



TERI-KAS RESOURCE DIALOGUE V

On

The Emerging Global Maritime Order - India's Strategy

*In association with
Madras Management Association (MMA)*

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CONFERENCE SUMMARY



Introduction

With 70% of the earth's surface covered by ocean encompassing 97% of its water, the vast oceans are formidable space with places and depths that are still unexplored. While the ocean covers most of the earth, yet around 95% of the deep sea bed remains largely unexplored. Historically, the oceans have been the gateway for explorers, invaders, crusaders and traders to new continents and shores, bringing the world closer. Maritime history provides evidence of trade via sea routes occurring at least two millennia back. Romans, Egyptians, Mediterranean's, Persians, Scandinavians and Sumerans all have contributed to ancient maritime history and its growth. The Indian subcontinent has been central to the growth of maritime history with the first tidal dock being built in the Harappa Civilisation around the Gujarat Coast. The Chola Empire in the south of India is well known for its establishment of the largest naval force during its time which enabled it to establish its ruling until South East Asia. The strategic relevance of oceans, waterways and navies is well discussed in Kautilya's Arthashastra as well, highlighting the significance of ordained for securing and utilising waterways and the oceans.

Maritime security is essential to ensure a holistic approach towards the governance, use and maintenance of Oceans.

In the beginning of 20th century history of international relations, the role of the seas fell within the purview of traditional security with naval presence to safeguard borders and port security being the core of the maritime security architecture. The 1956 United Nations Convention on Law of the Seas conference was the first step towards addressing the territorial

water claims on a global level and going beyond the discussion on naval presence to include access to resources as a major aspect. The establishment of rules by the UN was to ensure the access to natural resources was feasible and accessible to all countries. The demarcation of territorial waters and the subsequent necessity to guard them are at the heart of maritime security. The UNCLOS has been a catalyst in ensuring a fundamental form of ocean governance and its significance on international law and framework for maritime governance is indisputable.

India's maritime security strategy focuses on all aspects of the challenges that are affecting the health and the future of oceans and countries. As it combines the traditional and non-traditional security paradigms of maritime security, it provides a cohesive definition that is apt to address prevalent challenges such as environmental degradation, migration, climate change, energy security, human trafficking and piracy among other non-traditional challenges. With Indian Navy playing a far bigger role in Humanitarian and Disaster Relief (HADR) and Non-Combatant Evacuation Operations (Neo), its importance as an essential actor in non-traditional security is well established. The role of navies and the definition of maritime security have changed especially in the Indian context, highlighting the myriad challenges and opportunities of the current maritime global order that would be faced by India in the coming decades.

Climate change, environmental degradation, access to resources and expanding sea lanes and the evolving international ocean regime highlight the need to focus on maritime security. With nations committed to fulfilling the Sustainable Development Goals (SDGs), the role of oceans in this is significant. Addressing the strategic, environment and ocean ecosystem challenges are one of the greatest challenges for India and the world.

The `TERI-KAS Resource Dialogue V- Global Maritime Order- India's Strategy' aimed to understand the changing nuances of the high seas and the evolving definition of maritime security that moves beyond the realm of traditional security approaches. The 2-day conference began with an inaugural session on 7th March 2019 followed by a one and half day of intensive panel discussions with closing on 9th March 2019 in Mamallapuram, Tamil Nadu. The major focus areas of maritime security that were discussed are as follows:

- Global maritime order and the changing strategic environment
- India's status as a global maritime power
- Accessing resources- strategic, economic and scientific challenges
- Blue Economy and its significance for India
- Health of the ocean- role of climate change and environmental degradation
- Ocean governance- role of the polar regions and significance of international law
- India's maritime governance architecture and the future needs
- Non-Traditional security and maritime order
- Global maritime order: opportunities and challenges for India

Global maritime order and the changing strategic environment



Since the 50th and 60th century, sea routes have been used for colonisation which leads us to a question on our resource security and maritime issues. Political realism postulates that states are obsessed with security and territorial expansion, thus landing us to a history full of war. The security threats that a nation can face are divided into traditional and non-traditional threats, wherein the major challenges to well-being of people arise from non-military sources. For example countries like UK and the US's war

fighting and non-traditional maritime issues are always kept separate, traditional defense being handled by the naval forces while piracy being overseen by coastguards or other ancillary units. Out of these, maritime security tends to protect sovereignty and maritime resources counter non-traditional threats. But under the maritime strategy of India, maritime security has been considered as an umbrella function involving the safeguard of national maritime interests. American strategic Mahan rightly said in 1890 "War has ceased to be the natural or even normal conditions of nations, and military considerations are simply accessory and subordinate to other great interests which are economic and commercial". The underlined theme is that navies exist only to safeguard commerce, trade and sea link.

