatively under-emphasized by Taiwan and its allies, compared to other important components of an invasion campaign. While US strategists today debate the relevance of lessons learned from the Global War on Terror for great power rivalry or strategic competition, the future conduct of urban warfare might retain enduring relevance. Urban warfare could be a central feature of the most serious scenarios that US, Taiwanese, and Chinese planners currently contemplate. The PLA's calculus will be affected by its confidence in and capability to undertake an urban offensive to seize and maintain control of Taiwan's capital and other major cities. On this front, contemporary American experiences in urban warfare are relevant, not only given the influence upon the PLA's approach but also insofar as US concepts and proficiency could be leveraged to complicate China's calculus.

US adaptation of past practices to current challenges will demand a series of paradigm changes. American strategists and practitioners of urban warfare must start to consider the challenges of defending, rather than primarily assaulting, cities. The United States should apply the lessons it learned from urban counterterrorism and counterinsurgency operations to contingencies in which the US military could be engaged in aid and support of Taiwanese defenders against invasion by a peer adversary. The ongoing American engagement with Taiwan to bolster its capacity for defense and national resilience can continue to evolve towards improved defenses and capacity for resistance, perhaps with a greater focus on urban areas.

As concerns intensify in the United States and Taiwan on the prospects of a Chinese invasion within the next decade, these questions about urban

warfare take on greater strategic importance. While there is no singular solution to these complex strategic and operational challenges, several potential options may merit consideration going forward.

- US and Taiwanese defense strategy must be informed by a sophisticated understanding of the PLA's capabilities and increasing investments in urban warfare. The expansion of training and technologies for urban warfare could be a strategic warning indicator for PRC intentions and plans towards Taiwan.
- Propaganda on urban warfare training and the demonstration of relevant capabilities will likely continue to be used, or is being used, in PLA information campaigns to undermine Taiwanese and allied resolve.
- The strengthening of urban warfare training and urban defenses should be an important component of Taiwan's and its allies' overall defensive preparations. Taiwan and its partners should invest in and harden urban defenses in Taipei and other key cities as part of a successful deterrence-by-denial strategy. US military-to-military training and exchanges should continue to expand efforts to bolster Taiwan's capacity to defend major cities.<sup>273</sup>
- US efforts and programs focused on urban warfare should reorient, where relevant, to concentrate on the distinct challenges of the Indo-Pacific operational environment. For instance, existing training facilities focused on urban warfare should be adapted to simulate cities of greater scale and complexity to reflect that cities in Asia are different from the cities that have been the focus of much US thinking, practice, and training on urban warfare to date.<sup>274</sup>



Findings could then be incorporated into joint training with its regional allies and partners.

- In the process, the United States should make efforts to capture lessons learned about urban warfare and leverage existing institutions and communities that developed proficiency, such as the Asymmetric Warfare Group (AWG), while recognizing where current thinking must be adapted or challenged.<sup>275</sup>
- The US military can facilitate exchanges and training among allies and partners with relevant experiences in urban warfare and countering hybrid warfare, allowing for concepts and relevant practices to be shared across theaters and combatant commands. Potentially, aspects of the “Resistance Operating Concept” (ROC), developed through Special Operations Command Europe (SOCEUR), which highlights a concept of “total defense,” may be relevant to Taiwan going forward.<sup>276</sup>
  - The Resistance Operating Concept is a planning guide for the United States and partner nations intended to ensure “each side speaks the same [operational] language, and they can go ahead and plan together for resistance,” according to its primary author, Dr. Otto Fiala.<sup>277</sup>
- The US and Taiwanese militaries should continue to concentrate on creating countermeasures against PLA tactics and systems that are likely to be employed in future urban operations. For example, the PLA evidently intends to leverage a range of drones, from small quadcopters to unmanned ground systems, to facilitate urban operations. Experimentation with and the deployment of systems that can jam or disrupt these systems could undercut situational awareness. US arms sales to Taiwan could include such capabilities.
- Beyond ongoing educational, exchange, and training activities with regular units in the Taiwanese military, the US armed forces should also consider pursuing expanded engagement with Taiwan’s reserve force of 2.5 million personnel and perhaps even Taiwan’s nearly 1 million civil defense volunteers.<sup>278</sup>
  - Taiwan’s reserve force, if properly prepared and utilized, could be a key factor in a Taiwan scenario that results in combat in urban environments, given that it outnumbers the PLA’s active force and might outnumber the force that the PLA would likely deploy in a full-fledged invasion of Taiwan. Given the reporting on perceived weaknesses in the reserve force, a focus on practical education and training by US personnel may be useful to improving both capability and morale.<sup>279</sup>

