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Rebuilding the Ukrainian Navy

The rapid and illegal annexation of the Crimea in 2014 by the Russian Federation has had a profoundly negative effect on the Ukrainian Navy. After the seizure, the Ukrainian Navy was described by many commentators as having been ‘decimated’ or ‘destroyed’.¹ Andri Ryzenko, the former Deputy Head of the Ukrainian Navy, described the fleet, as an ‘operational shadow of its former self’ in urgent need of modernisation and rebuilding.² As a result of the Russian annexation, the Ukrainian Navy lost the majority of its warships, including its most modern platforms, access to its military and maritime infrastructure and ports in Crimea and the majority of its maritime service personnel. The Ukrainian Navy also lost access to a third of its Black Sea coastline, control of the Kerch Straits and access to the defence industries located in Crimea.³ Despite the slow return by Russia of some of Ukraine’s maritime platforms, the seizure by Russia of many of Ukraine’s major warships and much of its naval aviation and air assets has dealt a serious blow to the already small Ukrainian navy. In light of these severe losses, and the realisation of the important role maritime forces can play in the war in the east and, in protecting Ukraine’s interests in its EEZ, there is a growing recognition within the Ukrainian Government of the need to rebuild the Ukrainian Navy. This necessity was outlined in 2015 in Ukraine’s military doctrine. It points out the importance of reviving ‘the naval potential of the state, of the Naval forces of Ukraine’ to enhance Ukraine’s security.⁴ In October 2014 the Ukrainian President, Petro Poroshenko, confirmed his government’s commitment to modernising and upgrading the Ukrainian Navy. He stated that Ukraine would equip the navy with state of the art precision weapons making the ships more effective.⁵ This commitment by the President was reiterated just over six months later during a visit to Odessa where he announced plans to ‘revive’ the Ukrainian Navy so that the fleet could ‘become a strong stabilising factor in coastal regions’.⁶

This paper examines the attempt by the Ukrainian Government to rebuild the Ukrainian Navy and explores the many challenges that it faces. As such, it is divided into three sections. The first section examines why maritime power is important to Ukraine. It argues that

Ukraine's commercial and economic interests have already been adversely affected by the lack of a Navy. The war in the east has revealed the vulnerability of Ukraine's coastline, and Russian seizure of maritime infrastructure, as well as attempts to drill in Ukraine's territorial waters, have also reinforced the urgent requirement to re-build the fleet. The second section explores the range of difficulties facing Ukraine in re-building its navy. These factors include the impact of the Russian annexation of Crimea, the lack of coherent and realistic concept for the navy, and Ukraine's economic and political instability. The final section outlines the quantitative and qualitative aspects of Ukraine's maritime power and evaluates what progress has been made so far in rebuilding the Ukrainian Navy. Overall, the outlook for the Ukrainian navy is problematic. The material challenges facing the attempt to rebuild its capabilities are multiplied by wider difficulties in defining exactly what kind of navy that Ukraine should have. As a case study, an examination of the Ukrainian navy is interesting for many reasons. It illustrates the often intrinsic link between land and maritime power: for Ukraine's navy, the loss of Crimea has been equivalent to or worse than the loss of a fleet action. It demonstrates the problems of 're-building in contact,' where medium to long-term maritime interests may have to be mortgaged against short-term military needs. Finally, it demonstrates the problems of generating maritime capabilities in a weak state context in which economic and political instability interfere with the ability to establish and implement effective maritime policy and strategy.

Ukraine as a maritime state

Long land borders and proximity to Russia necessarily have given the Ukrainian state a strong continental focus. But Ukraine also has important maritime interests. Ukraine's President, Petro Poroshenko, has stated unequivocally that 'Ukraine, was, is and will be a maritime state.'⁷ Some of these maritime interests are economic in nature but others are military-strategic. Ukraine's economic maritime interests have been spelt out by the Deputy Head of the Ukrainian Navy, Andriy Ryzhenko, who pointed out that Ukraine's prosperity, its economy and the potential growth of tax revenues depend upon the realisation of its maritime potential.

