May 12, 2022

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The opinions expressed in this testimony are those of the author and do not reflect the views of the National Defense College, or the United Arab Emirates government.

Testimony before the U.S.-China Economic and Security Review Commission.

Title Of Hearing: China's Activities and Influence in South and Central Asia

**Question 1:** What are Chinese leaders' key interests and strategic ambitions in the Indian Ocean? Given those interests and ambitions, how do Chinese strategists view the Indian Ocean as a theater of operations? How do Chinese strategists subdivide the ocean into regions or see it interconnected to or influencing of other strategically important neighboring regions, and how do they envision advancing China's interests in the Indian Ocean?

Chinese interests in the Indian Ocean Region (IOR) are increasing and have evolved over the past two decades. Commensurate with the expansion of interests is an emerging Chinese strategy for the IOR. At its core, this strategy is not only about protecting Beijing's economic interests in the overall IOR but, in particular, the northern IOR. An estimated 80-85 percent of China's imported oil transits the Indian Ocean and Chinese commentators have highlighted the fact that these Sea Lanes of Communication (SLOCs) are controlled by the United States. Furthermore, an estimated 95 percent of Chinese trade with Africa, the Middle East and the European Union transits the Indian Ocean.<sup>2</sup>

Within the Chinese security community there is widespread agreement that China must protect its SLOCs in the IOR and by far the greatest threat to Chinese interests is the American navy. Their chief concern is that in the event of hostilities with the United States, the American navy has the ability to interdict Chinese oil tankers and merchant ships bound for China. Chinese security experts argue that such a situation for Beijing is "unacceptable," and must be countered with a more powerful navy. Unbeknownst to many outside of China, there is a history of the American Navy interdicting a Chinese merchant vessel in the Indian Ocean. In 1993, the Chinese merchant vessel "Yinhe" (银河) was suspected of transporting weapons and contraband from China to Iran and was forcefully stopped by the American navy and was then boarded and searched by a Saudi crew who found no evidence of such cargo. Numerous Chinese maritime

<sup>&</sup>lt;sup>1</sup> Zeng, Xinkai. 'The American Factor in China's "Indian Ocean Dilemma."' No. 2. 2012. P 52-65. 曾信凯,中国"印度洋困境"中的美国因素,南亚研究,2012 年第 2 期 52-65.

<sup>&</sup>lt;sup>2</sup> Erickson, Andrew S. Denmark, Abraham M. Collins, Gabriel. "Beijing's "Starter Carrier" and Future Steps." Naval War College Review. Winter 2012, Volume. 65, No 1. P 15-54.; Bo, Hu. "Chinese Maritime Power in the 21st Century." Routledge. New York. 2020. P 190; Please also see Colley, Christopher K. "China's Ongoing Debates about India and the United States." Asia Dispatches. The Wilson Center. June 30, 2020. Accessed on April 30, 2021. https://www.wilsoncenter.org/blog-post/chinas-ongoing-debates-about-india-and-united-states

<sup>&</sup>lt;sup>3</sup> Author's in-depth interviews with Chinese security scholars and analysts. Beijing and Shanghai 2016-2018. <sup>4</sup> Ibid.

security experts argued that this event was a "national humiliation," and that such an event must never be allowed to happen again.<sup>5</sup>

More recently Chinese interests in the IOR have expanded to taking part in anti-piracy patrols off the coast of Somalia as well as developing the capacity to rescue Chinese nationals who are stuck in conflict zones in Africa and the Middle East. Such concerns have already materialized with the evacuation of Chinese nationals from multiple conflict zones including Libya in 2011 and Yemen in 2015.<sup>6</sup>

Overall, Chinese ambitions in the IOR for the next 20-30 years are centered around the ability to dissuade a potential adversary (mainly the U.S., but possibly India) from attempting to block Chinese SLOCs, thus severing a vital Chinese economic lifeline. Beijing's ambitions in the IOR differ significantly from those in East Asia, where a strategy of access denial is China's main aim. In the IOR, at least for the time being, Beijing does not seek hegemony or sea denial. It is primarily concerned with having a maritime force that has the ability to defend China's interests by possessing the ability to inflict a level of harm that dissuades any potential adversary from challenging Beijing's interests.

## The IOR as a Theater of Operations.

The modern Chinese navy's (PLAN) entry into the IOR is a very new phenomenon. Chinese security scholars and strategists have only recently started to discuss the region as a theater of operations. The primary reason for this was the absence of naval hardware that could sustain constant and long-term patrols in the region. For example, in 2000 only 20 percent of China's destroyers (DDGs) and 25 percent of its frigates were classified as "modern." (Please see Box 1 below.)

Over the past decade-and-a-half and, in particular, since Chinese President Xi came to power in 2012, China has quickly shed its traditional aversion to foreign military bases<sup>8</sup> with some government scholars stating that such a stance was not in China's current interests.<sup>9</sup> Song Dexing, the Director of the Nanjing Institute of International Relations, argues that China's main concern in the IOR is the American navy and that Beijing must develop a blue water navy to

<sup>&</sup>lt;sup>5</sup> Ibid; See also Erickson, Andrew. Goldstein, Lyle. 'China's Future Nuclear Submarine Force.' In the Andrew Erickson, Lyle J. Goldstein, William S Murry, and Andrew Wilson eds. China's Future Nuclear Submarine Force. Annapolis Md. Naval Institute Press. 2007. P 182–211.

<sup>&</sup>lt;sup>6</sup> For a detailed description and analysis please see Ghiselli, Andrea. *Protecting China's Interests Overseas*. Oxford University Press. New York. 2021.