*The strengthening of urban warfare training and urban defenses should be an important component of Taiwan’s and its allies’ and partners’ overall defensive preparations.*

## Questions for Future Research and Analysis

*The PLA's approach to urban warfare will merit analysis and continued evaluation as its efforts to learn, reform, and innovate continue. Several questions for continued analysis and consideration might include:*

- What are the metrics by which the PLA assesses its progress and capacity to undertake urban warfare?
- Will the PLA increase the frequency, scale, or complexity of its training for urban warfare as China seeks to enhance its capabilities to pursue “reunification” with Taiwan, perhaps by 2027?
- How does the PLA assess Taiwan’s defenses and potential resilience against attacks on its cities?
- How capable are small teams or ad hoc formations, such as from PLA special forces, at operating with relative autonomy from their commanders in complex urban environments in which communications may be denied?
- Will China shift a greater share of political warfare geared toward using local allies away from civilian organizations and back toward the PLA, which historically ran them in past conflicts?
- To what extent do or will ongoing China-Russia military-to-military exchanges involve more engagement on lessons learned from Russia’s experience with urban warfare?
- Could the PLA’s growing reliance upon drones become a potential vulnerability given possible countermeasures?
- As the PLA continues to develop autonomous or “intelligent” weapons systems, what level of confidence, such as based on testing and verification, will it require in these capabilities prior to deploying them in an urban environment?
- Will the PLA incorporate additional forces beyond the traditional red and blue in confrontation training in urban environments that have already been seen in other environments?
- Will the PLA resume and expand exchanges on issues of urban warfare and counterterrorism in the aftermath of the pandemic?