A quarter of Ukraine's GDP is generated by the five regions with access to the sea.⁸ Ukraine's maritime ports and maritime infrastructure in the Black Sea are important national strategic facilities.⁹ Before the annexation, Ukraine had 20 commercial seaports, eighteen of these were state owned, and together they contributed more than UAH 1.55 billion (approximately \$150 million) to the Ukrainian state budget.¹⁰ While Ukraine has lost access to five of its ports located in Crimea, it retains the four important commercial ports of Odessa, Illichivsk and Yuzhny, located on the north western coast of the Black Sea, and Mariupol in the Sea of Azov. Taken together these ports account for almost 70% of the total commercial cargo into Ukraine. In a sign of their significance to the Ukrainian economy, Ukraine increased its container turnover by almost 6% in the first quarter of 2016.¹¹ Further demonstrating the economic importance of these ports, it was announced, in early 2016, that \$100 million had been invested by a private company to build a grain terminal in Yuzhny.¹² Ukraine's ports also matter as Ukraine has an export oriented economy and is a major exporter of machinery, grain, coal, steel and fertilizers which are shipped out through its ports. Indeed, these are of growing importance and from 2015 to 2016 Ukraine increased its export volume by 12%.¹³ Mariupol, for example, is the busiest commercial maritime hub on the Sea of Azov, and, before the Russian annexation of Crimea, produced almost a third of the Donetsk region's total industrial output and over 70 percent of the regions steel production.¹⁴ There is therefore clearly an important need for Ukraine to be able to protect trade and its commercial ports in the future to secure future economic growth and development. As a result of these important maritime economic and commercial interests the rebuilding of 'a modern navy equipped with warships' is clearly necessary to protect Ukraine's national interests.¹⁵

Direct threats to Ukraine's land-based maritime interests have been accompanied by challenges to its Exclusive Economic Zone (EEZ). Illustrating Ukraine's growing vulnerability in this sphere, in December 2015 Russia hijacked three offshore oil drilling rigs, worth hundreds of millions of dollars, located in Ukrainian territorial water at the Odessa gas field about 100km east of Ukraine's coastline and towed them back to Crimea.¹⁶ Ukraine's State Border Service claimed that these seizures also demonstrated that Russia has plans to begin drilling for oil in

Ukraine's EEZ.¹⁷ This suspicion was confirmed in July 2016 when Ukrainian border guards spotted jack-up rigs, stationary platforms and support vessels under Russia's national flag in the Odessa and Holitsyno gas field located in Ukraine's EEZ.¹⁸ Fearing additional possible incursions and drilling in its EEZ, in February 2016, the Ukrainian Navy and the State Border Service's Marine guards enhanced the security of Zmiinyi Island in the Black Sea near Ukraine.¹⁹ Zmiinyi Island, with a population of about 100 people, is part of Odessa oblast and sits about midway between the Odeske natural gas fields and the coast of Odessa Oblast.²⁰ A unit of Ukrainian marines equipped with heavy weapons landed on Zmiinyi Island in a pre-emptive attempt to prevent any further encroachment by Russia into its EEZ or attempt by Russia to block Ukraine's future development of its hydrocarbons.²¹

Ukraine's maritime interests are also military in nature, interests that have been sharpened by the ongoing conflict in the east of Ukraine against separatist and Russian forces. The protracted conflict in the east and the vulnerability of the strategically important city of Mariupol, an industrial port located on the Azov Sea some 100 kilometres from the rebel held capital Donetsk, has also created an incentive to rebuild the Ukrainian Navy. Mariupol is a key battleground and the frontline in the conflict in the east between Russian backed separatists and Ukrainian forces. Mariupol is an important strategic prize for the separatists and is a decisive point in the ongoing conflict. Taking Mariupol would give the separatists control of the 200 miles of coastline running from Donetsk to Crimea, effectively halving Ukraine's Azov Sea and Black Sea coastline. The seizure of Mariupol would also represent a symbolic coup for the separatists as Ukrainian President Petro Poroshenko named the city Ukraine's provisional capital of the Donetsk region in 2014. Importantly, the capture of Mariupol would also provide a potential land corridor from Russia to the Crimean peninsular. Although Ukrainian forces have secured control of the city, Mariupol remains contested and Ukrainian positions in the surrounding area are under almost constant attack. After separatists seized the city's administrative buildings in the spring of 2014 the city was effectively brought back under Ukrainian control in June 2014.²² In August 2014 the rebels launched another offensive to take Mariupol which was halted by the signing of the Minsk Agreement. However in a sign of

the importance of this port to the separatists, Mariupol was shelled again in January 2015 killing thirty people and injuring 83 others.²³ The protracted battle for Mariupol is, however, far from over. In August 2016 one Ukrainian soldier was killed and five were wounded after the separatists launched an intense artillery barrage near Mariupol. Shyrokyne, a seaside village just east of Mariupol was attacked 16 times by Russian backed separatists, nine of them with heavy weaponry.²⁴ A month later there were reports from Ukraine's Anti-Terrorist Operations Headquarters that rebels had again fired on Ukrainian positions near Mariupol.²⁵ The constant attacks around Mariupol clearly demonstrate a very real and ongoing threat from the separatists to Ukraine's maritime interests and security.