<sup>&</sup>lt;sup>7</sup> Erickson, Andrew. "Exhibit 0-2. China's Primary Naval Order of Battle (Major Combatants), 1985-2030. In the Andrew Erickson ed. Chinese Naval Shipbuilding. Annapolis Md. Naval Institute Press. Annapolis 2017C. P XVI-XVII. <sup>8</sup> Kennedy, Conor. "Strategic Strong Points and Chinese Naval Strategy." China Brief. The Jamestown Foundation. March 22, 2019. Accessed on March 16, 2021. <a href="https://jamestown.org/program/strategic-strong-points-and-chinese-naval-">https://jamestown.org/program/strategic-strong-points-and-chinese-naval-</a>

 $<sup>\</sup>frac{strategy/\#:\sim:text=Strategic\%20strong\%20points\%20will\%20improve, and\%20safeguarding\%20China's\%20overseas\%20interests.}$ 

<sup>&</sup>lt;sup>9</sup> Li, Jian. Chen, Wenwen. Jin, Jing. "Indian Ocean Sea Power Pattern and China Sea Power: Indian Ocean Expansion." Pacific Journal. Volume 22. No. 5. May 2014. 李剑,陈文文,金晶,印度洋海权格局与中国海权的印度洋拓展,太平洋学报,2014 年第 5 期 <a href="http://www.cnki.com.cn/Article/CJFDTotal-TPYX201405009.htm">http://www.cnki.com.cn/Article/CJFDTotal-TPYX201405009.htm</a>

protect China's energy security and commercial traffic. Song writes of the "strategic arc" of the Indian Ocean from the Red Sea to Malacca, but focuses mostly on the northern Indian Ocean. <sup>10</sup> Hu Bo, the Director of both the Center for Maritime Strategy Studies and the South China Sea Strategic Situation Probing Initiative at Beijing University, has argued that the northern Indian Ocean is a boundary for China's naval strategy. Professor Hu, states that "China must tirelessly strive to maintain an aircraft carrier combat group as well as several reconnaissance support and early warning positions in each of these two major regions, in order to realize effective power presence." <sup>11</sup> Crucially, Hu believes that a future main zone for the PLAN will be the northern Indian Ocean from the Middle East and coast of Africa to the Malacca Strait. <sup>12</sup> Two scholars from the Chinese Institute for Contemporary International Relations (CICIR, which is affiliated with the Ministry of State Security <sup>13</sup>) see the northern Indian Ocean and the South Asian Subcontinent as being an area of "intense collision" and as "the most important theatre of contest." <sup>14</sup>

While these statements by Chinese scholars may be viewed as trial balloons testing the waters for a future Chinese Indian Ocean fleet, they are in-line with official government statements. The 2015 Official Chinese Defense White Paper openly calls for China to be a maritime power and to carry out "open seas protection." <sup>16</sup>

## An Evolving Strategy.

Chinese strategists are now openly advocating a more assertive naval strategy and some have called for multiple bases to be stationed in the IOR. Such bases can be connected to key islands in the South China Sea and other countries friendly to China. <sup>17</sup> Several authors from the Chinese Naval Academy of Military Science have stated that the port of Gwadar in Pakistan can serve as a strategic "fulcrum/strong point," and that other bases can be developed in the Seychelles, Hambantota and Tanzania. Interestingly, they also point out that China needs to implement this in a low key manner and should do the basic work first such as security cooperation, marine surveying, disaster relief, and anti-pirate patrols. <sup>18</sup> Other Chinese scholars have also recognized the sensitivity of port projects that can double as military bases. Zhang Jie of the Chinese Academy of Social Science, has written that Gwadar by itself cannot fulfill China's strategic

http://english.www.gov.cn/archive/white paper/2015/05/27/content 281475115610833.htm

<sup>&</sup>lt;sup>10</sup> Song, Dexing. "Using the Indian Ocean is China's 21st Century An Important Choice for Strategic Expansion." Number 5, 2014. 宋德星,利用印度洋是 21 世纪中国实现战略拓展的重要选择,和平与发展,2014 年第 5 期 <a href="http://kns.cnki.net/kcms/detail/detail.aspx?filename=HPFZ201405002&dbcode=CJFQ&dbname=CJFD2014&v="1">http://kns.cnki.net/kcms/detail/detail.aspx?filename=HPFZ201405002&dbcode=CJFQ&dbname=CJFD2014&v="1">http://kns.cnki.net/kcms/detail/detail.aspx?filename=HPFZ201405002&dbcode=CJFQ&dbname=CJFD2014&v="1">http://kns.cnki.net/kcms/detail/detail.aspx?filename=HPFZ201405002&dbcode=CJFQ&dbname=CJFD2014&v="1">http://kns.cnki.net/kcms/detail/detail.aspx?filename=HPFZ201405002&dbcode=CJFQ&dbname=CJFD2014&v="1">http://kns.cnki.net/kcms/detail/detail.aspx?filename=HPFZ201405002&dbcode=CJFQ&dbname=CJFD2014&v="1">http://kns.cnki.net/kcms/detail/detail.aspx?filename=HPFZ201405002&dbcode=CJFQ&dbname=CJFD2014&v="1">http://kns.cnki.net/kcms/detail/detail.aspx?filename=HPFZ201405002&dbcode=CJFQ&dbname=CJFD2014&v="1">http://kns.cnki.net/kcms/detail/detail.aspx?filename=HPFZ201405002&dbcode=CJFQ&dbname=CJFD2014&v="1">http://kns.cnki.net/kcms/detail/detail.aspx?filename=HPFZ201405002&dbcode=CJFQ&dbname=CJFD2014&v="1">http://kns.cnki.net/kcms/detail/detail.aspx?filename=HPFZ201405002&dbcode=CJFQ&dbname=CJFD2014&v="1">http://kns.cnki.net/kcms/detail/detail.aspx?filename=HPFZ201405002&dbcode=CJFQ&dbname=CJFQ&dbname=HPFZ201405002&dbcode=CJFQ&dbname=HPFZ201405002&dbcode=CJFQ&dbname=HPFZ201405002&dbcode=CJFQ&dbname=HPFZ201405002&dbcode=UJFQ&dbname=HPFZ201405002&dbcode=UJFQ&dbname=HPFZ201405002&dbcode=UJFQ&dbname=HPFZ201405002&dbcode=UJFQ&dbname=HPFZ201405002&dbcode=UJFQ&dbname=HPFZ201405002&dbcode=UJFQ&dbname=HPFZ201405002&dbcode=UJFQ&dbname=HPFZ201405002&dbcode=UJFQ&dbname=HPFZ201405002&dbcode=UJFQ&dbname=HPFZ201405002&dbcode=UJFQ&dbname=HPFZ201405002&dbcode=UJFQ&dbname=HPFZ201405002&dbcode=UJFQ&dbname=HPFZ201405002&dbname=HPFZ201405002&dbname=HPFZ201405002&dbname=HPFZ201405002&dbname=HPFZ201405002&dbname=HPFZ201405002&dbname=HPFZ201405002&dbname=HPFZ2014

<sup>&</sup>lt;sup>12</sup> Ibid. P 74.

<sup>&</sup>lt;sup>13</sup> Ghiselli. 2021. P 132.

