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Indian and Australian Maritime Security Doctrines in the Indian Ocean Region in the 21st Century. Christian Bueger's Matrix of Maritime Security Approach[1]

Abstract: The article's purpose is the multidimensional analysis of the evolution of Australia and India's maritime policies and their impact on the endeavors to develop their maritime cooperation in the 21st century. Two research questions are to be answered in that connection: what changes and why India and Australia introduced to enhance their maritime security doctrines in the 21st century and why those changes contributed to the more in-depth cooperation in the second decade of the 21st century. The hypothesis based on those questions argues that not only the rise of China but also global processes in maritime affairs – such as the growing number of state and non-state actors, as well as the interdependence between the fields of human activities at sea – pushed the littorals like India and Australia to turn their maritime strength from coastal to oceanic and convinced them too to cooperate. That process was accompanied by the convergence of the security perceptions by both countries (India and Australia) and the mutual understanding of common interests in all the elements of modern maritime security. The Christian Bueger's matrix serves as an explanatory framework to highlight the dynamics and broader context of the changes in India and Australia's maritime security doctrines in the 21st century. It provides the conceptual framework for explaining closer cooperation between these two countries. The article analyzes India and Australia's maritime strategies, focusing on four variables from Bueger's matrix: national security, economic development, marine environment, and human security. In those dependent variables, particular elements of their activities serving as sub-variables are highlighted: in national security – shaping the seapower; in economic development – Illegal, Unreported, and Unregulated (IUU) fishing; in the marine environment – climate change mitigation; in human security – the fight against piracy and

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human trafficking. The choice of the mentioned elements is justified by their role in Australia and India's activities within maritime strategies and their influence on other elements of the maritime security matrix. The article starts with a description of Bueger's matrix in the context of the evolution of the maritime security concept in international relations. The second part outlines the centrality of the Indian Ocean in Indian and Australian modern military and economic security. The third part explores and explains the roots of Indian maritime security thinking, and the fourth investigates the evolution in Australia's attitude toward maritime affairs. The final part presents the developments in Indo-Australian bilateral cooperation in the 21st century.

Keywords: *maritime security, Indian Ocean, sea power, blue economy, marine environment, human resilience*

Introduction

Maritime strategies have always played an important role in the defense doctrines of superpowers like the USA, Russia, or the United Kingdom. The strength of the navy and its efficiency played a vital role in British military and economic dominance in the 19th century and the competition between the US and the Soviet Union in the 20th century. After the end of the Cold War, in the last decade of the 20th century and the first two decades of the 21st century, maritime issues have started to play a more critical role in the defense strategies of other countries, aspiring to the position of great power (China, India), or regional/middle power (Australia, Japan). At the same time, the meaning of maritime security evolved, which impacted maritime doctrines. In that context, the essential factor was the development of technologies in the maritime area of defense (vessels, infrastructure, asymmetric threats like terrorism and piracy coming from non-state actors) and blue economy (offshore oil and gas fields, sea lanes of communications, aquaculture, containerization). The significant feature of technological transformation in seafaring was that "since the break-up of the old nation-based shipping cartels, maritime trade became a truly global, non-national business" (Pugh, 1996). Accidents of illicit activities in the blue economy like oil rig leaks, cleaning ship holds, or excessive use of fertilizers in aquafarms caused the growing pollution threatening the environment. The Third Conference on International Law of the Sea, and the signing (1982), then the entry into force (1994) of the Montego Bay convention of 1982, introduced a broad legal and institutional framework into maritime affairs and symbolized a new era of a more comprehensive and holistic look at maritime security. All those processes constituted vital elements of deepening interdependence among the countries and other stakeholders, as well as all the areas of activities in maritime affairs in the last decade of the 20th and the first two decades of the 21st century.

India and Australia, the biggest littorals in the Indian Ocean Region, have been participants of the mentioned processes in various ways and with different limitations. They have both differences and similarities in their path to a modern seapower status and the creation

of their maritime doctrines within the Indian Ocean. India had a significant civilizational maritime impact on the IOR for centuries until the 19th century and the British rule. The patterns of ancient India maritime policy can be found in Vedas and Ramayana with detailed descriptions of sea routes to the East (Java, Sumatra) and the West (Egypt, Greece). Indian seafaring and trading links across the Bay of Bengal and the Arabian Sea were disrupted by the rise of Islam and then arrival of colonial powers. Australia became an independent country in 1901 only and considered itself until the end of the 20th century as more Pacific than an Indian Ocean country. India's and Australia's role in their particular neighborhoods in the Indian Ocean and the Western Pacific was limited in the 20th century. In the first half of that century, Australia still had a Dominion status under the British Empire, and India was under the Crown rule as a part of the British Empire. Their armed forces served as expeditionary forces supporting the Royal Navy[2] and its maritime strategy, especially during the First and the Second World Wars. Having gained independence, India concentrated its endeavors for the first 30 years of statehood as the republic on its immediate neighborhood on land and borders with China and Pakistan. After the Second World War, Australia has gradually limited its strategic maritime dependence on the United Kingdom Royal Navy and started to increase its cooperation with the United States by signing Pacific Security Treaty (ANZUS) in 1951. Australian Navy involvement in the Vietnam War 1965–1972 and the US forces' support was considered the decisive moment of a new strategic alliance. Australia and India changed their approach toward maritime issues in the 1980s and 1990s. With the end of the Cold War, Indian and Australian Navies became more active in their particular regions – India in the Bay of Bengal and Australia in the Western Pacific and Eastern Indian Ocean.

The article discusses the changes in maritime thinking in two big littorals of the Indian Ocean Region – India and Australia – considering the conceptual changes in the meaning of sea power and maritime security in the 20th and 21st centuries. Their role as the biggest littorals in the Indian Ocean Region has changed, and they have been placed among the most important players in the region in the 21st century. Many researchers explained the shift in their policies and publication of their strategies in the 21st century by the rise of China only (Atkinson, Bogais, 2018; Rajagopalan, Biswas, 2015; Rajesh, 2018; Patel, Kumar Malik, Nunes, 2017; Raja Mohan, 2013), applying a realistic approach with the focus on the naval (military) level of analysis, using Barry Buzan's security concept (Buzan, 1991, pp. 431–451).