"Blue Economy envisages the integration of ocean development, principles of social inclusion, environmental sustainability and innovative business models, emphasising on fisheries, aquaculture, renewable ocean energy, ports and shipping, sea bed exploitation and maritime tourism."

Today the key agenda of navy includes both maritime security and oceanic resource

sustainability. With limited land based resources under stress and with advancement of technologies opening new frontiers of maritime, India should be progressively turning towards oceans to meet our sustainable development goals, including clean energy from wind, wave and tidal resources.

The Indian Ocean nations have made a strong case for Blue Economy and have an important role in the development of the national maritime strategy and look expectedly at India for the financial and technological resources. Other oceanic countries like Bangladesh, Maldives and Sri Lanka despite knowing that they have abundance of natural resources but could not exploit these resources due to lack of required finances and technology. Despite being rich in oceanic minerals and resources, the pursuits of Blue Economy in India have been hindered by the absence of a unitary government agency that could take up the responsibility and emerge as the focal point for all maritime issues. Therefore, two critical requirements for the progress of Blue Economy in India have been identified, first the formulation of a comprehensive national maritime strategy and second the creation of an umbrella maritime commission or an authority that could synergise the endeavours of all the government agencies. Climate change also has serious bearings on maritime security as Global warming and fossil fuel emissions have accelerated the melting of Arctic Sea ice causing a rise in sea levels and more acidic oceans. Since changes in the Arctic can dramatically influence global weather, its impact on maritime security and trade would be significant specifically in context to disasters and disruption of business as usual at sea. _This climate instability has two major implications; firstly, mankind's increased dependency on the oceans will become hostage to uncertainties as around one-fifth of the world consumes four-fifth of the finite resources. Secondly natural disasters in low lying regions are increasing due to these climatic changes which could cause social upheavals and crisis.

As a part of its 2001 Russian territorial Claim, Russia took a submarine Arktika to the depths of the Arctic Pole region in 2007. They also planted a Russian Flag in a Titanium tube to seal their claim on the arctic region. _This incident ensured the grip of Russia on half million square miles of Arctic Sea bed which is supposed to carry 10 billion tonnes of oil and gas. This incident has triggered a risk of contention among the eight members of the Arctic council. Each of these nations has taken an estimated area of 300-400 thousand sq. km holding oil prospects and therefore large oil companies are racing towards these areas hoping to gain resource access. This exploitation of Arctic's oil and gas is possible only because of current environmental changes. Hydrocarbon deposits which were locked beneath ice are now commercially accessible due to global warming and ice melting has given access to these hidden resources.



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warming, leading to the melting of Arctic ice and hence providing access to more areas of fossil fuel exploitation. This is a self-perpetuating and destructive cycle for global damage unless we switch to other cleaner forms of energy. The melting of the Arctic sea ice has also opened new Polar sea routes in connecting the Pacific to the Arctic (which the explorers were searching for many years), though benefiting the shipping companies but depressing for the environmentalists to see such a massive amount of geographic changes.

India's resources are limited and dwindling and investment in alternative energy resources from the oceans would be a critical contribution to India's energy security. Ocean energy technologies are under development and require a major push to become commercially available for increased consumption. From the context of natural resources, today India doesn't have the required technology to exploit the resources at ease even though Arctic can prove to be a great opportunity for India. Whether it is rampant piracy or maritime terrorism at sea,- India is up for challenges. Navies are essentially there to meet traditional threats but are faced with frontiers of non-traditional threats that have traits of unpredictability. Maritime power is much more than fighting for navy, but as a nation India has yet to achieve the other pinnacles or constituents of maritime power like shipping fleet, ship building industries and deep sea fishing and deep sea mining because there is a lack of technological capability or trained manpower to exploit oceanic resources.

