

The modernisation of the Polish Navy according to the 'Poland's Strategic Concept for Maritime Security'

On 10 February 2017, the National Security Bureau published the 'Poland's Strategic Concept for Maritime Security', which tends to face a lack of clear and well-defined plan for Polish maritime force development. Given the structure of the Polish Navy inherited from the Polish People's Republic (the fleet's primary objective was to conduct landing operations), it was necessary to define a new strategy, which would consider contemporary geopolitical conditions. However, Polish policymakers have not taken such actions despite the fact that the technical modernisation plan for the Polish Navy was approved (primary functions of the Navy were described in the following documents: 'Defence Strategy of the Republic of Poland' published in 2009; 'Vision of the Polish Armed Forces 2030' from 2008; and 'The concept of development of the Polish Navy' published in 2012). The policymakers have implemented some provisional solutions, such as the introduction of the Oliver Hazard Perry class frigates (launched in the late 1970s in the U.S. Navy and transferred to Poland in the 2000s) and Kobben class submarines (launched in the 1960s in the Norwegian Navy). However, these solutions proved to be more permanent than expected. The old vessels were expected to maintain Poland's commitment to NATO and sustain military training for naval forces. Currently, the Polish Navy is still waiting for new vessels and is not able face needs and challenges of the modern warfare due to years of neglect and the lack of political determination to modernise the fleet.

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The Polish Navy according to the concept of the National Security Bureau

The 'Poland's Strategic Concept for Maritime Security' ('Strategiczna Koncepcja Bezpieczeństwa Morskiego RP', SKBM RP) is not limited to the issue of the technical modernisation of the Polish Navy and, moreover, is undoubtedly the first attempt to analyse the maritime environment in a complex manner. The authors of the SKBM RP criticise certain aspects of Poland's military modernisation plan for 2013–2022 ('Plan Modernizacji Technicznej Sił Zbrojnych 2013-2022', PMT), which are included in the operational program called 'Combating maritime threats'. According to the authors, new vessels of the Polish Navy should be integrated into Poland's air defence system. The authors emphasise that capabilities of the proposed 'Miecznik' and 'Czapla' vessels do not meet current needs of the Polish Navy due to limited air defence capabilities, especially against cruise and ballistic missiles. The authors make the recommendation that the Polish Navy ought to 'modernise' or 'acquire' the following types of armament (Table 1.).

According to the analysis conducted by the National Security Bureau, the Polish Navy ought to be based on the so-called 'post-modern fleet' concept, which allows to build naval forces with specific capabilities and, in turn, reduce the number of vessels. Furthermore, the authors suggest that Poland should possess a medium-sized fleet. The Polish Navy should be able to global power projection within the framework of Allied joint operations and represent similar capabilities to Dutch, Danish and the Norwegian Navy. The authors support the 'Orka' operational program, which is intended to introduce three submarines equipped with cruise missiles, however, they also suggest to cancel the 'Miecznik' and 'Czapla' programs (vessels having a displacement typical for corvettes). According to the SKBM RP, these programs ought to be replaced with a multipurpose frigate program which has a displacement of 4500–5000 tonnes and is integrated with an advanced air defence system capable to defend Poland's territory. The National Security Bureau's publication does not contain detailed recommendations on other modernisation programs within the framework of the Poland's military modernisation plan for 2013–2022. However, it seems that the 'Kormoran' (a mine hunting vessel, the prototype is currently passing sea trials) and 'Marlin' programs (a joint operations support vessel with a displacement of 10,000–15,000 tonnes – one vessel is expected to be launched by 2026 and the ship is intended to participate in Allied expeditionary operations and operate beyond the Baltic Sea) are also in compliance with the 'Poland's Strategic Concept for Maritime Security'. The authors state

that the future Polish Navy should be based on three or four guided-missile frigates; three submarines with optional cruise missiles; coastal defence units equipped with NSM (Naval Strike Missile); and a minimum of six mine countermeasure vessels. These forces might guarantee local naval superiority, only if the Air Force and Allied forces provide necessary military support.

SKBM RP recommendations on modernisation plan for the Polish Navy	
Type of armament	Expected capabilities and equipment
Multipurpose frigates	Air defence capabilities as a part of national air defence system (vessels equipped with a long-range radar system providing early-warning capabilities for the national air defence system); anti-submarine warfare capabilities; cruise missiles; a helicopter deck and a hangar.
Command ship able to support joint and special operations	Transport function, providing mobility of embarked military forces; placing naval mines; having hospital ward; countering hybrid and asymmetric warfare.
Submarines	Combating surface ships and submarines; able to conduct reconnaissance missions, special operations and naval mine warfare; cruise missiles.
Maritime patrol aircraft	Providing Signals Intelligence (SIGINT), Imagery Intelligence (IMINT) and Radar Intelligence (RADINT); anti-submarine warfare capabilities; able to participate in SAR missions.
Helicopters	Anti-submarine warfare capabilities; supporting special operations forces; conducting SAR missions.
Mine countermeasure vessels	Command and control functions of mine warfare forces; conducting operations with the Standing NATO Maritime Groups and the NATO Response Force.
Unmanned aerial and maritime vehicles	Providing Imagery Intelligence (IMINT) for the Polish Navy.