More widely, Ukraine faces a growing threat from Russia's maritime capabilities. Ukraine's military doctrine identifies the Russian Federation as a direct threat to Ukraine.²⁶ This threat encompasses not just support to Ukrainian separatists, but also a more general military build-up. For example, Since the annexation, estimates suggest that Moscow has spent almost \$750 million in upgrading its forces in Crimea and essentially 'turned the peninsular into an iron fortress capable not just of defending itself, but also of delivering missile strikes on ground targets in central and southern Ukraine.'²⁷ In the early months after the annexation, Russia moved quickly to develop a fully capable air defence system and deployed mobile long range anti-ship systems which, together with similar systems installed on the coast of Krasnodar, give Russia the ability to control about a third of the Black Sea.²⁸ As part of the more recent military build up, Russia has almost doubled the number of service personnel in Crimea, creating seven new military formations and eight military units in addition to those available to the Black Sea Fleet.²⁹ Russia has also increased the number of tanks and combat armoured vehicles in Crimea by a factor of almost seven, artillery systems are 7.2 times higher than before the annexation and the number of helicopters and submarines has also doubled.³⁰ Russia has also replaced the aviation component of the Black Sea Fleet landing its first 14 multirole SU-27SM and Su-30 fighters at Belbek airport in Crimea.³¹ Commenting on the upgrading and renewal of Russian capabilities in Crimea, Philip Breedlove, Allied Commander of NATO in Europe, stated that the new weapons systems, 'have turned Crimea into a strong

force projection beachhead in the region.³² Russia also has ambitious plans to further strengthen the Russian armed forces in Crimea in the period 2020-25 to include increasing service personnel, armaments, air assets and missile systems as well as the size, power projection capabilities and anti-access area denial ability of the Black Sea Fleet.³³ Under these plans the Black Sea Fleet will be significantly augmented with up to six new frigates, two new missile corvettes and six Kilo class diesel powered submarines.³⁴

The more traditional threats posed by Russia are complicated by the emergence of a separatist 'micro-navy.' There is increasing evidence to suggest that the separatists are building their own maritime capabilities including cutters armed with large calibre weapons.³⁵ A report by a pro-Russian newspaper in May 2015, claimed that an Azov Flotilla, with a maritime Spetsnaz element, had been set up in the Donetsk People's Republic.³⁶ The development by the separatists of a small, highly mobile, fleet equipped with anti-tank guided missiles, automatic grenade launchers and machine guns, able to carry out attacks on Ukrainian shipping and ports or land forces and conduct raids or sabotage missions is clearly a serious threat to Ukraine's coastline and its ability to protect its maritime domain.³⁷ In August 2016 there were also reports that the separatists had practiced carrying out and defending against an amphibious landing.³⁸ A video of the landing posted on line shows soldiers landing ashore in several dozen small speedboats and BTR-80 amphibious armoured personnel carriers.³⁹ Although the reach of this potential amphibious force is currently limited without landing ships, local media reports claimed that the separatists had demonstrated a high level of combat readiness in both defensive and offensive coastal operations.⁴⁰ In a sign of the seriousness of this threat, the Ukrainian Defence Ministry announced that Ukrainian marines, coastal artillery and other naval detachments were taking part in the Anti-Terrorist Operations in order prepare to 'deter an armed aggression from the sea.'⁴¹

It is therefore evident that Ukraine faces many challenges to its maritime interests. In meeting these threats, Ukraine's government has attached significant importance to the urgent rebuilding of the Ukrainian Navy. In re-building its navy, Ukraine could be assessed as having a number of advantages over other states attempting to develop their maritime capabilities.

For example, Ukraine has a clear threat against which to frame its maritime policies and capabilities; the war in the east has removed some of the domestic barriers to increased defence spending; and the loss of so much of its equipment in theory might reduce the physical and intellectual constraints imposed by legacy systems. In practice, however, Ukrainian naval regeneration has been impeded by a number of key difficulties.