The analysis of India's and Australia's doctrines is carried out in this article based on Christian Bueger's maritime security matrix. Bueger's (2015, p. 160) neoliberal approach is more adequate than the realistic one since it considers both the dynamic nature of maritime security, the necessity of cooperation, and interdependence between all its areas and actors in contemporary times. "Maritime security organizes a web of relations, replaces or subsumes older, established concepts, as well as relates to more recently developed ones". The choice of

[2] Australian Royal Navy was established in 1911 and Indian Royal Navy in 1934.

Bueger's matrix to analyze maritime strategies for the first time in the literature also stemmed from the assumption that his "semiotic" approach[3] is the most relevant to analyze Indian and Australian maritime policies. Bueger's "semiotic" approach is utilized in the article by adapting it to show the fabrics of both nations' mentality and their ambivalent approach to the sea, and how they contribute to the complexity of the process of their maritime policymaking. There is a dichotomy in the ocean's semiotics in their traditions – Indian traditional religious (Hindu) symbolism, Australian challenges of settlement on land connotations together with remote island syndrome on one side, and a rationale of modern geopolitics of the 21st century, and economy on the other. In that context, Bueger's matrix helps to answer the main research question of why two maritime nations, which limited their maritime activities to the coastal waters for many decades, changed their paradigm on the verge of the 21st century. Interdependence and the dynamic character of modern maritime security highlighted by Bueger are essential to answer another research question on the convergence of India and Australia's interests, implicating their deeper cooperation. It also helps to prove the hypothesis that India's and Australia's change in their maritime thinking stemmed mainly from the global processes of the maritime domain's growing role in the context of increasing interdependence within globalization.

The article's structure first offers the presentation of methodological scope with a comprehensive explanation of Bueger's matrix. The Indian Ocean Region's role is highlighted, showing its significance for regional and extra-regional littorals. The historical roots of India and Australia's maritime thinking are explored in the third and fourth parts. Finally, the article discusses the development of both countries' maritime strategies and analyses the achievements in their cooperation in the first two decades of the 21st century.

1. Christian Bueger's Matrix of Maritime Security

The conceptual framework of maritime activities of states and maritime security varied in the 19th and 20th centuries. A.T. Mahan's six fundamental elements of sea power: geographical position, physical conformation, the extent of territory, size of the population, character of the people, and character of Government, are considered as the first modern concept of a maritime policy of the state (Mahan, 2009). His realist vision of maritime strategy and security referred to the theories of international lawyers of 17th and 18th century, focusing on gaining dominion over the oceans and protecting their countries fleet. The classical concept of seapower and its maritime strategy as defined by Mahan and Corbett (2017) was supplemented in the 20th century by additional contemporary elements described by

[3] Semiotic approach in security as explained by Bueger (2015, p. 160): "The term 'fish', for instance, achieves sense though its contrast with 'meat' or 'seafood', its association with 'gills' or 'fins' and its relation to 'water'. (…) The concepts of seapower and marine safety are century old understandings of danger at sea, the latter two have arisen at roughly the same time as maritime security".

G. Kemp (1981) and G. Till (2008). In addition to Mahan's (2009, p. 4) "geographical position, physical conformation, the extent of territory, character of government and national institutions", Kemp (1981, p. 40) added "dynamics of technology and logistics", and Till (2008, pp. 1–3) "sizing and shaping the fleet", and "from power at sea toward power from the sea". Contemporary emerging sea powers have to shape their maritime security strategies and doctrines also in a different way, as Till (2008, p. 1) put it: "the concept of security has expanded from notions that are mainly military to encompass the dimensions of political security, economic security, societal security, and environmental security". In the globalized world with asymmetric threats to transportation and cyber links by transnational non-state actors, like piracy, terrorism, and illegal immigration, involving civilians, the concept of maritime security has become far more capacious in all its layers.

Referring to that capacious understanding of maritime security in the 21st century, Christian Bueger argued that the methodology of "laundry"/negative list of threats to define maritime security is insufficient since "it does neither prioritize issues, nor provides clues of how these issues are interlinked, nor outlines of how these threats can be addressed" (2015, p. 159). He was in favor of a "positive" list and Till's "order at sea" (Till, Bekkevold, 2016, p. 4). In contrast to the "negative" definition of maritime security as an absence of a range of threats, this understanding provides a "positive" conceptualization that projects a particular ideal-typical end state that has to be reached. At the same time, Bueger (2015, p. 160) qualified maritime security as a "buzzword", indicating that "there are little prospects to form an international consensus on the concept". The same applies to any efforts to define phenomena or human activities in the maritime domain in a holistic way (Łukaszuk, 2018, pp. 123–144) due to their complexity, variety of approaches, and institutional fragmentation. As stated by Bueger, there was a need to identify frameworks by which we could comprehend commonalities and disagreements entailing the concept of maritime security. Those frameworks are: 1. "semiotics", exploring relations between maritime security and other concepts; 2. "the securitization", providing means to understand how different threats are included in maritime security; 3. "security practice theory", explaining what actions are undertaken to provide maritime security.

Among those three frameworks that linked to semiotics seemed to be essential. It allows explaining the dynamics of maritime security developments in the 21st century with a holistic approach in an apt way. It offers the coverage of the concepts presented by other scholars understanding the multilayered structure of maritime security and its changing scope.

Within the semiotic approach, Bueger (2015, p. 161) proposed a matrix (Figure 1) of four concepts/dependent variables, which, in his opinion, defines the interdependence between several concepts of modern maritime security in the most accurate way: national security (sea power, inter-state disputes, arms proliferation, terrorist acts), economic development (blue economy, fishing), marine environment (marine safety, accidents) and human security (resilience, human trafficking).