Table 1. The National Security Bureau recommendations on Polish Navy modernisation.

The risks for the Navy modernisation program

The recommendations of the 'Poland's Strategic Concept for Maritime Security' are consistent with assumptions and tasks for the Polish Navy vessels. However, it is necessary to point out a controversy over the proposed structure of the fleet based on multipurpose frigates and the modernisation of the Oliver Hazard Perry (OHP) class frigates as a temporary solution. The concept of building multipurpose frigates that might participate in the national and allied air defence is in compliance with the authors' assumptions and Poland's needs in terms of air defence capabilities. However, it seems incomprehensible to scrap the 'Miecznik' and 'Czapla' programs for construction of new corvettes, as well as the construction of other small naval vessels, as the authors suggest.

The first issue to consider is the proposed modernisation of 'Kosciuszko' and 'Pulaski' OHP class frigates, which were transferred to Poland in the early 2000s from the U.S. Navy. The authors do not claim that these vessels ought to be modernised, however, certain parts of the 'Poland's Strategic Concept for Maritime Security' clearly suggest so ('Modernisation or acquisition of the following vessels are necessary for development of the Polish Navy'). The authors state that 'the modernisation of the OHP class frigates ought to be a priority under current security conditions'. It is worth underlining that these almost 40-year-old vessels have never been modernised. The former government decided to refit 'Pulaski' frigate and keep it in service until 2025 due to delays in most of the naval modernisation programs (the only vessel built according to the schedule is the 'Kormoran' minehunter, the other programs are significantly delayed). The estimated cost of refitting 'Pulaski' frigate was PLN130 million. The government decided to renovate the ship not because of its unique capabilities but due to the lack of new vessels. The renovation of one vessel might be justified by a delay in the 'Miecznik' program, however, the proposed modernisation of both ships has no economic basis. Given a potential acquisition of Australian Adelaide class frigates, which are based on the OHP frigates ('Melbourne' and 'Newcastle' are the latest ships of this class, which were launched in the Australia Navy in 1992 and 1993 respectively, 10 years after the OHP frigates of the Polish Navy), it is difficult to find reasonable arguments to support this concept. Furthermore, high costs of potential modernisation of these old ships might affect the construction of new vessels. The modernisation of four Adelaide class vessels cost approximately AUD1,5 billion (USD1,1 billion). Australians replaced most of electronic systems of these frigates and, moreover,

modernised the crucial part of armament: the Mk 13 launchers were integrated with SM-2 missiles; the 8-cell Mk 41 Vertical Launching System was installed and integrated with RIM-162 Evolve Sea Sparrow (4 missiles inside a cell), which is effective against anti-ship and cruise missiles. The acquisition of these vessels seems to be much more effective and less risky than an attempt to modernise Polish frigates. However, Poland should not acquire the Australian ships instead of building new vessels.

The second issue related to the concept of the National Security Bureau is cancelling the construction of corvettes. If the 'Poland's Strategic Concept for Maritime Security' had been published several years ago, the proposed modernisation plan for the Navy would have been justified. Given the time which is necessary for military officials to plan the construction of new naval vessels; work out concepts, tactical and technical requirements; and finally, start a procurement process, the Polish Navy might never receive multipurpose frigates (for example, due to the change of government). Based on the plan from 2013, the Polish Navy ought to receive three coastal defence ships in 2017–2019 (according to the current plan, these vessels will be introduced in 2022–2024). Further delays in the construction of new vessels jeopardise Polish Navy capabilities which are rather symbolic today. The policymakers have not introduced procurement methods (and standardisation) for specialised naval equipment and armament which might simplify the service and maintenance of naval vessels in the future. In this context, it is worth mentioning the lack of decision regarding anti-ship missiles for 'Miecznik' coastal defence ships, or different types of radars used with TACTICOS combat management system delivered by Thales. All the evidence suggests that a new approach to the modernisation of the Navy relates to various issues which might affect the construction of new warships.

The concept of multipurpose frigates is reasonable only if the construction of these vessels starts in the future, after launching the vessels which are currently being planned or constructed. Given the fact that the authors place great emphasis on area air defence capabilities, it seems worth raising a question whether the military budget of Poland is able to handle another high-cost modernisation program. It is necessary to underline that the construction of new multipurpose frigates is also related to other costs, such as a refurbishment of the frigates which are currently in service, or an acquisition of second-hand frigates as a temporary solution. National Security Bureau's experts claim that the integration of more advanced air defence systems is not possible in the case of corvettes.