The Challenges to Ukrainian Maritime Re-generation

One clear challenge facing the re-building of Ukraine's navy are the losses suffered at the hands of Russia. Maritime, Land, and Air Power are all related in important ways, and in many respects the key losses that impinge on the future development of the Ukrainian navy are those losses on land. The loss of Crimea has had an effect on the Ukrainian navy as bad, or worse, as a major defeat at sea. After the Russian annexation, the Ukrainian Navy lost its military and maritime infrastructure and ports in Crimea, the majority of its maritime assets and the majority of its maritime personnel. In addition, the Ukrainian Navy lost its Headquarters in the Black Sea, much of its service's signals intelligence, training, administration, maintenance and logistic infrastructure including its ammunition storage facility in Inkermann valley.⁴² As a result, the truncated Ukrainian Navy has been relocated to Odessa and faces a number of challenges in building an effective and safe new maritime base; an essential precondition for rebuilding the fleet. Odessa is a commercial rather than military port and currently lacks the maritime infrastructure necessary to effectively support and maintain the fleet. Compared with Sevastopol, the sea is shallow in Odessa which also creates potential new practical challenges if Ukraine's plans to build an underwater capability able to deter a potential enemy are to be realised.⁴³ Considerable investment will be required to turn Odessa into an effective maritime base for the fleet. Ukraine's naval aviation and air support assets have also been badly affected. Although the Ukrainian Navy retains some of its naval aviation, the platforms are old and numbers remain low. There is also a real question as to the sustainability of Ukraine's remaining helicopters. The nationalisation by Russia of all Ukraine's state owned enterprises in Ukraine, including the Sevastopol Aviation Enterprise, which provides long term

maintenance for Ukraine's helicopters, suggests that maintenance is likely to be problematic in the short to medium term.⁴⁴

Nevertheless, the losses in naval platforms are also a serious difficulty because these included the majority of its most modern ships. Estimates suggest that the fleet lost somewhere between seventy and seventy five percent of its maritime platforms in Crimea.⁴⁵ In total, the Navy lost 11 ships and boats and eight auxiliary vessels as well as its only submarine.⁴⁶ More significantly, these losses also included three of its most modern elements: two of its corvettes, the *Ternopil* and *Lutsk*, and the command ship, the *Slavutich*. Losses also included such key capital ships as the landing vessel, the *Olshansk*, two of Ukraine's minesweepers the *Cherkasy* and the *Chernihiv*, the *Kherson* anti-torpedo boat and the *Feodosiya* anti-sabotage boat.⁴⁷ As a result, the fleet currently operates only ten ships with 33 support vessels. Reports suggest that half of these platforms need to be repaired and all of them are outdated, coming to the end of their operational life in 2018.⁴⁸ Highlighting the poor state of the current fleet, Vice-Admiral Serhiy Hayduk, the former Commander of the Ukrainian Navy, stated in January 2016, that the fleet had 'lost its fighting capacity.'⁴⁹ Personnel losses also posed a significant problem. When Russia annexed Crimea about 12,000 of the Ukrainian Navy's almost 16,000 service personnel were based in the region and almost 75% of Ukraine's maritime personnel remained in Crimea.⁵⁰ The loss of so many of its experienced personnel had a damaging effect on its operational effectiveness, at least in the short term.

Another set of difficulties in re-generating the Ukrainian navy are conceptual and policy-related in nature: it has proven easier to define the threats to Ukraine's maritime interests than it has to determine clearly what sort of navy is needed to meet them. Indeed, there has been little discussion so far as to what a revived navy would or should actually look like. Most suggestions have been conservative in outlook focusing on a balanced fleet and traditional roles. Admiral Ihor Kabanenko, a former Ukrainian deputy defence minister, has suggested that the Ukrainian Navy should be a small, modern and balanced fleet that consists of surface ships and submarines, naval aviation, naval infantry, special operations forces as well as other components that can adequately react to threats from the sea.⁵¹ Dmytro Tymchuk, a