There are four essential terms within a semiotic framework: seapower, marine safety, blue economy, and human resilience. The concept of seapower changed and nowadays is rather linked to the question of the scope of activities of naval forces outside territorial waters and their endeavors in providing the security for strategic sea lanes of communications than to the protection of the survival of states. Modern marine safety addresses not only the issues from the competence of the International Maritime Organization like the safety of ships and maritime installations with the primary purpose of protecting maritime professionals against pirates, terrorists, and trafficking of persons and goods, but also the marine environment. Maritime economic development in the second half of the 20th in the 21st century resulted in creating blue economy, which means global containerized trade and open sea fishery, as well as offshore industries like seabed mining, coastal tourism, and sea farming. The blue economy concept emphasizes the interdependence of its constituent elements, which implies sustainable development and the relationship with maritime security. "The concept of blue economy is linked to maritime security since sustainable management strategies not only require the enforcement and monitoring of laws and regulations, but a secure maritime environment provides the precondition for managing marine resources" (Bueger, 2015, p. 162). "Blue economy is envisaged as the integration of ocean economy development with the principles of social inclusion, environmental sustainability and innovative, dynamic business models" (Talukdar, 2019, p. 47). Fisheries constitute a significant part of the Bueger's matrix within the dependent sub-variable of Blue Economy as IUU (Illegal, Unreported and Unregulated) Fishing with relevance to other elements at different levels of matrix like inter-state disputes, marine environment, and human security. Responsible and sustainable management of resources is related to human security with challenges like

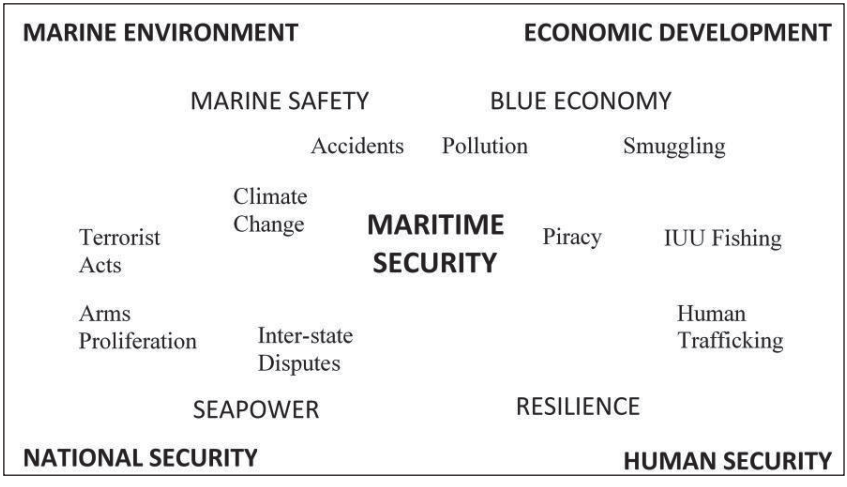

Figure 1. Christian Bueger's (2015) Maritime Security Matrix

Illegal, Unreported and Unregulated Fishing (IUU) or pollution. Human security has several maritime dimensions – the security of sea farers or coastal populations' vulnerability[4] to maritime threats. According to Bueger (2015, p. 161), coastal populations' resilience is a key factor in the emergence of maritime threats and is hence vital in their prevention.

2. The Significance of the Indian Ocean Region for India and Australia

The Indian Ocean Region consists of five sub-regions – the Middle East and Gulf, the Red Sea and Horn, East Africa and Sub-Sahara, South Asia, Southeast Asia/Oceania – representing the whole scope of levels of economic development (Cordesman, Toukan, 2014, p. 2) – from the poorest to the wealthiest countries of the world, from countries with economies based on the fishery to the custodians of 40% of world petroleum production; from failed countries fighting with terrorists to the countries serving as raw models of democracy with different demographic potential, level of development and history (India, Australia); melting pot of civilizations, religions, and cultures containing 40% of the world population (by 2050 55,3%) (Ministry of Defense, 2009). IOR is the busiest and most significant communication corridor with 61% of world container traffic and 70% of world petroleum transit (Cordesman, Toukan, 2014, p. 2). Sea Lines of Communication go from one strategic chokepoint to another – from Bab el Mandeb and Hormuz Strait (40% of world crude oil trade) to Malacca Strait (40% of world trade) (Cordesman, Toukan, 2014, p. 2). IOR is at the same time considered as "an arc of instability" (Rumley et al., 2016) because it contains 11 of 20 states listed in the "Failed State Index" (Srivastava, 2017). Up to 2005, the Malacca strait was considered the most piracy-prone area in the world. Between 1993 and 2003, piracy attacks tripled in that crucial chokepoint of IOR. After concerted efforts of regional and extra-regional sea powers, the problem of piracy in the Malacca strait was solved, but then the Gulf of Aden became the most dangerous waters for international shipping (McCauley, 2019).

The Indian Ocean Region constitutes the essential element of Indian and Australian maritime security according to the presented features of Bueger's matrix. India and Australia are the biggest littoral countries in the region, and they have always been natural contenders to the role of seapower in IOR.

90% of India's trade by volume and 77% by value is transported over the Indian Ocean (Ministry of Defense, 2009), which implies a focus in Indian strategic planning on protecting the sea lines of communications (SLOCs). Seaborne trade and shipping are called "valuable assets" because "India remains predominantly maritime trading nation", and the number of ships in the Indian merchant fleet doubled 1998–2008 (Indian Navy Naval Strategic

[4] Vulnerability of coastal populations is put in the matrix as "resilience". The resilience of coastal populations toward all phenomena linked to the maritime security, is understood in the article as a preparedness of the population to tackle with challenges and negative consequences of the mentioned phenomena. The role of authorities at the central and local level is to support coastal populations logistically and financially.

Publication, 2015b). "Thereafter comes the importance of protecting its island territories in the Bay of Bengal and the Arabian Sea, and, finally, the 2.37 million square km of the EEZ with important fishery resources, as well as the country's most important domestic oil reserves" (Joshi, 2019). The coastline contributes to the significance of the blue economy in IOR, accommodating four out of ten India's biggest cities[5], including such financial and economic hubs as Mumbai, Kolkata, and Chennai. India shares environmental responsibility for two Large Marine Ecosystems (LME) – the Arabian Sea and the Bay of Bengal[6].