# Endnotes

- 1 Adela Suliman, "China's Xi vows peaceful 'unification' with Taiwan, days after sending a surge of warplanes near the island," *The Washington Post*, October 9, 2021, <https://www.washingtonpost.com/world/2021/10/09/china-xi-taiwan-unification-speech/>.
- 2 Xiao Tianliang [肖天亮], *Science of Military Strategy* [战略学], (Beijing: National Defense University Press, 2020), pg. 232. PLA writings have also used the phrasing "island urban offensive" (岛上城市进攻) on occasion.
- 3 "Soldiers drill urban warfare scenario," *Formosa TV English News*, January 6, 2022, <https://www.youtube.com/watch?v=C7cU2psOgV4>.
- 4 For a look at what such an event and response might look like, see Joel Wuthnow, Phillip C. Saunders, and Ian Burns McCaslin, "PLA Overseas Operations in 2035: Inching Towards a Global Combat Capability," *Strategic Forum*, No. 309 (May 2021), <https://www.ndu.edu/News/Article-View/Article/2619742/pla-overseas-operations-in-2035-inching-toward-a-global-combat-capability/>.
- 5 This has been motivated in particular by concerns about the situation in Xinjiang.
- 6 "打" here also could be rendered as "striking," "fighting," or "shooting" depending on the context. Here, "battling" is chosen as for the title and translation primarily for stylistic purposes. Sometimes, the idea is conveyed with slightly different phrasing: "在瓷器店里捉老鼠" where 捉 implies catching or capturing, rather than killing, mice or rats.
- 7 Qian Daichao [钱代朝] and Zhao Xiangang [赵先刚], "Urban Operations: how to 'battle rats in a china shop'" [城市作战：如何在瓷器店中打老鼠], *PLA Daily* [解放军报], June 7, 2018, [http://www.81dot.cn/jfjbmap/content/2018-06/07/content\\_208063.htm](http://www.81dot.cn/jfjbmap/content/2018-06/07/content_208063.htm).
- 8 Qian Daichao [钱代朝] and Zhao Xiangang [赵先刚], "Urban Operations: how to 'battle rats in a china shop'" [城市作战：如何在瓷器店中打老鼠], *PLA Daily* [解放军报], June 7, 2018, [http://www.81dot.cn/jfjbmap/content/2018-06/07/content\\_208063.htm](http://www.81dot.cn/jfjbmap/content/2018-06/07/content_208063.htm).
- 9 Sun Tzu, *Art of War*, (London, England: Oxford University Press, 1963), pg. 78. There are several different renderings of this saying from classical Chinese. This quotation is an excerpt from the full statement ("故上兵伐谋，其次伐交，其次伐兵，其下攻城。攻城之法，为不得已"), which can be translated as follows: "Thus the highest form of generalship is to balk the enemy's plans; the next best is to prevent the junction of the enemy's forces; the next in order is to attack the enemy's army in the field; and the worst policy of all is to besiege walled cities. The rule is, not to besiege walled cities if it can possibly be avoided." See: Giles, Lionel, "SUN TZU ON THE ART OF WAR THE OLDEST MILITARY TREATISE IN THE WORLD Translated from the Chinese." *Sun Tzu On The Art Of War* (1910).
- 10 Russell W. Glenn, *Combat in Hell: A Consideration of Constrained Urban Warfare*, (Santa Monica, CA: RAND CORP, 1996); ""War in Hell": Explaining how modern urban warfare should be fought" [“地狱里的战争”：详解现代城市作战应该怎么打], *PLA Daily* [解放军报], December 23, 2021, [http://www.news dot cn/mil/2021-12/23/c\\_1211497582.htm](http://www.news dot cn/mil/2021-12/23/c_1211497582.htm).
- 11 Qjushi Magazine Research Group [求是杂志社调研组], "The Battle of Jinan kicked off the strategic decisive battle" [济南战役，揭开了战略决战的序幕], *Seeking Truth* [求是], May 24, 2021, [http://www.qstheory.cn/laigao/ycjx/2021-05/24/c\\_1127486431.htm](http://www.qstheory.cn/laigao/ycjx/2021-05/24/c_1127486431.htm).
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- 13 For reference: Tonio Andrade, "Early Gunpowder Warfare," in *The Gunpowder Age*, (Princeton, NJ: Princeton University Press, 2016), pg. 29-43.
- 14 For reference, see Stephen R. Platt, *Autumn in the Heavenly Kingdom: China, the West, and the Epic Story of the Taiping Civil War*, (New York, NY: Knopf, 2012).
- 15 For a look at the international reach of a famous image of the devastation in Shanghai, see Paul French, *Through the Looking Glass: China's Foreign Journalists from Opium Wars to Mao*, (Hong Kong: Hong Kong University Press, 2009), pg. 192-193.