<sup>&</sup>lt;sup>14</sup> Hu, Shisheng. Wang, Jue. "The Behavioral Logic behind India's Tough Foreign Policy toward China." China Institutes for Contemporary International Relations. Contemporary International Relations. Vol. 30. No 5. September/October 2020. P 63.

<sup>&</sup>lt;sup>15</sup> Colley, Christopher K. "A Future Chinese Indian Ocean Fleet?" War on the Rocks. April 2, 2021A. Accessed on January 26, 2022. https://warontherocks.com/2021/04/a-future-chinese-indian-ocean-fleet/

<sup>&</sup>lt;sup>16</sup> "China's Military Strategy 2015." Xinhua. Information Office of the State Council of the People's Republic of China. Beijing. Accessed on March 5, 2020.

<sup>&</sup>lt;sup>17</sup> Hu. 2020. P 74.

<sup>&</sup>lt;sup>18</sup> Li et al. 2014.

goals in the Indian Ocean, thus China needs to build several "strategic fulcrums/strong points" that can support each other. He states that "building seapower is China's road to power" and that ports are key to this. Echoing the concerns of other Chinese scholars, he argues that considering the sensitivity of ports, officials should emphasize the importance of economic cooperation and cultural exchanges and down play issues such as the Belt and Road Initiative (BRI). <sup>19</sup>

Overall, a Chinese Indian Ocean fleet is emerging out of the rapid modernization of the Chinese navy. As will be elaborated below, Chinese naval officers are gaining vital blue water experience in the Indian Ocean. It is difficult to ascertain the precise details of China's maritime strategy or, assuming one exists, how coherent it is and how congruent it is with China's foreign and security policies. Chinese strategists and scholars seem to be increasingly aware of emerging negative perceptions of China in the IOR. If, and how, this percolates to the top leadership and the decision making process is less clear. From a security perspective, over the past two decades, the PLAN has gone from being an almost non-existent actor in the Indian Ocean, to having a constant presence with at least 6-8 warships in the northern Indian Ocean at any one time. <sup>20</sup>

**Question 2:** What objectives and institutions are driving China's activities in the Indian Ocean, and how clearly do these interests align with a centrally-issued strategy for the Indian Ocean? To what extent do bureaucratic or parochial interests influence China's policies in the Indian Ocean?

As discussed above, Chinese objectives in the IOR are heavily influenced by Beijing's' desire to defend its SLOCs from the American navy. An emerging secondary concern is centered on protecting Chinese nationals working or residing in unstable IOR states. Whether the American navy represents a real threat to Chinese SLOCs is up for debate, but what must not be underestimated are Chinese threat perceptions of the American navy. While there are some Chinese who have questioned the so-called "Malacca Dilemma," others are ardent believers in the idea that Washington with its friends and partners might use their naval power to disrupt Chinese trade through the narrow choke point that separates the South China Sea from the Indian Ocean. 21

In terms of the institutions that are driving Chinese policy in the IOR, it is critical to note that there are significant barriers to our ability to uncover some of the bureaucratic political games that take place behind the scenes in Beijing. However, there are several forces and actors that do play an important role.

<sup>&</sup>lt;sup>19</sup> Zhang, Jie. "Also on Construction of Maritime Safety Considerations of the Silk Road of the 21st Century." Security Strategy. November 2, 2015. P 100-118. 张洁,海上通道安全与中国战略支点的构建一兼谈 21 世纪海上丝绸之路建设的安全考量,国际安全研究,2015 年第 2 期 100-118.

 $<sup>\</sup>underline{\text{http://gjaqyj.cnjournals.com/gjaqyj/ch/reader/view abstract.aspx?file no=20150206\&flag=1}}$ 

<sup>&</sup>lt;sup>20</sup> Admiral Sunil Lanba's comments at the 2019 Raisina Dialogue. January 9, 2019. New Delhi, India.

<sup>&</sup>lt;sup>21</sup> Author's interviews with Chinese maritime security scholars in Beijing and Shanghai. 2016-2018.

China's "Going Out Policy," which has its origins in the early 1990s, <sup>22</sup> and the later Belt and Road Initiative, which subsumed the Going Out Policy are major drivers, but these are ultimately best understood as symptoms of China's insatiable demand for natural resources with the real cause being China's phenomenal economic growth over the past several decades. <sup>23</sup> For much of the past two decades market driven forces have formed the foundation of China's approach to the IOR. However, the nexus between the Chinese state, the Communist Party, and Chinese companies must not be downplayed. For example, the National Development and Reform Commission (a "Super Ministry") is in charge of coordinating BRI projects and has support from the Ministry of Foreign Affairs and the Ministry of Commerce. Frequently projects approved under the BRI are doled out to both state owned and private Chinese companies. There is also a government hierarchy that is in charge of carrying out the BRI with a Central Small Leadership Group for BRI development, this is staffed by a Politburo Standing Committee member as well as two Politburo members. <sup>24</sup>

There are a multitude of actors striving for influence in the BRI and, in particular, Chinese activities in the IOR. The PLAN as an instructional actor plays a visible role in the region and actively sought permission to take part in the anti-piracy patrols in 2008. Since then the PLAN has used the patrols as a great learning opportunity as this forces PLAN officers to learn how to operate on the high seas thousands of miles from home ports. The Chinese leadership's promotion of sea power has also given the PLAN a reason to lobby for greater responsibilities in the IOR. It must be noted that while the PLAN can be viewed as a bureaucratic force advocating for an expanded role in the IOR, the vast majority of its security responsibilities are still centered in the western Pacific. Conversely, the Chinese military as a bureaucratic actor, has seen its influence in the formal institutions of power greatly diminish over the past several decades. <sup>26</sup>

Chinese companies, both state owned, and private also play a critical role in influencing China's policy in the IOR. Many Chinese companies are pursuing BRI related projects in the hope that they are able to obtain cash from the central government and state banks. This process has led to a large amount of waste and the funding of projects that are not economically viable.<sup>27</sup> China scholar Zhao Suisheng has noted that it is difficult to make sure the money is well spent because Chinese state owned enterprises do not have the ability to conduct proper risk assessment of proposals they have put forward. Specifically he states, "turning (the BRI) into Xi's signature diplomacy effectively gave local government's carte blanche to pursue whatever projects they can get away with" He further states that this has created a situation where there is a "politically driven rush for SOE's to take on projects hastily and the state banks to give out loans whether or not they are financially viable."<sup>28</sup>

<sup>&</sup>lt;sup>22</sup> Norris, William. Chinese Economic Statecraft. Cornell University Press. Ithaca N.Y. 2016. P 75.