14 thousand km of Australia's coastline is the longest among IOR countries. Australia's Exclusive Economic Zone, with its area of 3,88 million square km and extended continental shelf, with an area of 2 million square km, is the biggest in IOR and the third biggest in the world. Australia's Indian Ocean Territories are close to significant geographical features, including the Malacca, Sunda, and Lombok Straits and vital sea lanes, including primary export routes between Western Australia and North and East Asia. Maritime threats originating from Southwest and Southeast Asia, including illegal fishing, people smuggling, and other forms of transnational crime, all rely on sea routes that pass near Christmas Island and Cocos Islands (Parliament of the Commonwealth of Australia, 2017). The marine environment plays a significant role in Australia's maritime security due to the vastness of coral reefs, the biggest in the world, and, as a consequence, the responsibility for seven LMEs, surrounding all of Australia.

3. Evolution of India's Maritime Security Concept

Sea Power

Water plays an important role in Indian tradition, but rivers have always been considered meant for humans and oceans as meant for gods (Kuśnierz, 2006, p. 61). Even though for the brahmins and other representatives of higher castes crossing the ocean meant a breach of the rule (Kala Pani), Indian spiritual norms and values spread around Southeast and Northeast Asia. That paradox stemmed from the fact that the empires of Andhra, Chola, and Vijayanagar from the southern part of the Indian peninsula had the most developed fleet (Sugandha, 2008). The North always lived under the pressure and threat of expansion from Western Asia through the land. The South's sea power enabled the expansion of Indian culture in Southeast and Northeast Asia, spreading Buddhist and Hindu concepts across Asia. The trade underpinned the making of a "Greater India" with a significant cultural

[5] Retrieved from: https://www.worldatlas.com/articles/the-10-largest-cities-in-india.html.

[6] According to the Manado Ocean Declaration 2009 (the author of the article was the chairman of Polish delegation at that conference), Large Marine Ecosystems are "areas of 200 thousand square km, that are adjacent to the continents coastal waters where primary productivity is generally higher than the open sea" (Rothwell, Stephens, 2017, p. 508).

influence on Southeast Asian nations. That dichotomic approach between the traditional North sacral and the South merchant attitude influenced shaping the maritime security concept when India regained its independence in the middle of the 20th century. The central, federal authorities in the North concentrated on land borders and conflict with Pakistan. The expenditures on the creation of a naval and maritime infrastructure in the South were limited. Jawaharlal Nehru transformed the traditional, pre-colonial concept of Indian sea "soft power" in IOR into the new version of the Monroe Doctrine in the closest neighborhood. His belief that the exclusion of extra-regional actors from IOR would prevent conflicts and secure a weak Indian state caused the evolution of strategic thinking. In the course of the next 40 years, India exercised its limited sea power in several wars in South Asia – Goa (1961), East Pakistan/Bangladesh (1971), Sri Lanka (1971, 1983–90), Maldives (1988–9). In terms of equipment, the Indian Navy was technically outdated and dependent on British and Soviet vessels with a limited budget, which increased significantly after 1971, when Delhi command realized the essential role vessels played in the war with Pakistan. As argued by Indian scholars in the 1970s and 1980s (Misra, 1977; Chopra, 1982), an offensive paradigm in India's maritime strategy was caused by threats from land neighbors (Pakistan, China), the vacuum of power created by the gradual withdrawal of the British Navy, and the belief in India's leadership and responsibility for the region of South Asia, as well as a lack of proper balance of power, and growing arms race in IOR between the US and the Soviet Union. Deployment of the US naval forces to the Bay of Bengal during the 1971 war, the war in the Suez Channel, and the establishment of the US base in Diego Garcia constituted India's concerns (Brewster, 2014). At the same time in the 1970s, India was taking several unsuccessful steps through the Non-Aligned Movement group of countries in the United Nations to introduce the idea of IOR as a Zone of Peace. After the end of the Cold War and the start of economic reforms in 1991, India changed its attitude toward its neighbors by introducing Gujral Doctrine and Look East Policy, returning to soft power policy in South Asia countries, and engaging with Southeast Asian rapidly developing countries by the revival of "Greater India" linkages. The establishment of the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) together with the Indian Ocean Rim Association for Regional Cooperation (IOR-ARC) in 1997 proved the gradual shift in India's foreign policy and maritime security doctrine from regional, South Asian, to more global, covering the Indian Ocean as a whole scope. At the same time, the share of the Indian Navy in the defense budget crossed 10% benchmark in the 1990s and by the end of the 20th century reached 15%, making India's sea power capacity and capability more appropriate to its aspirations to be a leader and net-security provider in IOR (Sawhney, 2014). The evolution of India's maritime security doctrine is visible in the documents published by Indian Navy: "Indian Maritime Doctrine", first published in 2004, then revised in 2009 and updated in 2015; maritime strategies – 2007 "Freedom to use the seas" and 2015 "Ensuring secure seas". The difference between the titles of the strategies proved it as well – the first one passive and the second one assertive and promising more openness and engagement

in regional issues. Indian Government has gradually adjusted doctrine and strategies to the realities of the dynamic developments in IOR with relevance to the regional community's national interest and needs. As emphasized in the Indian Maritime Security Strategy, maritime (sea) power became an important element of national power and a key enabler for national growth and development (Indian Navy Naval Strategic Publication, 2015a, p. 16). "In the application of maritime power, navies perform several roles, each with a distinct set of objectives, missions and tasks" (Ministry of Defense, 2009, p. 89). Among the main roles envisaged for the Indian Navy were: military, diplomatic, constabulary, benign (Ministry of Defense, 2009, p. 91). "The Indian Navy's military capability and force levels need to be built around a 'balanced fleet' with adequate reach and combat power, so as to meet the needs of its various roles, objectives, missions and tasks" (Ministry of Defense, 2009, p. 89). The military budget reached 55,9 billion USD (2,5% GDP) with the increase of navy share by 75%. India now has 214 vessels, 15 submarines, 12 aircrafts Boeing Poseidon P8 (submarine surveillance) (Tian et al., 2018).