China has the biggest merchant navy, mechanised fishing fleet, ship building industry and coast guard in this world, making it capable to be called as a 'Maritime Power' but it is premature for India today to call itself so. Thus India's maritime capacity building is still a huge missed economic opportunity. Maritime policies like Sagar and Sagarmala have been proposed to offer solutions to the maritime issues but they still lack a holistic government approach for operationalisation of such initiatives.

India's status as a global maritime power



India's initiatives in maritime strategies are increasing and are highly respected. In 2013, India signed a trilateral maritime security accord with Maldives and Sri Lanka that would likely expand to a five-power grouping including Mauritius and Seychelles. Meanwhile, China has taken many initiatives like the Belt and Road Initiative (BRI), which is a multibillion-dollar venture including 80 countries in Africa, Asia, and Europe . India has refused to join it. The

China-Pakistan Economic Corridor (CPEC), a part of BRI, is one such initiative by China to strengthen its economic power with Pakistan which might have spillover effects on the Indian governance. Looking at these concerns, joining the BRI could prove useful for India, if the country represents itself as a strategic partner. India has joined hands with Japan for the Asia Africa Growth Corridor (AAGC) which is a sea corridor linking Africa with India and other countries in South-East Asia and Ocean. India has been slowly expanding its strategic reach across the seas; however, there is still room to improve the relations with other littoral states in the region.

India should actively pursue cooperation with Indo-Pacific islands as there are immense opportunities from the Blue Economy framework

It is unlikely for India to maintain two bilateral favorable equations simultaneously with USA and China to expand and strengthen its maritime profile. Yet, if India is able to find a balance then it can strengthen its presence in Indo-Pacific region as one of the two major giants of the region. Rather than focusing on supremacy on the seas, India would benefit from an augmented coastal governance, stability, peace and prosperity in the Indian Ocean Region. Therefore, the governance of the Indo-Pacific region should be partnership based rather than dominance based, to ensure creating mutual prosperity in a free and open Indo-Pacific.

India is also looking beyond the Indian Ocean and refocusing its maritime strategy from the Indo-Pacific focus. Moving beyond IOR, India has strengthened its links with ASEAN and is also looking farther ahead of the region. The recent defense cooperation agreement with Peru is showcasing that China's strategy on the other hand is to invest in small islands and empowering them economically. This is geopolitically regarded as a topic of concern, because China is completely changing the strategic balance in the Pacific Islands which is still home to many western powers. India hosted an institutional forum for an India-Pacific Islands Cooperation and in one of its meetings the Indian PM, Narendra Modi, gave closing remarks stating "We look forward to goodwill visits by the Indian Navy to Pacific Islands and the ships could also extend support in areas like healthcare through medical camps on the islands". Indo-Pacific is one of the largest oceanic and land region with vast untapped mineral resources in the largest exclusive economic zones and Indo-Pacific countries often seek help from other countries (Russia and US) to protect their marine resources. Similar to China and Russia, India has also setup certain space monitoring stations to look at the Indo-Pacific regions. Therefore, India should invest more in the strategies eyeing the Indo-Pacific region, as China has done in the recent past.

Accessing resources, as well as strategic, economic and scientific challenges

The UN has declared the next decade as a 'decade of oceans' and the concept of Blue Economy itself is gaining popularity all around the world and in India. The Economic Advisory Council to the Prime Minister also recently focused on the 'leveraging potential of oceans' and Blue Economy itself. As there is no agreed definition on Blue Economy today, different institutions started to explain it from their perspective. In India, Blue Economy is considered a combination of environment, economic security and economic development. However, identified challenges mostly lie in the periphery of lack of exploration of oceanic energy resources, current climate changes, implementation and policy frameworks for ocean governance.