- 16 Bruce Elleman, *Moscow and the Emergence of Communist Power in China, 1925-30: The Nanchang Uprising and the Birth of the Red Army*, (London and New York, Routledge: 2009), pg. 1. Even prior to the official formation of the Red Army, the CCP often leveraged paramilitary organizations, such as armed workers, within cities, as in the three uprisings of Shanghai in the 1920s. For example, during the Third Shanghai Uprising, several thousand trained armed and unarmed workers under CCP control attacked police on the streets, captured police stations in Chinese sections of the city, and seized arms, among other things. See C. Martin Wilbur and Julie Lien-ying How, *Missionaries of Revolution: Soviet Advisers and Nationalist China, 1920-1927*, (Cambridge, MA: Harvard University Press, 1989), pg. 399.
- 17 C. Martin Wilbur and Julie Lien-ying How, *Missionaries of Revolution: Soviet Advisers and Nationalist China, 1920-1927*, (Cambridge, MA: Harvard University Press, 1989), pg. 418; Bruce Elleman, *Moscow and the Emergence of Communist Power in China, 1925-30: The Nanchang Uprising and the Birth of the Red Army*, (London and New York: Routledge, 2009), pg. 137-138.
- 18 Early Chinese Communist areas of control were usually referred to by the area covered and the word "soviet." These soviets could last hours or even more than a year. Bruce Elleman, *Moscow and the Emergence of Communist Power in China, 1925-30: The Nanchang Uprising and the Birth of the Red Army*, (London and New York: Routledge, 2009), pg. 137-138.
- 19 Bruce Elleman, *Moscow and the Emergence of Communist Power in China, 1925-30: The Nanchang Uprising and the Birth of the Red Army*, (London and New York: Routledge, 2009), pg. 156.
- 20 Bruce Elleman, *Moscow and the Emergence of Communist Power in China, 1925-30: The Nanchang Uprising and the Birth of the Red Army*, (London and New York: Routledge, 2009), pg. 156 and 164.
- 21 The next attempt to occupy a city involved an even smaller force targeting Guangzhou, and it failed even more quickly in only two days. According to the Chinese Communist commander of the operation, only 1,200 of those that participated were actual troops. See Bruce Elleman, *Moscow and the Emergence of Communist Power in China, 1925-30: The Nanchang Uprising and the Birth of the Red Army*, (London and New York: Routledge, 2009), pg. 164.
- 22 This practice alienated the local population and was largely dropped after a few years. See Roy Hofheinz, Jr., *The Broken Wave: The Chinese Communist Peasant Movement, 1922-1928*, (Cambridge, MA: Harvard University Press, 1977), pg. 244-247.
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- 25 Harold M. Tanner, "Big Army Groups, Standardization, and Assaulting Fortified Positions: Chinese 'Ways of War' and the Transition from Guerilla to Conventional Warfare in China's Northeast, 1945-1948," *Journal of Chinese Military History*, Vol. 1, (2012), pg. 110.
- 26 Harold M. Tanner, "Learning Through Practice: Lin Biao and the Transition to Conventional Combined Operations in China's Northeast, 1946-1948," *Journal of Chinese Military History*, Vol. 3, Is. 1 (May 2014), pg. 25. The 1946 and 1947 battles of Siping are two examples of such continued struggle with urban warfare by the PLA. See Harold M. Tanner, *The Battle for Manchuria and the Fate of China: Siping, 1946*, (Bloomington and Indianapolis, IN: Indiana University Press, 2013), pg. 106-164 and 202-204; Harold M. Tanner, "Learning Through Practice: Lin Biao and the Transition to Conventional Combined Operations in China's Northeast, 1946-1948," *Journal of Chinese Military History*, Vol. 3, Is. 1 (May 2014), pg. 28.
- 27 Harold M. Tanner, *Where Chiang Kai-shek Lost China: The Liao-Shen Campaign, 1948*, (Bloomington and Indianapolis, IN: Indiana University Press, 2015), pg. 140-158; Harold M. Tanner, "Learning Through Practice: Lin Biao and the Transition to Conventional Combined Operations in China's Northeast, 1946-1948," *Journal of Chinese Military History*, Vol. 3, Is. 1, May 2014, pg. 3-46.
- 28 Harold M. Tanner, "Big Army Groups, Standardization, and Assaulting Fortified Positions: Chinese 'Ways of War' and the Transition from Guerilla to Conventional Warfare in China's Northeast, 1945-1948," *Journal of Chinese Military History*, Vol. 1, (2012), pg. 128-130 and 135.
- 29 Harold M. Tanner, "Big Army Groups, Standardization, and Assaulting Fortified Positions: Chinese 'Ways of War' and the Transition from Guerilla to Conventional Warfare in China's Northeast, 1945-1948," *Journal of Chinese Military History*, Vol. 1, (2012), pg. 130.