IUU Fishing

Being one of the essential sectors of the Indian blue economy, fish production provides direct employment for 1,5 million people and indirect for 4 million people, with 3288 marine fishing villages and 1511 marine fish landing centers in 9 maritime states and 2 union territories (Central Marine Fisheries Research Institute, 2010). With a long 8129-km coastline, 0.5 million km2 of the continental shelf, and 2.02 million km2 of the exclusive economic zone (EEZ), India is a major marine fish producer ranking third in the world[7]. India built up its position from the first years of independence. The production grew from 0,534 tons in 1950 to 3,15 million tons in 2007[8]. In that context, IUU has increasingly created a threat to human security, causing overfishing with the breach of existing regulations in India at the international, national, and state level (*The Maritime Zones…*, 1981). "The Government of India through State Governments of respective maritime States implemented a fishing ban during the monsoon every year. The ban lasted for 45–60 days with each State using a different time period or criteria such as advancement of monsoon as an indicator. Absence of a uniform ban period throughout the coastline led to fishing trawlers of several States using this legal technicality to fish where fishing ban exists and land in an adjacent State where there is no ban" (Pramod, 2010). Another problem stemmed from foreign vessels illegally crossing the border and fishing, mainly in the waters near Tamil Nadu and the Andaman Islands. "Illegal, unreported and unregulated fishing (IUU) has been a bone of contention between India and Sri Lanka, souring otherwise cordial relations. Tamil Nadu Trawlers also engage in IUU because they have exhausted fishing stocks on their side of the IMBL

[7] Retrieved from: https://www.fao.org.

[8] Ibidem.

(International Maritime Boundary Line)" (Fernando, 2019). The Indian Navy has embarked on establishing a network of coastal surveillance radar stations, which has already reached Seychelles, Maldives, Mauritius, and Sri Lanka (Fernando, 2019). In Indian maritime doctrines and strategies, great emphasis was placed on operations to prevent IUU both by the Coast Guard and the Navy, "committed to assist in the supervision of national fishing grounds and protecting them against foreign intruders" (Ministry of Defense, 2009, p. 118).

Climate Change Mitigation

The immediate manifestation of climate change in the Indian maritime domain is coastal areas' vulnerability to the rise of sea level and pollution. "The coastal zones are narrow transitional zones between the continents and oceans, constituting about 10% of the land area and are densely populated, sustaining as much as 60% of the world's population" (Rajawat, Kand Ajai, 2010). The sea-level rise would lead to accelerated erosion and shoreline retreat, besides leading to saltwater intrusion into coastal groundwater aquifers, inundation of wetlands and estuaries, and threatening historic and cultural resources as well as infrastructure (Pendleton et al., 2010), pp. 176–183). The increased sea-surface temperature would also result in frequent and intensified cyclonic activity and associated storm surges affecting the coastal zones (Pendleton et al., 2010), pp. 176–183). One-quarter of the Indian population lives along the country's coasts and is mainly dependent on coastal livelihoods (National Institute of Oceanography, 2000). Indian coast has been vulnerable to sea-level changes since the 1960s due to the changing dynamics of the equatorial current system (Intergovernmental Panel on Climate Change, 2016, ch. 13). India's role as an active and influential global player in the climate change arena has been widely acknowledged, but at the same time domestically, India only started to commission concrete actions on climate change in the 21st century by completing its Initial National Communication in 2004 (UNDP, 2011). The document pointed to the necessity of research to formulate specific adaptation measures for various sectors, including marine ecosystems (UNDP, 2011, p. 228). The National Adaptation Fund for Climate Change, established in 2014, started implementing projects dealing with the management and rehabilitation of coastal habitats and biodiversity for climate change adaptation and sustainable livelihood in the marine ecosystem (Government of India, 2015). The Naval Maritime Strategy recognized in 2015 the necessity of "keeping with international trends, and imbibing 'clean and green' marine technologies in naval projects and infrastructure" (Indian Navy Naval Strategic Publication, 2015a, p. 43).

The Fight Against Piracy and Human Trafficking

The fight against piracy combines elements of human security, blue economy, and security. The growing seaborne transportation in the last two decades of the 20th century linked to Asia's rapid economic growth caused the rise of piracy in the waters of Strategic Lanes

of Communication in the Eastern part of the Indian Ocean. India had a special strategic position in that context, performing as a gate to the Malacca Strait through two channels going toward the Andaman Islands. As stated in the Indian Maritime Doctrine, "modern day piracy threatens the security of some of the most important ISLs. It impinges on the free and orderly passage of maritime commerce that underpins the current economic order, raises insurance rates, increases local tensions, and puts lives at risk" (Ministry of Defense, 2009, p. 118). The introduction of a clear definition of piracy by the United Nations Convention on the Law of the Sea and creating the special office forced the countries previously hesitant to publish data about attacks to register. According to the International Maritime Bureau's (IMB) Piracy Reporting Center in Kuala Lumpur, Southeast Asia was the most 'pirate-infested' region in the world between 1992 and 2006 (APSNet Policy Forum, 2007). In the Indian Subcontinent, the geographic locations of piracy attacks with high risk were waters off Bangladesh and India (Xiao, Xu, 2017, pp. 233–244). Understanding that "concerted and cooperative efforts are required to counter the scourge of piracy and render the maritime trade routes safe", India has signed MoUs for cooperation with littorals of the IOR and the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP) in 2006 (Ministry of Defense, 2009). Since 2008 an Indian warship has been consistently stationed in the Gulf of Aden, primarily assisting Indian-flagged and other countries' merchant vessels (Gokhale, 2011). India also started cooperation with the European Union Naval Operation Atlanta by joint antipiracy patrols in the Gulf of Aden and off the Horn of Africa. In 2014 India initiated White Shipping Agreement under which the Indian Navy works with 26 countries to exchange information about ships in their oceanic territories.

4. The Evolution of Australia's Maritime Security Concept

Sea Power

In Australia, as "the-world's-largest-island-the-world's-smallest-continent" continental ethos always prevailed, its army and its pastoral and mining industries have always been of more importance than its maritime awareness, its navy, and sea-based industries (Evans, 2013). In the first half of the 20th century, Australia's maritime security doctrine was mainly limited to safeguarding the Pacific Ocean's coast. Australia's states have been captive to a "regional littoralism" in which continental size has restricted the evolution of a national maritime outlook (Broeze, 1998). While New South Wales and Queensland look out on the Pacific, South Australia abuts the Southern Ocean, and Western Australia overlooks the Indian Ocean. The nation's maritime diversity between East and West is further compounded because the Northern Territory's seaward focus is on the Timor Sea and South-East Asia through the Indonesian archipelago (Evans, 2013). Australian Navy was largely structured as an expeditionary force for coalition operations led by British Royal Navy or the US (Brewster, 2014).