member of the Ukrainian parliamentary committee on national security and defence, has suggested that the composition of the new fleet could include two or three frigates, 10-12 corvettes and at least five submarines.⁵² Rear Admiral Serhiy Hayduk, former Commander of the Ukrainian Navy, has stated that Ukraine should look to revive its submarine force and purchase between two and four subs, probably second hand from the Turkish Navy. There is also recognition within the naval staff of the need to purchase new minesweepers.⁵³ A paper written by the former Deputy Chief of the Navy, Andri Ryzenko, provides the most comprehensive outline of the naval staff's vision of what a future Ukrainian Navy should look like. In this paper, Ryzenko examines what assets and capabilities, investment and organisational changes the Ukrainian Navy will need in the future to perform its core mission of protecting Ukraine's maritime sovereignty and national interests at sea. According to this concept, the fleet's core mission will be divided into three tasks. The first of these is the defence of Ukraine's coastal area, including its harbours and ports, securing critical infrastructure and countering landing operations. The second task is the ability to perform general maritime operations and wider sovereignty protection; this includes securing sea lines of communication, anti surface and anti-submarine warfare, and defence diplomacy missions. The third task is the ability to conduct what Ryzenko terms, offensive maritime operations; these would include the ability to destroy enemy ships at sea, provide control of the air where needed and the ability to conduct amphibious landings. But there have also been arguments that Ukraine should implement a much more modest 'mosquito fleet' concept. A mosquito force aims to deny command of the sea to adversaries with larger and more powerful navies.⁵⁴ The idea behind a mosquito fleet is that small, fast, and, relatively cheap platforms, backed up by gunboats, mines and coastal defence ships engage in a strategy of coastal defence and commerce raiding with the aim of disrupting trade and making it impossible for an enemy to approach your coastline.⁵⁵ Under this plan the navy would have a much smaller force with no submarines, more limited coastal defence and combat support units and very limited air control ability over the fleet. In effect, it would focus on performing only task one of the three tasks outlines above.⁵⁶

A third key challenge to rebuilding the Ukrainian Navy is the gap between the rhetorical commitment of the Ukrainian government to the rebuilding of its navy and the actual funding priorities. In the light of the ongoing conflict in the east, the government made the decision to prioritise defence spending on increasing the combat effectiveness of its land and air rather than naval forces.⁵⁷ As a result of this prioritisation, while Ukraine's defence budget has quadrupled over the last two years, the navy's share of the overall budget has remained small.⁵⁸ Ukraine's defence budget in 2014 increased by 24.9% over the previous year and in 2015 increased again by almost 100% to \$3.2bn. In 2016 Ukraine's defence budget went up again by about UAH 7.6 bn (\$304 million).⁵⁹ The Ukrainian Navy's budget, however, amounts to just 2% of the Defence Ministry's total budget and only 0.5% of the total budget is spent on procuring weapons and military equipment for the fleet.⁶⁰ The lack of investment in the fleet, as against the other two services, is clearly seen in Ukraine's White Book. For example, in 2015, the army acquired nine new weapon systems, the air force received 12 new acquisitions including four helicopters and ten UAV's, while the navy added no new weapon system or capabilities to its arsenal.⁶¹

At the root of these difficulties is a fourth challenge: the parlous state of the economy, which has necessitated hard choices. The Ukrainian Government is still fighting a financially costly war in the east and the Ukrainian economy has been slow to recover from the crisis. In a speech to the UN summit in New York in September 2015 the Ukrainian President, Petro Poroshenko, spelt out the high economic costs of the conflict. Poroshenko claimed that the conflict in the east was costing Ukraine \$5 million a day. He also went on to point out that due to the loss of its eastern territories, Ukraine had also lost about a fifth of its economic potential.⁶² Production within the Donbas region has plummeted by 70% and estimates suggest this has cost Ukraine 7% of its GDP. Russia's annexation of the Crimea has also contributed to the loss of up to 4% of Ukraine's GDP.⁶³ In addition, the flow of refugees from the region either to Russia or to other parts of Ukraine not only represents an important loss of manpower, but also puts additional strain on the Ukrainian economy.⁶⁴ Although there have been some positive signs that Ukraine's economy will begin to recover in 2017, structural

shortcomings and domestic impediments to economic growth such as unsustainable fiscal policies, as well as the difficulty of attracting foreign capital suggest that this recovery will be at best slow.⁶⁵

Thus, even if the Ukrainian Government were able to give a larger share of the defence budget to the navy, the expenses resulting from the capital-intensive nature of naval investment would make it difficult to effect any quick transformation in naval capabilities. Estimates suggest that in order to rebuild a navy able to perform all of the three core tasks discussed earlier, of defending Ukraine's coastal and maritime area, conducting wider maritime operations and offensive maritime operations, the navy's budget would need to increase by a factor of about twenty. To procure the necessary platforms, including artillery boats, landing crafts, corvettes, submarines and auxiliary support, the coastal defence and combat support units as well as investing in maritime aviation and personnel, Ukraine would need to spend in total, over the next five years, about \$3.6 billion.⁶⁶ Indicating the scale of the challenge facing the Ukrainian Government, this amount constitutes significantly more than the whole of Ukraine's defence budget for 2016. Even the modest 'mosquito fleet' upgrading of its navy to allow the fleet to effectively perform core task one would require a four fold increase in the current naval budget.⁶⁷