<sup>&</sup>lt;sup>23</sup> Ghiselli. 2021.

<sup>&</sup>lt;sup>24</sup> Zhao, Suisheng. "China's Belt-Road Initiative as the Signature of President Xi Jinping Diplomacy: Easier Said than Done." Journal of Contemporary China. July 26, 2019. P 3.

<sup>&</sup>lt;sup>25</sup> Author's Phone interview with former American Naval Attaché based at the American Embassy in Beijing. 2017.

<sup>&</sup>lt;sup>26</sup> Colley, Christopher K. "How Politically Influential is China's Military?" The Diplomat. April 27, 2019. Accessed on April 16, 2022. <a href="https://thediplomat.com/2019/04/how-politically-influential-is-chinas-military/">https://thediplomat.com/2019/04/how-politically-influential-is-chinas-military/</a>

<sup>&</sup>lt;sup>27</sup> Zhao. 2019. P 9.

<sup>&</sup>lt;sup>28</sup> Ibid. P 9.

We do find evidence that in some areas various bureaucratic and parochial entities have joined forces to advocate for their interests in the IOR. The Yunnan provincial government, along with members of the PLA and China National Petroleum Corporation (CNPC), actively promoted the "Malacca Dilemma" in order to persuade Beijing that pipelines from south-west China were an effective solution to overcoming the "dilemma." Specifically, PLA General Wang Zuxun, who was based in Kunming, Yunnan's capital city, argued that China needed to build alternative routes for Chinese oil imports in the event that the American Navy blocked the Strait of Malacca. General Wang advocated for alternative routes through Myanmar and Vietnam. By 2010, the project was officially launched. Importantly, the Yunnan government allied with CNPC, which played a major role behind the scenes. CNPC saw this as a chance to gain additional market share from their rival Sinopec, which is also a state owned oil company. The pipeline was promised to bring in 22 million tons of oil per year, which is about four percent of China's total imports. In addition, oil delivered by the pipeline will cost more than two times that of oil delivered by ocean tankers.<sup>29</sup> Oil delivered vie supertankers is by far the most cost-effective means of transport. While transportation costs can fluctuate over time, in 2007, before many Chinese pipelines were started or completed, the estimated cost of transporting one barrel of oil 1,000 kilometers was 0.16 US dollars. This amount increased to 0.79 US dollars by pipeline and 7.19 dollars by train.<sup>30</sup>

Overall, Chinese interests in the IOR are many and are quickly expanding. The foundation of these interests are the protection of Chinese SLOCs and increasingly the protection of Chinese nationals in the IOR. Within these interests there are a multitude of actors who likely share Chinese leaders interests, but who advocate their own narrow interests that may not always be directly congruent with the policies emanating from Beijing. Such a situation is common the world over, but in the context of the IOR and the rapidly emerging great power rivalries in the region, Chinese activities, whether state or non-state directed, are raising concerns in New Delhi. 31

Question 3: What is the PLA Navy's role in achieving Chinese leaders' strategic ambitions? What do the PLA Navy's key capabilities demonstrated—through vessel procurements, exercises, and doctrine—indicate about the types of missions and the types of conflicts that PLA Navy leaders anticipate? How would a PLA Navy capability to conduct military operations in the Indian Ocean complicate or threaten U.S. and Indian interests? What additional improvements or partnerships does China need to achieve that capability, and in what timeframe is the PLA Navy likely to achieve that capability?

<sup>&</sup>lt;sup>29</sup> Wong, Audrye. "More than Peripheral: How Provinces Influence China's Foreign Policy." The China Quarterly. 235. September 2018. Pages 735-757. For tonnage of annual oil imports see Chen, Aizhu. "China's annual crude oil imports drop for first time in 20 years." Reuters. January 14, 2022. Accessed on April 22, 2022. <a href="https://www.reuters.com/markets/commodities/chinas-crude-oil-imports-post-first-annual-drop-20-years-2022-01-14/">https://www.reuters.com/markets/commodities/chinas-crude-oil-imports-post-first-annual-drop-20-years-2022-01-14/</a>

<sup>&</sup>lt;sup>30</sup> Cole, Bernard D. "China's Quest for Great Power." Naval Institute Press. Annapolis. 2016. P. 82.

<sup>&</sup>lt;sup>31</sup> Author's interviews with India security scholars. New Delhi 2016.

The PLAN's primary mission in achieving China's strategic ambitions is best understood in the role that it plays in securing China's interests. In East Asia this means posing a credible threat to any American carrier battle group that might try to come to the defense of Taiwan in the event of a war over the status of Taiwan. For this task the PLAN has reached a level of relative competence where it has the real or perceived ability to inflict what Chinese leaders hope is an unacceptable level of damage on American naval forces should they decide to intervene in a conflict. While this depends heavily on American assessments of the Chinese military, the U.S. navy would be extremely careful about sending its carriers within 500 kilometers of Taiwan in the event of a war. <sup>32</sup> In the IOR, the PLAN is expanding its ability to protect Chinese interests. As mentioned above this includes, conducting anti-piracy patrols, thus providing an international public good, protecting Chinese SLOCs, and having the ability to conduct evacuations of Chinese in states experiencing civil unrest. The PLAN is also able to "show the flag." The main goal of this is to both conduct military diplomacy which includes foreign port calls and bi-lateral naval exercises, but also the prestige that comes with showing off large warships in distant seas. Such prestige is both for domestic (Chinese) and foreign audiences. <sup>33</sup>

## PLAN Capabilities.

As of May 2022, the PLAN's capabilities demonstrate an increasingly powerful and sophisticated maritime power that has many, but not all of the prerequisites of a modern blue water navy. In terms of procurements, the PLAN has tested different warships designs by only producing a few types of various ships. If these vessels meet the PLAN's standards they then begin serial production of that specific type of warship. This can be seen in the acceleration of orders since 2008 for the 052 D Luyang III DDG, 054A Jiangkai II Frigate, and the 056 Jiangdao corvette. Furthermore, since 2000, the PLAN has rapidly increased the production of diesel electric submarines (SSKs). Such subs would be helpful in deterring the Americans in a Taiwan scenario, but are of limited utility in the Indian Ocean. 35

The American Naval War College estimates that the PLAN now possesses over 100 warships capable of operating in the Indian Ocean and can maintain a constant presence of 18 warships in the IOR if necessary. <sup>36</sup> Nearly all of the PLAN's DDGs are fitted with with Dragon Eye combat systems, which are similar to the Aegis system found in American warships. <sup>37</sup> Box 1 below provides a small, but important snapshot of the transformation of the PLAN into a powerful combat force. In 2000, the vast majority of the Chinese navy was not considered "modern" by the American Office of Naval Intelligence. However by 2022, the majority of PLAN warships were considered modern. <sup>38</sup>

<sup>&</sup>lt;sup>32</sup> Author's discussions with American Military Attaches based at the American Embassy in Beijing. 2009-2018.