US and British Navies served as security net-providers for Australia with ANZUS as a legal guarantee. Despite the critical views of the majority of Australian researchers on the lack of Australian "maritime psyche" and sea power or "insular nationalism", describing its maritime doctrine as defensive entirely based on US Navy, it is worth mentioning that the Australian Royal Navy (ARN) played an important role in both World Wars in 20th century contributing its vessels and troops into battles both in Europe, the Atlantic Ocean and Asia-Pacific. They were also a part of the forces securing convoys along sea lines of communication. The important change in approach to maritime security in the 1960s was forced by the start of a gradual withdrawal of Great Britain forces from IOR, growing awareness of Soviet threat, the critical domestic situation in Indonesia, and a shift in the US's strategy in recognizing Australia's potential to play an important role in the eastern half of IOR. The American decision led to establishing the first US Naval Communication Base in Western Australia and the involvement of ARN in the Vietnam War. In 1974, Australia became the first dialogue partner of ASEAN, breaking through the maritime policy, thinking of Australia as a Pacific country only. In the 1970s, diplomats and scholars from Canberra were involved in the United Nations Ad Hoc Committee's proceedings on the Indian Ocean, tasked with preparing for a future Indian Ocean Conference under its auspices (Weigold, 2011, pp. 32–51). Conference did not take place, and Australia remained the only Western country eager to participate. The idea of the Indian Ocean as a Zone of Peace was firstly supported by the Australian Government, interested in India, a country outside both ASEAN and SEATO, sympathetic to its aspirations toward a meaningful presence in the Indian Ocean, but India signed the Treaty of Friendship and Cooperation with the Soviet Union and conducted then nuclear tests refusing to sign the NPT (Weigold, 2011, pp. 32–51). Soviet invasion of Afghanistan convinced Canberra to remain dependent on the US in its maritime security doctrine. ARN included the Indian Ocean into its maritime security strategy in 1987, becoming "two-ocean navy" (Brewster, 2014). In the 1987 Defense White Paper, there was a shift in strategic focus from forwarding defense to self-reliance, stressing the need to develop own defense capacity and Two Ocean policy and promote "strategic stability and security" in the region (Parliament of Australia, 1987). A further shift in maritime security doctrine was continued after the end of the Cold War by prime minister Paul Keating and foreign minister Gareth Evans by their "Look West" policy of political/economic engagement with Asia-Pacific countries, as well as the concept of "Cooperative Security" and decision to join IOR-ARC. By the end of the 20th century, Australian Maritime Doctrine was published (2000), a century after establishing independent Australia (Royal Australian Navy, 2000). The document's structure was constructed similarly to Bueger's matrix – it covered economic development issues (blue economy, fishing), marine environment (climate change, pollution), sea power, national security, human security, existing and potential inter-state conflicts and disputes[9].

[9] As the main national security tasks the following features were indicated: 1. protect Australia from involvement in destabilizing rivalry between US, China and Japan; acting toward peaceful settlement

Parliament's research brief "Australia's Maritime Strategy in the 21st century" in 2004 was the continuation of the changes in Australian maritime doctrine initiated by the document from the year 2000 (Australian Parliament, 2004). The brief showed Australia's primary maritime interest area, which is identical with secondary areas of Indian interest. The document addressed the vital changes in maritime security concept after September 11, 2001, Australia's role in maritime security as a middle/medium power, and dynamics of modernization of military hardware (Australian Parliament, 2004). 2010 a new maritime doctrine was published with the description of strategic maritime interests of Australia – secure Australia and Immediate Neighborhood (Indonesia, Papua New Guinea, East Timor, New Zealand, and the South Pacific Island States); strategic stability in the Asia-Pacific Region (Royal Australian Navy, 2010). Australia introduced the concept of "safe East" (Western Pacific) and "safe West" (Eastern part of Indian Ocean), sharing the responsibility for those areas as the Middle Power with the US (Royal Australian Navy, 2010). Australia joined quadrilateral naval exercises with the US, Japan, and India. Those exercises are considered as a response to Chinese assertiveness in the South China Sea and IOR. 2004 Australia and the US signed an agreement on cooperation to develop a missile defense system (Department of State, 2012). In 2014 they agreed upon 2500 US Marines to arrive in Australia to use bases in the Northern Territory (Greene, La Canna, 2017). Australian Navy consists of 47 vessels with the programme of the purchase of 23 frigates and patrol boats within the next ten years, being still one of the weakest in the region. 2016 Defense White Paper informed about the continuation of the enlargement of submarine forces programme, to be increased from 6 to 12 regionally superior submarines (Department of Defense, 2016, p. 19). The surface naval capability was also planned to be enhanced by three Hobart Class Air Warfare Destroyers and a new class of nine future frigates. "Defense's ability to contribute to protection will be enhanced with the introduction of more capable offshore patrol vessels, new manned and unmanned aircraft and a new large-hulled multi-purpose patrol vessel, the Australian Defense Vessel Ocean Protector" (Department of Defense, 2016, p. 19).

IUU Fishing

Australia has 8,94 million square km of the fishing zone (Food and Agriculture Organization of the United Nations, 2003). Such an immense sea area makes Australian fish, shellfish, and crustaceans' stocks "appealing targets for long-range illegal fishing fleets" (Department of Defense, 2016, p. 53). Although Australia has an enormous fishing zone, it has proportionally small but very well managed production with the domestic and international institutional

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of their disputes; 2. prevent the emergence of new dominant or hegemonic countries which could take strategic actions against Australia; 3. create political and military conditions in Southeast Asia with respect for territorial integrity of all countries of the region; 4. Act against proliferation of weapons of mass destruction.