Complicating all of the above difficulties is the challenge posed by Ukraine's domestic politics. Despite the commitment by the President to implement wide-ranging economic reforms this will be difficult to achieve given the fragility of the new government coalition, their slim majority in the Verkhovna Rada (the Ukrainian parliament), and endemic corruption. The latter stems, in particular, from the strong influence that Ukraine's oligarchs exert on the new government. In April 2016 the former prime minister Arseniy Yatsenyuk stepped down and was replaced by the former Rada speaker Volodymyr Groisman. The new coalition, made up of the political parties of the president and the former prime-minister, are now reliant on support from other parliamentary factions and groups as they have a very small parliamentary majority. This reduced government majority will make all policy-making more complicated. Further compounding these problems is the endemic corruption in Ukraine. Highlighting the extent of

the problem, Transparency International, ranked Ukraine 143 out of 173 countries on its Corruption Perceptions Index and estimates have suggested that over \$12 billion per year disappears from the Ukrainian budget.⁶⁸ Thomas De Waal has argued that corruption is an inadequate word to describe the conditions in Ukraine as the problem is not that a well-functioning state has been corrupted; rather that the corrupt practices themselves now constitute the rules by which the state is run.⁶⁹ Calling into question the ability of the government to engage in future reform, the worst corruption 'occurs at the nexus between business oligarchs and governmental officials' where a small number of oligarchs control over 70% of Ukraine's economy and have captured and corrupted Ukraine's political and judicial systems.⁷⁰

The Ukrainian Navy

The problems outlined above explain the difficult and contested process through which a new Ukrainian navy is emerging. In May 2016 the Ukrainian Defence Ministry announced ambitious plans to revive Ukraine's maritime capabilities and assets by augmenting the fleet with up to 30 warships and boats by 2020, and procuring a new maritime patrol aircraft.⁷¹ However, little tangible progress has been made. Signalling that Ukraine is unlikely to receive any new warships in the imminent future, and will therefore also struggle effectively to execute core tasks two and three, Ukraine's Project 58350 corvette programme has not only failed to produce a single ship but now also appears to have been shelved. Under plans announced in 2011, 10 corvettes were to be built for the Ukrainian Navy by 2026. However, construction of the Project 58350 flagship, *Volodymyr Velykyy*, had been progressing extremely slowly and a decision was made in October 2015 instead to allocate funds towards upgrading the existing fleet rather than developing new platforms. While the manufacturers claim that 80% of the hull is ready, the ships technical readiness stands at closer to 17% suggesting that the platform is unlikely, even if it secures sufficient funding, to be brought on line until at least 2018.⁷² The failure to bring this warship into service as well as the failure to modernise current platforms that are past their operational end dates, ultimately calls into question the ability of the

Ukrainian Navy to perform even core task one effectively. Little progress has also been made in terms of regenerating Ukraine's maritime aviation. In order for the fleet to be able to successfully perform all three tasks, estimates suggest that it would need to add two short range medium airlift transport planes, eight smaller transport planes, five maritime patrol aircraft and up to 32 UAV's as well as a full complement of coastal defence capabilities over the next five years.⁷³ But so far the Ukrainian Navy has yet to receive any new maritime-air assets.

The government has also been slow to develop the required maritime infrastructure in Odessa.⁷⁴ In April 2016, more than two years after the loss of Crimea, the Ukrainian Defence Ministry eventually announced plans to begin construction of a modern maritime base in Odessa for the Ukrainian Navy.⁷⁵ Three months later the Ukrainian Defence Minister confirmed that 100m hryvnias (about \$5m) had been allocated for the construction of the Navy headquarters in Odessa.⁷⁶ Given the challenging security environment in the east, the eventual construction of a safe and effective naval base in Odessa is, however, likely to remain potentially problematic.⁷⁷ Not only has there been a spate of terrorist attacks, but the situation on the ground in Odessa remains difficult. In January 2016 a Ukrainian sailor prevented an attack on a naval facility in Odessa and Ukrainian military patrols also recently foiled an attempt to plant a mine near one of the military checkpoints in Odessa.⁷⁸ There have also been a series of terrorist attacks in Odessa calling into question the safety of the fleet and its service personnel.⁷⁹ A recent report on threats to Ukraine by Jane's Sentinel Security Assessment states that government assets, transport infrastructure and assets associated with pro-government troops and businessmen in Odessa are currently at risk of attack.⁸⁰