The Indo-Pacific offers vast resources under it and these resources are vital for sectors such as electronics and communications. The electronic boom requires many precious metals and minerals such as the wide usage of rare earth elements. Today, China is the largest manufacturer of electronic goods and leads the production of vast natural resources such as rare earth elements, But in the recent past with rising need for such minerals resources, other countries have also embarked on a

journey to discover those resources in land and sea. Japan for example has also discovered a huge amount of rare earth elements in their exclusive economic zones, which would last for more than 700 years. Although India has been granted permission for exploitation of resources in the Indian Ocean under some contracts, these are time bound. Other countries, like Canada and Norway, are evolving from prospection technologies to extraction technologies. Canada has already invested huge amounts in developing technologies for sea floor mining and also constructed subsidiaries in Polynesian Islands, especially Tonga. Hence, like other countries, India could also start investing in extraction technologies. If it aims to become one of the advanced nations, it needs access to the resources like Rare Earth Elements (REE), especially from a manufacturing perspective. India lacks availability of rare minerals but ironically there is an estimated 500 million tonnes (or US\$ 120 billion worth) of minerals available in deep sea beds that remain unexplored in the Indian Ocean region. Untapped resources, like oil, gas and minerals in deep sea beds would need appropriate technology for exploration and development. India has found massive amounts of gas hydrates in the Indian ocean region and the potential of the find is significant.

India lags in deep sea mining technology, which leads to underutilisation of resources. The legislations concerning mining and exploring in the sea are also weak. India needs to strategize its efforts along with the optimization of risks attached. The Arctic region is also witnessing major changes in its ecology which tends to have a direct impact on the other parts of the world. India is going through major climatic changes, like uneven rainfall patterns and glacier melting. Effective collaboration of India with the Arctic countries on multilevel projects can prove to be important for the Indian Ocean specifically at the time when it is poorly observed. Efforts are needed not just to develop on the infrastructure and technology front, but also from the policy makers and scientist's front who have the wherewithal to focus on capacity building.

Blue Economy and its significance for India



Blue Economy has the largest potential to grow and is also growing much faster than the rest of the economy. For this fast paced growth of Blue Economy, blue trade is the most important factor. In the past, only two factors were considered important for economic growth - capital and labour. It was assumed that there is an unlimited availability of resources, but since the Rio Summit, it has been proved that resources are depleting at a very high rate, which leads to a limited amount that is left for the next generations. Since then, Blue Economy has come up as a new paradigm, however only few countries have successfully strategized and acted on it. Today, Denmark is the only country that has segregated Blue Economy as a separate entity within its economic structure and placed it on the Government's development agenda.

The lack of recognition of Blue Economy is caused by the fact that there is no joint agreement on the definition. Estimation of blue trade is very difficult, wherein the activities that would be included need to be identified along with identification of goods and services. To understand and recognize the importance of blue economy Research and Information Systems for Developing Countries, India RIS has been conducting a study that includes 169 countries and 780 products in total at 6-digit

Harmonized System (HS) code, an international standardized system of names, ranging from a time period from 2002-17. The results of the study stated that blue trade has a very high share in total trade (15-22%) of India. According to various studies of the world, the total contribution of Blue Economy in each country's total GDP ranges from 5-10%, however, in case of India, this contribution is around 15-20%, which is a significant contribution

The structure of blue trade has been defined and divided into living resources and non-living resources, maritime construction, manufacturing, processed foods and maritime energy. India has been persistently lacking behind in the manufacturing arena and ranks much behind China. Marine manufacturing in India has seen similar trends but is increasing now, similarly the part of the agricultural sector which has marine related economic activities, declined from 2003 to 2007 but is currently picking up. Services sector on the other hand is very difficult to assess but under the Blue Economy. Three sectors are most prominent: travel, transport and business services. India's economy is known to have trade deficit, however in terms of blue trade a trade surplus can be observed, both in the goods and services sector.

Blue trade is contributing significantly to the Blue economy and serves as a main driver of it; nonetheless India has not spent much on its development. Present schemes and policies are not sufficient compared to the magnitude of the challenges the country faces in the maritime domain which are echoing the need for major policy thrust. Today, around 19 ministries in the Indian government have the responsibility of administering different activities of Blue Economy emphasizing simultaneously the need for integration of policy outlook along with financial and technological autonomy.

The government agencies working on Blue Economy face various challenges deriving from a vague estimation of it in the Indian economy context as there is still no common definition of it. Another issue is data requirement to estimate the Blue Economy. The National Accounting Agency has been trying to record Blue Economy activities and there are around 200 economic activities that have been identified that would need to be recorded on a regular basis. These economic activities however are still not clearly defined and therefore categorized under Blue Economy. India does not have a National Resource Accounting body to assess the environmental resources of the country, thus no asset repositories or valuation of assets is possible be it renewable or non-renewable resources.