framework to monitor and control the fishing. Fish stocks of the southern Indian Ocean are important to the Australian fishing industry, which has been fishing in the area since the mid-1990s[10]. Understanding the significance of IUU fishing, Australia started to play an essential role in the international arena in providing high standards for fishing in high seas and areas under countries' jurisdiction immediately after UNCLOS came into force (1994). Australia was among countries – parties to the Commission, established under the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR), which were the first to give formal recognition to the problem of non-compliant fisheries and to define 'IUU fishing' (Baird, 2004, p. 302). The 1997 report of the Standing Committee on Observation and Inspection noted the increasing incidence of fishing within the Convention Area by non-contracting states – that activity was classified as "unreported and unregulated fishing by non-Members" (Baird, 2004, p. 4). Understanding the gravity of the problem, Australian National Centre for Ocean Resources and Security emphasized in its report that "maritime security was seen to interact with the Blue Economy through controlling Illegal, Unreported and Unregulated (IUU) fisheries" (Voyer et al., 2017, p. 23). The report also pointed out that managing illegal activities like IUU fishing requires effective compliance activities and ongoing surveillance and monitoring of vast, often remote, stretches of the ocean (Voyer et al., 2017, p. 23). Australia led the way with a new approach to combat illegal fishing in the Southern Ocean by adopting a centralized Vessel Monitoring System (cVMS). It started armed patrols one year in advance in 2004 (Department of the Environment and Energy, 2004). Another step to enhance effective monitoring, control and surveillance measures in fisheries in the Indian Ocean was the Southern Indian Ocean Fisheries Agreement (SIOFA) signed in 2006, after abolishing the Indian Ocean Fishery Commission (IOFC) by the decision of FAO in 1999. The first meeting of SIOFA was held in Australia in 2013. Demonstrating its commitment to multilateral processes in fighting IUU fishing, Australia contributed to its middle power status among Asia and the Pacific countries (Dung Phanm, 2019).

Climate Change Mitigation

Climate change mitigation has relevance to security policy in all its aspects. Ocean temperatures around Australia have warmed 0.7°C since 1910–1929 and will be 1°C warmer by 2030 and 2.5°C warmer by 2100 (*Maritime Climate Change…*, 2009). Since the 1970s, the warm Leeuwin Current's weakening[11] creates an existential threat to the coral reefs and fish stocks. The sea level rose by 20 cm in the 20th century (*Maritime Climate Change…*, 2009). All those phenomena would continue to harm the environment, blue economy, and social security of the Western Coast of Australia. Department of Climate Change was es-

[10] Retrieved from: https://www.agriculture.gov.au/fisheries/international/siofa.

[11] Leeuwin Current flows in the Indian Ocean near the western coast of Australia.

tablished in 2007[12], and in 2008 the National Climate Change Adaptation Research Facility, working closely with governments, businesses, and communities around Australia to help them understand and manage the risks associated with sea-level rise and other negative phenomena, as well as to harness and coordinate the capabilities of Australia's researchers, to generate and communicate the knowledge decision-makers need for successful adaptation to climate change[13]. Australia was one of the first countries in the world to legislate for offshore carbon capture and storage. The Offshore Petroleum Amendment (Greenhouse Gas Storage) Act 2008 aims to provide certainty for operators regarding access and title to offshore greenhouse gas storage formations while ensuring storage is safe and secure (Warner, 2012, p. 19).

"Australia has a robust legal framework to provide protection for the environment while at the same time allowing sustainable economic development. Frameworks such as Australia's Biodiversity Conservation Strategy 2010–2030 and Commonwealth Marine Bioregional Plans provide clear guidance to support future conservation and management of the marine environment" (Brewster, 2015, p. 368). "Maritime security operations are often central to maritime incidents, such as oil spills or accidents at sea. In this regard, they play an important role in protecting human life and property, as well as environmental health" (Voyer et al., 2017, p. 24). Since 2011 Australia has been active in negotiations and since 2017 within the Intergovernmental Conference (IGC) on an international legally binding instrument under UNCLOS on the conservation and sustainable use of marine biodiversity of areas beyond national jurisdiction (BBNJ). "The Australian Government established the International Partnership for Blue Carbon[14] after the Conference of the Parties to the United Nations Framework on Climate Change conference in Paris 2016. The Australian Government also commissioned a technical review of the inclusion of blue carbon projects in its domestic carbon abatement scheme" (Serrano et al., 2019).

The Fight Against Piracy and Human Trafficking

Since the 1990s, Australia has been committed to bilateral work with countries and multilateral with international forums, such as the International Maritime Organisation and the United Nations. The aim is to deal with the threat of international piracy in Southeast Asia and off the Horn of Africa. Sea Lane of Communications crossing strategic straits in both regions has a crucial impact on the Australian economy's safeguarding trade routes. The Australian Government provided financial support and know-how to African countries (Albanese, 2009). As a Five Power Defense Arrangement (FPDA) member, the Australian

[12] Since 2010 renamed as the Department of Climate Change and Energy Deficiency.

[13] Retrieved from: https://www.nccarf.edu.au/nccarf.

[14] It concerned policies aiming to preserve vegetated coastal ecosystems (tidal marshes, mangroves and seagrasses).

Navy has participated in exercises structured toward anti-piracy and anti-terrorism activities with other member states, Malaysia, New Zealand, Singapore, and the United Kingdom. Bali Process on People Smuggling, Trafficking in Persons and Related Transnational Crime was initiated in 2002 and co-chaired by Australia and Indonesia, with 48 members from IOR. 2007 a strategic partnership between Australia and Indonesia was established, providing technical advice and assistance to Indonesia's law enforcement institutions. The Operation Sovereign Borders, created in 2013, linked migration with security. Operation Sovereign Borders, led by the Australian Defense Force, has been supported by the Australian Border Force and the Australian Federal Police. Australia's use of the military to control migration by sea demonstrates the degree to which the issue has been elevated to a security problem (Lindley et al., 2019). As planned in strategic documents (Australian Government, 2016), Australia expanded its counter-piracy measures to trilateral cooperation with the United States and China by organizing Exercise Kowari in the Northern Territory in 2014, which had its continuation until now. "Of its neighbors, Australia is the only state member of the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP)" (Page, 2017).