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- 31 The changes saw each company divided into four teams, dedicated to firepower, strike, demolition, and reserve respectively. Harold M. Tanner, "Big Army Groups, Standardization, and Assaulting Fortified Positions: Chinese 'Ways of War' and the Transition from Guerilla to Conventional Warfare in China's Northeast, 1945-1948," *Journal of Chinese Military History*, Vol. 1, (2012), p. 128-130.
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- 36 For an idea of the differences in views of the importance of the Battle of Jinan with the non-PRC expert world, one of the most well-regarded books on the latter half of the Chinese Civil War, Odd Arne Westad's *Decisive Encounters: The Chinese Civil War, 1946-1950*, mentions the Battle of Jinan only once (for a few lines). There is virtually no outside scholarly work on the event, with very few even mentioning the event indirectly or in passing, as confirmed by searches of several non-PRC Chinese military, history, and politics journals.
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- 51 Odd Arne Westad, *Decisive Encounters: The Chinese Civil War, 1946-1950*, (Stanford, CA: Stanford University Press, 2003), pg. 199.
- 52 Odd Arne Westad, *Decisive Encounters: The Chinese Civil War, 1946-1950*, (Stanford, CA: Stanford University Press, 2003), pg. 207.
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- 60 Even prior to that defection, the CCP had infiltrated local Nationalist forces successfully, to an extent where several other high-ranking officers were also prepared to revolt in support. Joseph K. S. Yick, *Making Urban Revolution in China: The CCP-GMD Struggle for Beijing-Tianjin, 1945-1949*, (Armonk, NY: M. E. Sharpe, 1995), pg. 166.
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- 66 Mark Stokes and Russell Hsiao, *The People's Liberation Army General Political Department*, (Arlington, VA: The Project 2049 Institute, 2013).
- 67 This included through individuals gathering intelligence on the Nationalists (civilian and military personnel) and potentially 'reactionary' locals who might cause trouble for the Communists. See Joseph K. S. Yick, *Making Urban Revolution in China: The CCP-GMD Struggle for Beijing-Tianjin, 1945-1949*, (Armonk, NY: M. E. Sharpe, 1995), pg. 167-170.
- 68 With Mao's primacy in Chinese Communism thereafter, his responsibility for prior failures was obscured, including those related to urban warfare. For example, criticism appears to have also been partially leveled at subordinates involved in the Northeast operations in order to avoid criticizing those higher authorities, namely Mao himself, who had made earlier dubious decisions, such as for the failed defense of Siping in 1946. See Harold M. Tanner, *The Battle for Manchuria and the Fate of China: Siping, 1946*, (Bloomington and Indianapolis, IN: Indiana University Press, 2013), pg. 207-213.
- 69 Xiaobing Li, *China's Battle for Korea: The 1951 Spring Offensive*, (Bloomington, IN: Indiana University Press, 2014), pg. 53.
- 70 Xiaobing Li, *China's Battle for Korea: The 1951 Spring Offensive*, (Bloomington, IN: Indiana University Press, 2014), pg. 53-54.
- 71 This apparent preference in dealing with India may change in the future as urban areas in India near China continue to grow and as the PLA continues to build up its power project capacity closer to India.
- 72 What is generally known as the "Battle of Seoul" was technically a series of five battles focused in and around the South Korean capital. Robert Cameron, "Armored Operations in Urban Environments: Anomaly or Natural Condition?," *Armor*, May-June 2006, pg. 8.
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- 77 *Ibid.*, pg. 95 and 104; Edward C. O'Dowd, *Chinese Military Strategy in the Third Indochina War: The Last Maoist War*, (New York: Routledge, 2007), pg. 74.
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- 80 Xiaoming Zhang, *Deng Xiaoping's Long War: The Military Conflict between China and Vietnam, 1979-1991*, (Chapel Hill, NC: The University of North Carolina Press, 2015), pg. 107 and 111.
- 81 Xiaoming Zhang, *Deng Xiaoping's Long War: The Military Conflict between China and Vietnam, 1979-1991*, (Chapel Hill, NC: The University of North Carolina Press, 2015), pg. 108.
- 82 Xiaoming Zhang, *Deng Xiaoping's Long War: The Military Conflict between China and Vietnam, 1979-1991*, (Chapel Hill, NC: The University of North Carolina Press, 2015), pg. 112.
- 83 The practice of occupying urban areas briefly to primarily loot them and kill local enemies did occur with some units during the early years of the Chinese Civil War. See Roy Hofheinz, Jr., *The Broken Wave: The Chinese Communist Peasant Movement, 1922-1928*, (Cambridge, MA: Harvard University Press, 1977), pg. 244-247.
- 84 Xiaoming Zhang, *Deng Xiaoping's Long War: The Military Conflict between China and Vietnam, 1979-1991*, (Chapel Hill, NC: The University of North Carolina Press, 2015), pg. 112.
- 85 Jane Perlez, "Shadow of Brutal '79 War Darkens Vietnam's View of China Relations," *The New York Times*, July 5, 2014, <https://web.archive.org/web/20210314182211/https://www.nytimes.com/2014/07/06/world/asia/06vietnam.html>.
- 86 Xiaoming Zhang, *Deng Xiaoping's Long War: The Military Conflict between China and Vietnam, 1979-1991*, (Chapel Hill, NC: The University of North Carolina Press, 2015), pg. 1.
- 87 For a look at how the PLA perceived the conflict and lessons learned, along with a comparison to foreign outlooks, see Xiaoming Zhang, *Deng Xiaoping's Long War: The Military Conflict between China and Vietnam, 1979-1991*, (Chapel Hill, NC: The University of North Carolina Press, 2015), pg. 115-140.
- 88 For one good example of critique by an outside expert, see Edward C. O'Dowd, *Chinese Military Strategy in the Third Indochina War: The Last Maoist War*, (New York: Routledge, 2007).
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- 90 For more on the PLA's enemy political work in this invasion, see Edward C. O'Dowd, *Chinese Military Strategy in the Third Indochina War: The Last Maoist War*, (New York: Routledge, 2007), pg. 133-142.
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