<sup>&</sup>lt;sup>33</sup> Author's interviews with Chinese maritime security scholars. Beijing 2016-2018.

<sup>&</sup>lt;sup>34</sup> Murphy, Martin N. Yoshihara, Toshi. "Fighting the Naval Hegemon." Naval War College Review. Summer 2015. Vol 68. No 3. P 33.

<sup>&</sup>lt;sup>35</sup> Ibid. P 32.

<sup>&</sup>lt;sup>36</sup> Becker, Jeffrey. "China Maritime Report No. 11: Securing China's Lifelines across the Indian Ocean." U.S. Naval War College. China Maritime Studies Institute. CMSI China Maritime Reports. December 2020. P 6-7. Accessed on March 16, 2021. chrome-extension://oemmndcbldboiebfnladdacbdfmadadm/https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1010&context=cmsi-maritime-reports

<sup>37</sup> Colley. 2021A.

<sup>38</sup> Erickson. 2017. P XVI-XVII

## Insert Box 1 Here.

Box 1. Two Decades of PLAN Modernization. (Erickson 2017<sup>39</sup>; IISS 2022<sup>40</sup>) Numbers in () represent percentage of warships considered modern.

Year	Destroyers	Frigates	Diesel Electric Submarines	Nuclear Powered Submarines
2000	20 (20%)	40 (25%)	60 (7%)	5 (0%)
2010	25 (50%)	49 (45%)	54 (50%)	6 (33%)
202241	36 (85%)	45 (85%)	46 (75%)	12 (100%)

Importantly, the term "doctrine" has varying definitions and different militaries conceptualize "doctrine" in different ways. 42 However, there are some clear goals that the Chinese leadership has identified over the years that help shed light on PLAN "doctrine." The 2015 Chinese Defense White Paper states: "In line with the strategic requirement of offshore waters defense and open seas protection, the PLA Navy (PLAN) will gradually shift its focus from "offshore waters defense" to the combination of "offshore waters defense" with "open seas protection," and build a combined, multi-functional and efficient marine combat force structure." In addition, over the last 25 years Chinese leaders have actively called for a stronger PLAN. In 1997 Jiang Zemin pushed the PLAN to build up China's "great wall." In 2004, Hu Jintao told the Central Military Committee to build up the nation's sea power and develop a modern navy. Current leader Xi Jinping has called for a navy that can project force to distant oceans. 44

The greatest structural change in the Chinese navy in terms of strategy and tactics is the transformation of a navy based on regional defense and access denial, to a force that is firmly inline with power projection and blue water capabilities. Such an evolution is a conscience decision by the top levels of the Chinese government to build a navy that has the ability to project sustained and meaningful power to locations thousands of miles from Chinese home ports. This transformation is one of the most critical developments in the security architecture of the Twenty-First Century.

While the PLAN has been dramatically transformed over the past 20 years, at present it does not represent a credible threat, nor does it complicate American interests in the Indian Ocean. This situation is slightly different for India, but the tyranny of geography presents China with an enormous structural disadvantage in the IOR. Any Chinese naval flotilla that ventures into the IOR must pass through narrow maritime choke points around the Indonesian archipelago. Such transit points are heavily monitored by New Delhi and Washington and India has a base very

<sup>&</sup>lt;sup>39</sup> Ibid.

<sup>&</sup>lt;sup>40</sup> The Military Balance. The International Institute for Strategic Studies. 2022.

<sup>&</sup>lt;sup>41</sup> For 2022, these are low estimates for the percentages of these vessels that are modern.

<sup>&</sup>lt;sup>42</sup> Fravel, Taylor. Active Defense. Princeton University Press. Princeton New Jersey. 2019. P 11.

<sup>&</sup>lt;sup>43</sup> *China's Military Strategy*. The Information Office of the State Council. Xinhua. May 27, 2015. Accessed on April 16, 2022. <a href="http://english.www.gov.cn/archive/white-paper/2015/05/27/content-281475115610833.htm">http://english.www.gov.cn/archive/white-paper/2015/05/27/content-281475115610833.htm</a>
<sup>44</sup> Cole 2016. P 80.

<sup>&</sup>lt;sup>45</sup> Author's in-depth interviews with Chinese security scholars. Beijing and Shanghai 2016-2018.

close to the entrance of the Malacca Strait where it has positioned Jaguar fighter bombers equipped with anti-ship missiles.<sup>46</sup>

Of greater importance, the PLAN lacks any reliable air cover. Even though China has two operating aircraft carriers, these are best viewed as training vessels that lack the requisite requirements for meaningful air cover. Chief among these is the inability to master catapult take offs for the carriers' air wings. In the absence of this, the J-15, which is China's principal carrier based fighter, is forced to use a "ski jump" take off that does not allow it to be fully fueled or carry extensive ordinance. In the absence of meaningful air cover, any PLAN flotilla that engaged India (which has home-field advantage in that it can use land based fighter bombers to attack potential PLAN vessels in the IOR) or the American navy, would be at an enormous disadvantage and would likely be quickly destroyed.<sup>47</sup>

China does have a formidable submarine fleet, but the SSKs are primarily designed for access denial in East Asia and are not well suited for open seas operations far from home ports. Away from safe ports they would be forced run their diesel generators to charge their batteries. This would require them to regularly expose their snorkel above the waterline, thus giving away their position and likely resulting in American or Indian attacks. All China's fleet of nuclear powered attack submarines has made progress over the past three decades, but are still plagued by high levels of noise, thus exposing their location.

From China's perspective, the PLAN has demonstrated its ability to be a net security provider in the IOR. By some estimates between 51-70 percent of the merchant ships escorted by the PLAN in its anti-piracy patrols have been foreign flagged. Furthermore, as a sovereign state, the PLAN has the right to conduct operations on the high seas and to conduct training exercises with IOR states that invite the PLAN to make port calls.