5. Indian And Australian Cooperation in Maritime Security in the 21st Century in the Context of Challenges in the Indian Ocean Region"

After many years of unsuccessful efforts and misunderstandings between India and Australia during the Cold War, mostly due to the mutual perception as members of different ideological blocs, both governments comprehended that despite some differences growing maritime security challenges, and the changes in their character and structure in the Indian Ocean Region, needed to be addressed jointly. They acknowledged the necessity to consider each other different strategic perspectives and traditions. Their perspective also changed after UNCLOS came into force in 1994. The first major step was the joint contribution to creating the Indian Ocean Rim Association for Regional Cooperation (IOR-ARC) in 1997. IOR-ARC[15] was to address the scope of issues linked mainly to maritime security and safety, fisheries, environment, and disaster risk management. All those issues, Australia succeeded in convincing India to accept Indonesia and smaller Gulf countries as members. The scale of damages after the earthquake and tsunami in December 2004 raised to the highest point the awareness of India and Australia of their interdependence in all maritime security areas. Another impulse to deepen the bilateral cooperation was the US rapprochement with India after 2001. As one of the emerging strategic partners of the United States, India was to become an important element of Australia's regional and extra-regional security strategy in the Indian Ocean. The rise of China made the belief in the need for closer cooperation

[15] Since 2013 Indian Ocean Rim Association (IORA).

even stronger. Still, Australia's and India's perspectives of the United States and China's role, two biggest extra-regional players in IOR, were different. Despite the visible rise of China in IOR and concerns expressed by Australia and other countries, India did not position itself against its biggest neighbor, trying to avoid another, at this time, maritime conflict. New Delhi would like to see the US 5th and 7th fleet as instruments of support in shaping India's leading role in IOR. Australia considers the United States as the leader in IOR and US deeper engagement as the most important part of the regional security system. "The increased political dialogue and engagement has led to several bilateral agreements on security-related matters" (Brewster, 2015, p. 154) starting 2003. The trilateral formula (India, Japan, and the US) of Malabar naval exercises was extended in 2007 to Australia and ASEAN countries' participation. At the same time, India opposed turning those exercises into Quadrilateral Cooperation framework to create a strategic alliance meant to be a part of the US containment strategy toward China. Instead, India launched in 2008 the Indian Ocean Naval Symposium (IONS) – an initiative to address common concerns, inviting commanders of IOR navies for meetings. In both IORA and IONS, Australia has played prominent roles in finalizing the IONS Charter, highlighting illegal fishing practices through the Perth Communiqué (Bhowmick et al., 2019). "In November 2009, Australia and India announced a Joint Declaration on Security Cooperation" (Brewster, 2015, p. 154). 2014 Australia-India Framework for Security Cooperation was signed, and 2015 first bilateral AUSINDEX naval exercises took place. The Quadrilateral Cooperation was resumed in 2017. India's hesitance to join QUAD and introduce Australia into Malabar naval exercises stemmed from the different attitude toward Indo-Pacific. That attitude "seeks merely to exert subtle persuasive and dissuasive pressures upon China to behave in a responsible manner"[16]. "There is no doubt that Australia–India bilateral relations are significantly hindered by a combination of historical baggage, geopolitical uncertainty, suspicion and skepticism. But there has been progress that is unremarkable in its speed, yet commendable in the circumstances in which it has accrued" (Gopal, 2019). Joint Bio-Argo project targeted another area – marine environment, focusing on specific uncertainties in the modes of evolution of Indian Ocean biogeochemical conditions of immediate concern to India and Australia. Both countries also cooperate within joint bilateral working groups covering all the areas of cooperation in the maritime domain, established as a part of strategic partnership.

[16] Written interview with Captain (Dr.) Gurpreet S. Khurana, former Executive Director of India National Maritime Foundation, Indian Navy Officer-in Charge, Center of Excellence (China Maritime Studies), Maritime Warfare Center, Naval Base Visakhapatnam, 18.01.2020.

6. Conclusions

Bueger's model assumptions found confirmation in analyzing India and Australia's maritime doctrines in the Indian Ocean Region. Simultaneously, the Bueger model allows answering research questions: what changes and why India and Australia introduced to enhance their maritime security doctrines in the 21st century and why those changes contributed to the more in-depth cooperation in the second decade of the 21st century.

The reasons for change and their scope in the context of India and Australia's maritime doctrines were comprehensive and complex, going beyond the reaction to the rise of China and growing global multipolarity. They stemmed from the dynamic development of human activities linked to the maritime domain and their growing horizontal and vertical interdependence. Facing those phenomena and challenges in the Indian Ocean Region in the 21st century, India and Australia transformed their doctrines. The scope of maritime strategies, both geographical and functional, was increased.

India has transformed its navy from "brown", focused mostly on coast guarding, into "blue", capable of acting in the IOR region. "India's Navy has grown in both size and capabilities became the only Navy with a blue water capability in South Asia" (Fernando, 2019). New Delhi developed its maritime doctrine and expanded its maritime security activities, covering not only sea power building but also marine fish resources protection, climate change mitigation, and the fight against piracy and human trafficking. India transformed its state-centric approach in maritime issues into more inclusive. India perceives not only countries as the actors within the presented areas in the maritime domain. In the current Indian Maritime Doctrine, all those areas have also been enlisted, fitting the conceptual approach of Bueger and his matrix of maritime security (Ministry of Defense, 2009).

Australia shifted from a "one ocean" to a "three oceans" nation, creating a new concept of maritime security on the verge of the new century. The maritime doctrine for the new century recognized the importance of all changes in economic, environmental, and social issues related to the ocean. Bueger's matrix as the conceptual framework was supportive in the apprehension of the complexity of maritime security issues for Australia as "the biggest island" and "the smallest continent".

Through its semiotic and multilayered structure, the matrix helped to understand how both countries managed to create the doctrines and implement them, overcoming their customary mixed attitude toward sea affairs in the broad sense of the term. There is an element of interdependence among all aspects of those doctrines and the responsibility for national and regional security. Being the regional superpower with ambitions to become a global one, India, similar to Australia, as one of the global middle powers, feels responsible for the Indian Ocean Region's maritime security. It understands that modern seapowers have to be efficient in pure military security and secure sustainable, responsible development of the blue economy with consideration for human and environmental safety. All of them constitute an integral part of the social and economic well-being of littoral nations.

Helping smaller littoral states of IOR face challenges linked to maritime security, India and Australia facilitate those countries' security infrastructure and skills, organize exercises and dialogues, and support them in different international fora. Indian regional maritime security activities complement Australian ones. Adjusting their maritime doctrines to 21st-century realities, both countries found convergent interests and created synergy mutually acceptable for them.

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