Since the size of Blue Economy is very huge and employment and trade (value and volume) are also very large, there are currently no homogenous statistical indicators to measure them. Thus, the major challenges faced by the government today are that the economic activities are spread across many industries and institutional sectors like households, firms and government. The capturing of the activities in the



different sectors and institutions vary by the methodologies of the organisations that are carrying them out. Thus, the combination of these three elements are needed. Nevertheless, such an exercise requires lot of coordination or surveys solely concentrating on a cost-benefit analysis of Blue Economy.

Blue trade within Blue Economy also highlights the importance of integrated network of trade in the world, however recent events have shown that many countries are going against it and withdrawing from world's major institutions and agreements. With the majority of exported and imported goods being traded through sea routes, Blue Economy is important for the world to promote trade. This transition to Blue Economy would need the sea lines of communication to be completely decluttered for seamless movement of trade. This depends on the growth and development of the merchant shipping sector in India. India has constantly lagged behind China in terms of volume of trade or the number of registered ships. In terms of merchant shipping India's national fleet is currently not proportional to the size of the economy. India has been unsuccessful in bringing the maritime sector at par to the overarching economic visions of the country. The merchant industry has failed to invest sufficiently in R&D and IPRs in merchant shipping sector. Intellectual Property Rights (IPR) is not just a standalone benefit but also an enormous commercial benefit. In terms of Research and Development R&D activities, India has failed to create a significant maritime think tank for forecasting and analysis and the important link between IPR and R&D, which is recommended when developing a public-private based partnership.

The critical issues in shipping are that no financial institution and banks lend money to the shipping sector as this sector is not very attractive due to its risk averseness. In the 1980s, it did start with ICICI, however banks lack domain specialization. Apart from financial loans, the merchant shipping sector is also far away from insurance facilities that can cover the risks. With emerging opportunities in the maritime sector globally and blue economy becoming a major aspect in understanding the economic opportunities of the ocean, it would be appropriate for the Indian Shipping sector to undertake progressive measures. The Indian shipping sector needs to take a leap in the technological, legislature and financial aspects while simultaneously rationalizing it and building new elements complementary to sustainable development.

There is a need to build a governance framework for the fisheries management as there is lack of food security management in maritime security strategies. Food security is multidimensional and not just limited to supply but also access and availability. It is not just a national and local issue but also has individual and household perspectives. Today, around 842 million people suffer from chronic hunger where fisheries and aquaculture play an important role. Coastal and offshore areas are major fishing areas and thus have high dependence on marine food as a source of protein. Additionally, ocean resources are under pressure from pollution, overfishing and environmental degradation that harms this food source.

In terms of law and governance structure, food related international laws are dominated by Food and Agriculture Organization (FAO) which sets the standards. The FAO committee on fisheries and the sub-committee on aquaculture have guidelines for the procurement of food. While FAO agreement

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encourages regional cooperation and covers 18 regions, the Indian Ocean was not encompassed in this. In India, the initiatives are not unified and disaggregated, focusing more on agriculture and not fisheries that are relevant under Blue Economy. On the national level there are several laws on fisheries, like the Fisheries Act 1897, National Policy on Marine Fisheries 2017 and many other legal

instruments and policies that are present at the state level. But the question that arises is, how far the strategic document for region has prioritised the issue of food security. “Maritime Security” in the European Union (EU) is considered as an economic development issue but not as a food security issue. India’s maritime security strategy in 2015 addressed both, food and maritime security. On the other hand, Africa’s Integrated Maritime (AIM strategy) aims at controlling and combatting illegal fishing. Thus, there is a need for mainstreaming food security as a part of maritime strategy. A multilevel agenda and intervention is a necessity.