Symptomatic of these difficulties has been the need to embrace less conventional solutions. One interesting development has come from a combination of lack of government funds, consequent equipment shortages, popular engagement in the war, and the leveraging of the opportunities afforded by new technology. This has resulted in some very innovative forms of equipment procurement from the navy. For example, in December 2015, the navy's flagship, the frigate Hetman Sahaidachny, was fitted with a new modern navigation radar

system financed by a charitable organisation, the 'Come Back Alive' volunteer movement. The movement raised the funds through internet crowd-funding.⁸¹ This organisation has also funded similar systems for other platforms.⁸²

Faced with problems in procuring more conventional vessels, Ukraine has prioritised the acquisition of smaller faster platforms, building, in effect, elements of a 'mosquito' force. In November 2015 the Ukrainian Navy began construction of the fast attack elements of a mosquito fleet when it received two Gurza-M (Project 51855) class small armoured artillery boats designed for patrolling coastal sea areas. Currently undergoing sea trials, these boats carry a combat module fitted with automatic cannon, a grenade launcher, a machine gun and two anti-tank missile systems with laser guidance.⁸³ In March 2016 the Ukrainian Defence Ministry signed a contract with the state run Ukroboronprom Company in Kyiv to provide four more of these small armoured gunboats for the Ukrainian Navy.⁸⁴ Two of these gunboats are likely to be 'Centaur' armoured amphibious assault ships based on the Gurza M, but with extended functionality: designed to deliver marines or Special Forces and fire-support to land forces under engagement in littoral and inland waters (estuaries, rivers and water-storage basins) up to 100 miles.⁸⁵ Further augmenting Ukraine's mosquito fleet, a US contractor, Willard Marine, will also supply four high speed patrol boats to the Ukrainian Navy as well as onsite crew training in the design, operation, maintenance and repair of the boats.⁸⁶

At the same time, despite the difficulties in augmenting the physical capabilities of the navy, Ukraine has tried to improve the qualitative aspects of its maritime power.⁸⁷ In a visit to Odessa in September 2015, Vice-Admiral James R. Foggo, commander of the US 6th Fleet, commented positively on what he saw as the professionalism of the officer corps and sailors of the Ukrainian Navy.⁸⁸ In this, the conflict in the east has, paradoxically, had a positive spill over effect on the building of a professional navy. Training to fight, and fighting, the separatists has enhanced the professionalism of Ukraine's naval personnel, in particular its marines, and served as a force multiplier by increasing the ability of the fleet and its personnel to operate jointly – both of which are essential if Ukraine is to be able to fulfil its three core tasks in the future. In September 2014, the fleet demonstrated its commitment to developing the ability to

conduct joint operations, when special units of the Ukrainian Navy and Interior Ministry as well as naval aviation units practised a joint search and attack training operation involving the detection and destruction of illegal armed groups in the Odessa region.⁸⁹ In July 2015 another joint tactical training exercise took place in the Buh estuary in Mykolayiv Region of Ukraine in which the Ukrainian Navy, Air Force and Land forces practised conducting an amphibious assault and airborne landing further enhancing their joint skills.⁹⁰

Indeed, Ukraine's marines have in essence been rebuilt from scratch into one of the most combat ready elements of Ukraine's naval forces. When Russia annexed the Crimea, only one third of the 600 strong Feodosia based marine battalion opted to return to Ukraine depriving the fleet of its most combat ready element.⁹¹ The marines subsequently have been reconstituted and have gained valuable combat experience fighting in eastern Ukraine. In recognition of their enhanced combat abilities units of the Marine Corps were deployed to the outskirts of Mariupol in July 2015 to bolster the city's defences. Commenting on this deployment the Ukrainian President stated that the marines 'will enhance the protection of Mariupol significantly.'⁹² The marines have also benefited from an increase in the number and scope of their training exercises. In 2015 the number of Marine Corps battalion and company tactical exercises increased 7 and 5.5 fold respectively and platoon field firing exercises also went up five fold over the previous year.⁹³ They also held their first brigade level tactical training exercise in July 2015 and developed further their joint skills by practising their ability to coordinate with air and maritime platforms to capture the shoreline and destroy enemy forces.⁹⁴ The commander of the Ukrainian Navy, Vice-Admiral Serhiy Hayduk, claimed that due to these exercises the 'marine corps have completely renewed its battle readiness.'⁹⁵ More recently in August 2016, in response to the announcement by the Russian Federation of a large naval exercise in the Black Sea, the Ukrainian President also announced that Ukraine's marines and coastal artillery units would be holding a large military exercise that would seek to further heighten combat readiness of all naval forces. The aim of this exercise is to further increase the combat readiness of Ukraine's naval forces – in particular its marines.⁹⁶