The PLAN is working to improve its combat effectiveness and ability to conduct operations on the high seas. While China does not have any formal allies in the IOR, it does have strong ties with Pakistan and PLAN warships make regular port calls at Karachi. Interestingly, as of 2020 the PLAN has not made a single port call in Gwadar. It appears to prefer Karachi because of its superior logistical capabilities.<sup>51</sup> Until the PLAN has a viable carrier battle group with real air

<sup>&</sup>lt;sup>46</sup> Colley, Christopher K. Hosur Suhas, Prashant. "India-China and Their War Making Capabilities." Journal of Asian Security and International Affairs. vol. 8, 1. 33-61. February 28, 2021.

<sup>&</sup>lt;sup>47</sup> Ibid.

<sup>&</sup>lt;sup>48</sup> Ibid.

<sup>&</sup>lt;sup>49</sup> Author's interviews with maritime security experts. Washington D.C. 2017.

<sup>&</sup>lt;sup>50</sup> For the 70 percent figure please see Cheng, Cindy. *Trilateral Cooperation Research Series No. 5 China and U.S. Anti-piracy Engagement in the Gulf of Aden and Western Indian Ocean Region.* The Carter Center. April 9, 2017. P 6. Accessed on April 16, 2022. chrome-

extension://oemmndcbldboiebfnladdacbdfmadadm/https://www.cartercenter.org/resources/pdfs/peace/china/tr s-05-anti-piracy-engagement.pdf.; For the 51.5 percent figure please see "Chinese naval fleets escort 3,400 foreign ships over past 10 years." China Daily. January 1, 2019. Accessed on April 16, 2022.

https://www.chinadaily.com.cn/a/201901/01/WS5c2b5aeda310d91214051ec1.html

<sup>&</sup>lt;sup>51</sup> Kardon, Isaac B. Kennedy, Conor M. Dutton, Peter A. "Gwadar." China Maritime Studies Institute. China Maritime Report No. 7. August 2020. U.S. Naval War College. P 54. Accessed on June 23, 2021. <a href="https://digital-commons.usnwc.edu/cmsi-maritime-reports/7/">https://digital-commons.usnwc.edu/cmsi-maritime-reports/7/</a>

cover, its ability to engage in meaningful combat with an adversary that has a viable air force, or carrier based air wings, is extremely limited. China will likely begin to obtain these capabilities towards the end of the 2020s. Importantly, by 2030, it may well have a truly modern navy, but it will not have the ability to control the seas. However, it needs to be noted that many of China's new warships face mid-life servicing starting in 2028. This is especially the case for the advanced DDGs and frigates. This will add an enormous expense to the PLAN and such challenges are frequently not included in future forecasts of the PLAN. <sup>52</sup>

**Question 4:** How do the United States and India factor into Chinese leaders' vision for the Indian Ocean? Are Chinese leaders inclined to support or undermine India's efforts to position itself as a net security provider in the region? How do Chinese leaders view U.S. naval presence in the Indian Ocean, and how has this perspective shaped the PLA Navy's decisions regarding force development and employment in the Indian Ocean?

The American navy is the driving force behind China's security concerns in the IOR. Fear of the American navy blocking Chinese SLOCs has led to a steady increase in PLAN forays in the IOR. Historically, Beijing has not been very concerned with New Delhi and many Chinese commentators have viewed South Asia as a secondary strategic consideration.<sup>53</sup> Ye Hailin, the Vice President and a researcher at the Institute of Asia-Pacific and Global Strategy at the Chinese Academy of Social Science, has stated that China does not regard India as a "priority" in China's foreign strategy.<sup>54</sup> However, this perception of India has started to change.

The primary reason for this change is the deepening relationship between Washington and New Delhi. Chinese South Asia experts have raised concerns over this and have even written that India is becoming a "prize" in the great power competition. <sup>55</sup> Others see Washington's Indo-Pacific strategy as the Asia-Pacific plus India. <sup>56</sup>

53 Guo, Bingyun. Zhuo, Xuchun. "The Modi Government's Measures to China and China's Response. Based on the analysis of the superposition of the ambitions of India as a big power and the mentality of weak countries towards China." Asian Research Communication. November 19, 2020. 郭兵云、卓旭春: 莫迪政府对华举措及中国的应对——基于印度大国抱负与对华弱国心态叠加的分析. 亚研究通讯. 2020-11-19 https://www.essra.org.cn/view-1000-1493.aspx

<sup>&</sup>lt;sup>52</sup> Carlson, Christopher P. "PLAN Force Structure Projection Concept." China Maritime Studies Institute. China Maritime Report No. 10. U.S. Naval War College. November 2020. P 9-12. Accessed on June 23, 2021. https://digital-commons.usnwc.edu/cmsi-maritime-reports/10/

<sup>54</sup> Ye, Hailin. "The Impact of Identity Perception Bias on the Prospects of Sino-Indian Relations." Indian Ocean Economy Studies. July 30, 2020. 叶海林. 身份认知偏差对中印关系前景的影响, 印度洋经济体研究. 2020 年 07 月 30 日. Accessed on August 24, 2021. <a href="http://www.cssn.cn/gigxx/gi\_ytqqy/202007/t20200730\_5163496.html">http://www.cssn.cn/gigxx/gi\_ytqqy/202007/t20200730\_5163496.html</a>
55 Lin, Minwang. "Trump Visits India, Except for the Huge Political Show, the Trade and Defense Achievements are Few." The Paper. February 26, 2020. 林民旺,特朗普访问印度:除了声势浩大的政治秀,贸易、防务成果寥寥,澎湃新闻,2020 年 2 月 26 日,<a href="https://www.thepaper.cn/newsDetail\_forward\_6168745">https://www.thepaper.cn/newsDetail\_forward\_6168745</a>

<sup>&</sup>lt;sup>56</sup> Long, Xingchun. "Trumps First Visit to India, what Impact Will it have?" Global Times. February 21, 2020. 龙兴春,特朗普首访印度将带来什么影响,环球时报,2020 年 2 月 21 日 https://opinion.huangiu.com/article/3x7FvIhdiOi

The Quadrilateral Security Dialogue, or the "Quad", composing the U.S., India, Japan, and Australia, is perceived by many Chinese commentators as directly aimed at China. <sup>57</sup> Other commentators believe that the Quad will lead to increasing tensions between China and the U.S. at the regional level. <sup>58</sup> Chinese South Asia and security analysts note that China's behavior may be playing a role in pushing India towards the U.S., with one analyst writing that after the deadly violence along the disputed border in 2020, India's strategic community believed that China had lost India. <sup>59</sup> Other Chinese scholars have warned Beijing that when they deal with India, they must be careful not to push India into the "American camp." <sup>60</sup> There have been instances where Beijing has tried to improve relations with New Delhi in order to limit Washington's outreach to New Delhi, but these have not been very successful. <sup>61</sup> The most recent overture in March 2022, with Chinese Foreign Minister Wang Yi's trip to New Delhi, is the latest example. However, the underlying structure of the relationship consisting of a history of war, a territorial dispute of over 128,000 square kilometers, and the uncertainty in India because of China's rise and ambitions, are far too great to resolve over a few relatively short high-level meetings.