There are some major issues that hover around the ocean economy, Firstly, a large scale of unrecorded and unreliable data. As the fishing sector is dominated by unorganized employment, the data remains unrecorded at large. Other than the data issues, deep sea mining is also a plausible challenge because of the unavailability of high equipped technology and regulation. This is also visible in the fishing sector, where the total catch has been much below the potential amount due to lack of modernization and adoption

of faster fishing methods and equipment. Hence, Blue Economy has to grow in all dimensions but with responsibility. Secondly, the tourism sector has developed in selected areas. Thirdly, the growth of the shipping and ship building sector hasn’t been further developed. Thus, greater thrust to ensure growth and development is needed at all ends be it in trade or manufacturing. Trade share in GDP is also low, as only 7% of the total world trade in 2015-16 compared to 40% in the late 1980s (Economic Survey 2016-17) is carried out by Indian ships.

Other than this, the trade coordination mechanism has also been weak. The Indian government requires adequate tools, processes and coordination as an institution and coordination between private, government and Research and Development activities. . Therefore, there exists a blurred line between economy and Blue Economy on the institutional and understanding level, that needs to be addressed urgently to enable a holistic maritime policy for India.

Health of the ocean- role of climate change and environmental degradation



Recognising the importance of non-traditional threats, the UN has proposed Sustainable Development Goal (SDG) to address the issues of the oceans or ‘life below the water’. There are ten major targets identified, that need to be fulfilled until 2030 but it is unclear which Indian authority is to initiate policies and work on these targets. The Ministry of Earth Sciences is responsible for four major targets, among them is the topic marine pollution.

Marine pollution is primarily caused by floating plastic from land, which is much more dangerous than climate change if it is kept unchecked and released in the oceans, as it takes millions of years to decay. The second target is the protection of coastal ecosystem that is severely overburdened. Ocean acidification caused by large amounts of carbon emissions in the air and water bodies,

causing a rise in the pH of the oceans is a major emerging concern that needs further research and is the third target to be achieved by the Ministry of Earth Sciences. The fourth identified target is the generation of scientific knowledge and transfer of technology for capacity building in oceanic studies. The achievements of the targets are monitored regularly by the Ministry of Statistics and Programme Implementation. Oceans are important in terms of providing water or absorbing carbon emissions and vital to the environment. It is particularly important for transportation purposes as 90% of the Indian trade is carried through oceans (as much as 90% of the electronic traffic and 70% of the oil). The Ministry of Earth Sciences is trying to cover the length and breadth of oceanic pollution. The ministry, on the basis of these targets, has recognised three major missions, to promote research in the field of ocean science and technology, to provide best possible services and also to conduct scientific research and oceanic resource management and their assessment. According to these targets and missions, the ministry has five different institutions working on different objectives. Since oceanic research needs best observation capabilities, the ministry has been successful in establishing a strong network throughout the world in the last 15 years. Though coastal monitoring is available on 1300 islands across the country, few of them lack access to resources, farming etc. and hence the ministry is trying to establish relevant opportunities and coastal protection measures for them. Non-traditional maritime threats also include impacts due to climate change and changes in marine ecology. These threats have to be addressed at all tiers of the society, i.e. at the regional, state and national level.

Environmental security is ideally concerned as 'a threat without enemies', making it difficult to visualise and act upon it. The targets of the SDG 14 are focusing on these non-traditional threats that are fast becoming a major obstacle for every nation's growth especially from the ocean perspective. Ocean acidification affects marine biodiversity and increasing carbon

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solubility in the oceans change the chemistry of water i.e. decreases the pH which has large implications on the marine organisms living under water. It has been proven by many studies that a mere change of 0.5 in the pH level of the oceans can drastically alter the skeletons and sea shells, causing an impact on marine biodiversity. Other than ocean acidification, plastic pollution is another aspect that causes extensive damage to the ocean. India has a number of stringent policies against climate change and carbon emissions but there are no stringent policies to control plastic pollution in the country. According to the legislation, plastic usage was banned in 2002 but till date the states are struggling with the enforcement. 80% of the land based plastic pollution that is reaching the ocean is coming from 10 major rivers of India and causes a massive impact on the ocean's ecosystem.

The other issue of concern in regard to plastics are microplastics, which are less than 5 mm in size and primarily found in oceans. Ghost nets are one such example. Those discarded fishing nets thrown in the seas and cause huge discomforts to the marine animals and the biodiversity. According to the studies 136,000 whales and other sea animals have entangled in these nets and approximately 640,000 ton of these nets were found in the sea.