The fleet's active participation in multinational maritime operations has also played an important role in enhancing the combat effectiveness of its service personnel. In September 2014, just months after the annexation of Crimea, Ukraine held its annual Sea Breeze exercise demonstrating its commitment to developing the professionalism of its maritime forces. As part of this co-hosted multinational exercise, Ukrainian naval personnel practised setting up and securing a maritime safety zone in a crisis area.⁹⁷ In October 2015 Ukraine's frigate, Hetman Sagidachny also took part in a PASSEX joint drill with Bulgarian, Romanian, US and Turkish ships in the western part of the Black Sea. The Commander of the Ukrainian Navy, Vice Admiral Serhiy Hayduk, claimed that this operation was a testament to the high level of cooperation between the Ukrainian and NATO navies and that multinational operations like this allow fleet personnel to master NATO standards and enhances their interoperability.⁹⁸

Ukraine's marines have also benefited from taking part in multinational maritime exercises. These exercises have allowed the marines to develop a number of important skills, ranging from the ability to conduct amphibious landings, tracking down an enemy submarine, and methods for the protection of critical maritime infrastructure. In July 2016 over 220 US and Ukrainian marines, as well as other naval forces, conducted an amphibious landing during the annual Sea Breeze 2016 exercise in Odessa. During this exercise the marines practiced establishing a safe beachhead ashore and the protection of critical infrastructure.⁹⁹

Commenting on the progress made by the Ukrainian naval forces, US Naval Captain, Richard Dromerhauser, stated that he had witnessed the flawless execution of a very difficult and complex operation. In August 2016 Ukraine's marines also practised tracking down an enemy submarine as part of the Sea Shield multinational military exercise which took place in the western part of the Black Sea off Odessa.¹⁰⁰ A month later Ukrainian marines participated in the Platinum Lynx 2016 exercise held in Romania where, working along side NATO allies, they enhanced their interoperability in a combined-training environment.¹⁰¹ The US has also recently announced the funding of a two week training course in Mykolaiv for non commissioned Marine Corp officers to further enhance their operational and combat

effectiveness.¹⁰² Despite the progress Ukraine has made in developing its marines, the fleet still struggles to train effectively its naval personnel at sea. Perhaps unsurprisingly, given the lack of working platforms, the total number of hours Ukrainian sailors spent training at sea decreased in 2015 from the previous year.¹⁰³ Providing sufficient sea time in a navy built around fast attack craft is likely to be an ongoing problem for the Ukrainian Navy as these platforms, by design, necessarily spend less time at sea than larger boats.

Conclusion

Although Ukraine has important economic and security interests in the Black Sea and an increasingly contested coastline in the Sea of Azov, the Ukrainian Government has made very little progress in rebuilding the Ukrainian Navy after the Russian annexation of Crimea. This year the fleet will finally be augmented by two small attack craft. This, albeit limited, addition to the fleet's arsenal will go some way to allowing the Ukrainian Navy to begin to fulfil one of its three core tasks, the defence of its coastline. Its ability to effectively perform this crucial task is, however, likely to be hampered by the failure of the government to provide the necessary funding to complete its flagship corvette, upgrade the rest of the fleet which is nearing the end of its operational life or provide any new naval air assets.

Ukraine has, however, made more progress in developing the qualitative elements of its maritime power. Due to the conflict in the east, Ukrainian naval forces, in particular the marines have significantly enhanced their combat effectiveness and jointery. By increasing the amount of training and participation in multinational exercises, Ukraine's naval personnel have improved their ability to perform offensive maritime operations. However, while increasing the operational effectiveness of its naval personnel is an important enabler in allowing the Ukrainian Navy to effectively perform all three tasks, it cannot substitute for, and is compromised by the lack of maritime platforms. As a result of the lack of assets the Ukrainian Navy has effectively struggled to increase the amount of time spent training its naval personnel at sea.

Ukraine also faces significant domestic challenges to rebuilding the fleet. Although its economy looks set to grow over the next few years, the Ukrainian Government is still fighting a financially costly war in the east that is unlikely to end anytime soon. Ukraine's ruling coalition government will also struggle to pass the necessary raft of legislation needed to implement its far reaching economic reform programme in light of its slim majority in parliament and endemic corruption. In addition, estimates suggest that the scale of investment necessary to build a fleet able to engage across the spectrum of operations is likely to be prohibitive; costing more than the whole of Ukraine's defence budget for 2016. As a result, of the financial neglect of the fleet and the economic challenges facing the Ukrainian Government, Ukraine will therefore continue to be a maritime state with an inadequate navy.

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