A primary Chinese strategic goal is to end the unipolar structure of global power that from Beijing's perspective privileges the U.S.<sup>62</sup> India's rise has the long-term potential to position India as a major player in international politics. However, as long as India and China are engaged in a rivalry the potential for deadly violence persists, Beijing will not assist New Delhi to achieve this goal. From New Delhi's perspective, China is not supportive of India obtaining a permanent seat on the United Nations Security Council, and in 2008 at the Nuclear Suppliers Group in Vienna it worked against a ruling that would have eased the implementation of the India-US nuclear technology agreement.<sup>63</sup>

The current trajectory of Sino-India relations does not bode well for meaningful cooperation. As long as tensions and occasional deadly violence along the disputed border persist, Beijing will be very wary of India playing the role of a net security provider in the region. To add to the tension, since 2017, the Indian Navy has conducted "Mission Based Deployments" in the IOR. These

<sup>&</sup>lt;sup>57</sup> Zhang, Li. "A Preliminary Study of the US-India-Japan-Australia Quadrilateral Mechanism from the Perspective of Indo-Pacific Tension." South Asian Studies Quarterly. No. 4. 2015. 1-8. 张力,"印太"视域中的美印日澳四边机制初探,南亚研究季刊,2018 年第 4 期 1-8.

http://kns.cnki.net/kcms/detail/detail.aspx?DBCode=CJFD&DBName=CJFDLAST2019&fileName=NYYZ201804001

<sup>&</sup>lt;sup>58</sup> Zhang, Jie. "The US-Japan-India-Australia Summit Intensifies the Game of Regional Order. South Asian Research Newsletter. April 2, 2021. 张洁:美日印澳峰会加剧地区秩序博弈. 南亚研究通讯. 2021-04-02. Accessed on April 8, 2021. https://www.essra.org.cn/view-1000-2361.aspx

<sup>&</sup>lt;sup>59</sup> Lou, Chunhao: India fully embraces the "four-sided mechanism." South Asian Studies Communication. 2021-01-25. 楼春豪: 印度全面拥抱"四边机制."南亚研究通. 2021-01-25. 美国防长埃斯珀、国务卿蓬佩奥与印度防长辛格、外长苏杰生(从左到右)在新德里举行 2+2 会谈. <a href="https://www.essra.org.cn/view-1000-1893.aspx">https://www.essra.org.cn/view-1000-1893.aspx</a>

<sup>&</sup>lt;sup>60</sup> Wang, Xinhao. "Interview with Zheng Yongnian: "Don't push India into the arms of the United States"." July 30, 2020. Accessed on February 18, 2021. 郑永年:不要把印度推向美国的怀抱,时代在线. <a href="http://www.time-weekly.com/post/271970">http://www.time-weekly.com/post/271970</a>

<sup>&</sup>lt;sup>61</sup> Garver, John. China's Quest. New York. Oxford University Press. 2016.; Garver, John. And Wang, Fei-ling. "China's Anti-encirclement Struggle." Asian Security. 6:3, 2010. Pages 238-261.

<sup>&</sup>lt;sup>62</sup> Author's interviews with Chinese security scholars. Beijing 2016-2018.

<sup>&</sup>lt;sup>63</sup> Garver. 2016. P 749-750. It should be noted that in 2005 Chinese Prime Minister Wen Jiabao gave overt support for India's claim for a permanent seat on the Security Council and recognized Sikkim as part of India. See Holslag, Jonathan. China and India. New York. Columbia University Press. 2010. P 57.

deployments are specifically designed for Indian warships to shadow and monitor the PLAN in the IOR.<sup>64</sup>

**Question 5:** The Commission is mandated to make policy recommendations to Congress based on its hearings and other research. What are your recommendations for Congressional action related to your testimony?

Chinese interests have dramatically increased in the IOR over the past 20 years. The PLAN now maintains a constant presence with at least 6-8 warships in the northern Indian Ocean and has the capacity to maintain a constant presence of at least 18 warships in the Indian Ocean. China's primary concern at this point is not to seek regional hegemony, but to protect Chinese interests. Part of this strategy is to put to sea a fleet that has the capability to inflict a level of damage on an adversary that, while not being capable of winning a battle, has the ability to inflict an unacceptable level of damage. The PLAN's footprint will continue to expand in the region and beyond and it is extremely likely that more Chinese bases will emerge in the IOR and beyond over the next decade. From Beijing's perspective these bases would be no different from American bases in other parts of the world and are China's and the host nation's sovereign right to grant China access. However, no bi-lateral relationship exists in a vacuum and future Chinese bases and forays into the IOR will have repercussions in China's strategic rivalries with both the U.S. and India. Chinese leaders are well aware of the tensions that can arise from rival states maintaining military bases in other countries. Beijing is very clear in its opposition to American bases in East Asia that are granted to Washington by sovereign states such as South Korea and Japan.

In the current state of the Sino-U.S. rivalry, ties are severely strained. A fundamental lack of trust exists between both sides and, considering the challenges of the Covid-19 pandemic and China's stance on the war in Ukraine, one can expect a continuation of rivalry escalation. However, there are some areas for cooperation between China and the U.S. The following five recommendations cover multiple areas.