Ocean governance - role of the polar regions and significance of international law

The Arctic holds 40% of the world's energy and abundant resources which the melting of ice is making accessible. Firstly, the warming of the oceans change the ecosystem of the Arctic circle becoming a favourable place for many living organisms (these organisms may not have been able to exist) to be able to survive in the region- such a scenario poses a question on the future of the existing ecosystem. Secondly, with melting and warming of ice, non-living resources like oil and gas will become accessible and can easily be harnessed. It has been estimated that a total of 3.68 trillion non-living resources will be available that is almost 30% of the total hydrocarbon resources globally. Thirdly are the changes in the ship routes and fourth is the climate change.



The major elements changing in the Arctic include increased air temperature, reduction in the summertime ice extent, reduction in mean thickness, increased ocean freshwater content, amplified ocean acidification and warming permafrost. The two main climatic issues discussed are Arctic acidification and Arctic oscillation. The Indian Ocean is becoming increasingly important in modulating global climate variability. Heat originally stored in the Pacific was transported by Indonesia, and ended up in the Indian Ocean. This means that the Indian Ocean is now home to 70% of all heat taken up by global oceans during the past decade. Rainfall is also seen to decrease in India, drizzling patterns have vanished and cities are facing uneven drought and floods. Thus, if melting in Arctic continues, the Indian Ocean will also be affected, being in need of an immediate action in the near future.

India's scientific contribution to Antarctica is important and demands full policy and geo-political support within Indian government. India has been active in the region due to the Antarctic legislation, but in the past years it has become much more complex and compelling to

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act in the region. The reach of India to Antarctica is increasing as there is no other land body between the two countries and India has just recently opened its second station on the South Pole as a step towards the integration of both regions. The Indian Ocean and Antarctica linkage is thus very important. India's quest for a multipolar i.e. to bring Arctic and Antarctic Polar Regions under the geo-political research lens of India will thus be better served.

In the 1950s and 1960s if India had participated in the International Geophysical Year, it would have been one of the 12 signatories to the Antarctic Treaty, which would have given it a significant status in the region. Antarctica has gone through a lot of physical and legislative changes since the treaty and the rise of geopolitics in the region is visible, however permanent ban on mining of resources for 50 years has been levied. In 2048, when the ban on mining would come up for review, it would be interesting to observe whether the parties to the treaty would uphold the ban or lift it. Colonial presence is also very dominant in the Antarctica and according to the Antarctica Treaty there are no

termination dates of these claims. As on date there are seven claims on Antarctica with three claims by Argentina, UK and Chile overlapping and other semi-claimants which need geo-political equilibrium. There is also one part of Antarctica that is unclaimed. Australia has 42% of continent territorial claim including sovereign rights over adjacent areas. Its government is spending significantly to quote its interest in Antarctic's region. China is also trying to make its presence felt by constructing five stations there and deploying a ship for research. In recent years, the Antarctic Treaty system has become a complex system due to the emergence and presence of many players. As we move towards the future, the complexities and geo-political challenges of the world will further escalate.

In August 2007, Russians planted a one metre-high titanium flag on the seabed at the North Pole, using submarines and flying bombers to their territorial claim. Similarly, other Arctic countries such as Norway, Canada and Denmark launched projects to provide a basis for seabed claims on extended continental shelves beyond their exclusive economic zones. Continental Shelf is the submerged area of the land mass that goes gradually in the sea where it falls and then creates a continental slope to rise again. Next to a slope or shelf area there is a rise area which is called the 'continental margin' area. However, if the continental shelf area extends beyond the 200 nautical miles exclusive economic zones, there are certain formalities to be completed as the continental shelf relates to the land mass. Therefore, any extension of the claim would mean a claim of the continental shelf and the question of a delimitation of the exclusive economic zones arises. Hence, the question on continental shelf is a question of delineation. The UNCLOS convention provides some very specific complex formulas in Article 76, stating that scientific and technological data has to be demonstrated to show that there is a continental land mass above the margin and relevant data has to be submitted to the Commission of the Continental Shelf. Based on the recommendations of the commission the outer limits can be proclaimed by the state.