However, there is a certain Israeli solution which is worth mentioning in this context. In 2014, Israel ordered in Germany four Sa'ar 6 class missile corvettes with a displacement of approximately 2,000 tonnes. According to the Israeli approach, even small vessels ought to possess capabilities to counter a wide range of aerial targets using missiles with an extended range, which is not a common solution for corvettes. Israel has placed the emphasis on integration of Barak-8 missile system with the Sa'ar 6-class corvettes, which will provide area air defence capabilities with an effective range of 70 km. The system is integrated with AESA EL/M-2248 MF-STAR radar which is able to detect and track targets at a range of 300 km. The main challenge in the 'Miecznik' and 'Czapla' programs is to balance the size of a vessel, its capabilities and costs. The concept proposed by the BTT Systems ship design company is based on a vessel with a displacement of 2,700 tonnes in the 'XZ' version of the 'Czapla' and 'Miecznik' vessels. Given a larger hull, the vessels might have a helicopter deck, hangar and a relatively strong armament, in particular in the case of 'Czapla' patrol vessels. It is worth pointing out that a relatively small increase in the size of a naval vessel has a significant impact on its capabilities and the cost (more advanced equipment requires more electric power, in turn, the vessel ought to be larger and propelled by more powerful engines and electric power systems). A Turkish approach to naval forces is certainly worth mentioning in this context. In January 2017, Turkey has started the construction of the Istanbul class frigate (TF-100) with a displacement of 3,000 tonnes. The project is based on Ada class design, which is a corvette with a displacement of 2,300–2,400 tonnes. Turkish corvettes are armed with RAM anti-aircraft missiles, two triple launchers for Mk 46 torpedoes, 8 launchers for anti-ship Harpoon missiles, a hangar and a helicopter deck for S-70B Seahawk helicopters. Given the hull size, the Istanbul class frigates are expected to be heavily armed vessels. Besides being armed with an armament typical for the Ada class, the Istanbul class frigates will be equipped with 16 Harpoon missile launchers and the Mk 41 Vertical Launching System integrated with RIM-66 Standard, RIM-162 ESSM and RUM-139 VL-ASROC anti-submarine missiles. Moreover, Turkey is going to use this experience to build much larger vessels, the proposed TF-2000 air defence frigates. Turkey has attached a lot of importance to standardise the design and the equipment, and in turn reduce life cycle cost of the vessels, which are intended to be in service for 30–40 years. A diverse approach to the modernisation of naval forces proves that more advanced offensive and defensive systems can be integrated with smaller vessels. The standardisation of naval vessel, their equipment and armament seems to be the greatest

challenge for policymakers and military officials. This approach is essential to reduce logistics and maintenance costs, as well as the potential modernisation in the future.

Conclusions

1. The 'Poland's Strategic Concept for Maritime Security' should be given careful consideration in terms of the future structure of the Polish Navy, its capabilities and the expected potential. However, there is no doubt that scrapping the construction plan for new corvettes is unjustified. Furthermore, it is necessary to start the construction of new naval vessels as soon as possible, otherwise the Polish Navy may not be able to perform its tasks, including future coalition operations.
2. Given Poland's needs in terms of air defence, the proposed construction of multipurpose frigates seems to be justified in the future. A potential multipurpose frigate project ought to be based on experience from current and proposed modernisation programs. This approach is absolutely essential due to the lack of shipbuilding capabilities of the Polish companies in terms of advanced naval vessels, such as multipurpose frigates. The construction and modernisation of smaller vessels seem to be an important source of technical knowledge for the companies which might be assigned to build multipurpose frigates in the future.
3. Potential foreign partners' knowledge and experience are certainly crucial for Polish shipbuilding and military companies and the modernisation process of the Navy. However, Polish defence industry should also take into consideration the experiences of other countries in terms of naval forces modernisation. The Turkish shipbuilding and defence industry seems to be an exemplary approach to the modernisation based on the cooperation with foreign partners. Furthermore, Turkish industry has proved that such an approach is an effective way to improve the technological self-sufficiency in terms of planning and building more advanced vessels.
4. The shipbuilding process must comply with requirements and tasks of the Polish Navy. However, it is also worth pointing out that modernisation plans ought to be consistent in general, especially in terms of the standardization of equipment and armament. Limited financial resources should encourage the policymakers to balance the needs of the Polish Navy, naval forces capabilities, as well as the costs of the construction and maintenance. It

is also necessary to take under consideration the experience of the 'Ślązak' corvette program. Given the shipbuilding cost and future maintenance costs, 'Ślązak' should be completed and adequately armed as soon as possible.

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