1. The U.S. and China do share common interests in the IOR and adjoining regions. American military officers who have worked with the PLAN in anti-piracy patrols have generally had a relatively more positive experience with the PLAN than officers engaged in other areas. These should be maintained. Even if the threat of piracy has dramatically decreased, the mere symbolism of Chinese and American warships working together to provide a public good is helpful. Unfortunately the PLAN did not join Operation Sentinel near the Strait of Hormuz in 2019, but at the time the Chinese Ambassador to the UAE, Ni Jian, did not outright reject Chinese participation and stated "if there happens to be a

<sup>&</sup>lt;sup>64</sup> Colley, Christopher K. 'The Transformation of the Indo-China Rivalry in the Twenty-First Century.' In the Aparna Pande ed. Routledge Handbook on South Asian Foreign Policy. Routledge. New York. 2021B. P 275.

very unsafe situation we will consider having our navy escort our commercial vessels."<sup>65</sup> China and the U.S. also share a common interest in preventing Iran from acquiring nuclear weapons, with China playing an important, but behind the scenes role in helping to facilitate the 2015 nuclear agreement.<sup>66</sup> Overall, there are limited opportunities for China and the U.S. to work together, but where they do exist, they should be pursued.

- 2. The United States needs to work with India and deepen the current military-to-military ties. While defense ties are on the surface robust, the level of interoperability between the militaries needs to be significantly improved. Many of the exercises between the American and Indian air force and navy lack any real level of interoperability as both sides frequently turn off their combat systems.<sup>67</sup>
- 3. Washington needs to be aware that threats of punishing India for its ties to Russia may be counterproductive. India is heavily reliant on Russian arms and spare parts for its military to function properly. In fact roughly 70 percent of India's fighter bombers and its entire carrier based air wings of modified Mig-29Ks are of Russian origin. <sup>68</sup> If New Delhi were to sever ties with Moscow, the India military could find itself unable to function as a viable combat force. Washington should increase its military assistance to New Delhi in its quest to modernize its military. This also requires a much deeper understanding of Indian domestic politics and its deep seated fears of playing a junior partner to the U.S.
- 4. Washington needs to realize that the IOR is not a top-level strategic priority for China and that Chinese policy in the region is frequently ad-hoc and the BRI lacks meaningful coordination. <sup>69</sup> Many of the BRI projects in the IOR may never become economically viable, and some are already turning into white elephants. <sup>70</sup> While the IOR is increasing on Beijing's radar, East Asia is by far the most pressing foreign security concern for Chinese leaders and domestic security concerns (maintaining social stability) are paramount in China. With this in perspective, Washington does not necessarily have to overreact to China in the IOR, but it needs to maintain its partnerships with regional states. In parts of the IOR and in particular, the Middle East, there is a common misperception that the U.S. is "leaving the region." <sup>71</sup> This view is not in-line with the reality that the American military presence in the Arabian Peninsula has actually

 <sup>65</sup> Cornwell, Alexander. "China might escort ships in Gulf under U.S. proposal: envoy." Reuters. August 6, 2019.
 Accessed on January 26, 2022. <a href="https://www.reuters.com/article/us-mideast-iran-tanker-china-idUSKCN1UW1DR">https://www.reuters.com/article/us-mideast-iran-tanker-china-idUSKCN1UW1DR</a>
 66 Garver, John. "China And The Iran Nuclear Negotiations." In the James Reardon-Anderson eds. The Red Star and the Crescent. Oxford University Press. New York. 2018.

<sup>&</sup>lt;sup>67</sup> Mason, Chris M. 'Less than Meets the Eye: A Critical Assessment of the Military-to-military Dimension of the U.S.-India Security Partnership.' In the Sumit Ganguly and Chris M. Mason eds. The Future of U.S.-India Security Cooperation. Manchester. Manchester University Press. 2021. 19–37.

<sup>&</sup>lt;sup>68</sup> The Military Balance. 2022. P 269.

<sup>&</sup>lt;sup>69</sup> Zhao. 2019.

<sup>&</sup>lt;sup>70</sup> Chinese projects in Hambantota Sri Lanka are a case in point. See Pattanaik, Smruti S. "India's Policy Response to China's Investment and Aid to Nepal, Sri Lanka and Maldives: Challenges and Prospects. Strategic Analysis, 43:3, June 3, 2019. P 240-259.

<sup>&</sup>lt;sup>71</sup> Al Sharif, Osama. "A new regional order in the Middle East." Gulf News. November 30, 2021. Accessed on January 27, 2022. https://gulfnews.com/opinion/op-eds/a-new-regional-order-in-the-middle-east-1.84040660

expanded over the past decade.<sup>72</sup> Washington must make it clear to the region that it is not leaving and needs to highlight the importance of the American security presence in the region. Oddly enough, some Chinese scholars have admitted that China is free riding off the American security presence.<sup>73</sup>

5. The federal government should dramatically increase funding to projects related to China such as the Foreign Language Areas Studies program, and should more actively develop a strong cohort of Americans with high-level Chinese language skills. In some embassies the State Department currently has an individual dedicated to the study of China, but not all embassies have such staff. This needs to be significantly increased. In addition, in embassies located in countries where China has a large presence, several diplomats and not just one should be assigned China specific tasks. This requires them to be able to read Chinese. One key challenge for China as it expands its role in the world is a profound lack of area experts. Many of China's IOR experts, were trained as American or European specialists and therefore initially lacked a concrete understanding of this new region. The Washington needs to make sure the U.S. is not facing a similar deficiency.

Box 1. Two Decades of PLAN Modernization. (Erickson 2017<sup>75</sup>; IISS 2022<sup>76</sup>) Numbers in () represent percentage of warships considered modern.

Year	Destroyers	Frigates	Diesel Electric Submarines	Nuclear Powered Submarines
2000	20 (20%)	40 (25%)	60 (7%)	5 (0%)
2010	25 (50%)	49 (45%)	54 (50%)	6 (33%)
202277	36 (85%)	45 (85%)	46 (75%)	12 (100%)

<sup>&</sup>lt;sup>72</sup> Janardhan, N. Colley, Christopher K. 'Flag Follows Trade.' In the N Janardhan ed. The Arab Gulf's Pivot to Asia. Hamburg. Gerlach Press. 2020. 193–209.

<sup>&</sup>lt;sup>73</sup> Xu, Ruike. Sun, Degang. "Sino-American Relations in the Middle East: Towards A Complementary Partnership?" Asian Journal of Middle Eastern and Islamic Studies. April 23, 2019. P 154.

<sup>&</sup>lt;sup>74</sup> Author's interviews with Chinese area specialists. Beijing. 2016-2018.

<sup>75</sup> Ibid.

<sup>&</sup>lt;sup>76</sup> The Military Balance. The International Institute for Strategic Studies. 2022.

<sup>&</sup>lt;sup>77</sup> For 2022, these are low estimates for the percentages of these vessels that are modern.