Russia was the first country to make such a submission in 2001. It also included a submission based on a particular area named as the "Lomonosov ridge" with an outer limit of 300-400 nautical miles. The Commission on the Limits of the Continental Shelf was not satisfied with the Russian submission, doubting the Lomonosov ridge to be even assigned as a ridge. In continental shelf the rights are based on resources and it includes the secondary organisms¹. Denmark has recently submitted its claim for northern Greenland, and Canada is yet to make one.



In 2015, Russia made a revised submission on the Arctic region including the Lomonosov ridge and demonstrated scientific details which are now under the scrutiny of the commission. In the Antarctica, the situation is slightly different. Today, 87% of the continent is under territorial claims. But irrespective of the submissions, nations made for other areas in the Antarctica, they also stated that this is a partial submission. During the Antarctic

¹ According to National Geographic Society, plants and algae make continental shelves rich feeding grounds for sea creatures. The shelves make up less than ten percent of the total area of the oceans. Yet all of the ocean's plants and many types of algae live in the sunny waters. The continental shelf is also home to rich natural resources especially oil and natural gas.

Treaty consultations it was decided that the issue of Article IV² may crop up and it was requested to the commission by all parties in the consultation process to not consider this part of the submission. Therefore the parties have not given up on their territorial claims, even though Article IV states that it does not allow any type of expansion of claims but it does not deny any claims either. This is one such issue that is yet to be resolved. The second major issue is about the Arctic melting which will lead to the submerging of certain islands and rocks that if belong to certain Exclusive Economic Zones (EEZs) then the sovereignty issues will emerge and would become an issue. The territorial claims on Antarctica had a moratorium after the treaty that states that, one can claim but no one can touch the claims that have already been made. Legally, Arctic and Antarctica are both very different because in Arctic, the Arctic council comprising of the major countries closer to the polar region plays a crucial role and is at the core of the Arctic region's management, so even if India goes through the international law it may not have hold or a direct stake on any of the resources.

Antarctica on the other hand is very different, due to the structure of the treaty and India has acceded to the Treaty in 1983³, providing its access to continue its research in the region. India has been contributing to the meetings and if India has scientific aspirations then participation in the treaty would prove as a means to strengthen India's scientific knowledge and its global presence. High seas are also bifurcated into two resources: the living and the non-living resources. There has been rising research interest in marine genetic resources that provide both strategic and economic advantage. The commercialisation of certain living resources that are highly valuable for industries like pharmaceutical due to their medicinal properties is a major area that requires intensive research. Then there exists the Indian Biological Act that addresses the genetic resources that we still do not know yet and the other is the Marine Protected Area and ministries are still trying to build suitable indicators these resources. Today, commercialising red algae for biofuels is much talked about, but as they lie under invasive species India still does not have laws to deal with these species. Community based monitoring and evaluations have worked appropriately in other countries but they do not exist in India. Also, coordination is lacking in the high seas between the regions and state level institutions. India's approach and plan to oceanic security and access to marine resources are still unclear.

² The Antarctic Treaty was signed in Washington on 1 December 1959 by the twelve countries whose scientists had been active in and around Antarctica during the International Geophysical Year (IGY) of 1957-58. It entered into force in 1961 and has since been acceded to by many other nations. The total number of Parties to the treaty is now 54. Major provisions of the treaty are as follows- Antarctica shall be used for peaceful purposes only (Art. I); Freedom of scientific investigation in Antarctica and cooperation toward that end (...) shall continue (Art. II); Scientific observations and results from Antarctica shall be exchanged and made freely available (Art. III).

Among the signatories of the Treaty were seven countries - Argentina, Australia, Chile, France, New Zealand, Norway and the United Kingdom - with territorial claims, sometimes overlapping. Other countries do not recognize any claims. The US and Russia maintain a "basis of claim". All positions are explicitly protected in **Article IV, which preserves the status quo states that** "No acts or activities taking place while the present treaty is in force shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica or create any rights of sovereignty in Antarctica. No new claim, or enlargement of an existing claim to territorial sovereignty in Antarctica shall be asserted while the present Treaty is in force". WHICH SOURCE?

To promote the objectives and ensure the observance of the provisions of the Treaty, "All areas of Antarctica, including all stations, installations and equipment within those areas (...) shall be open at all times to inspection" (Art. VII). (Text as is from the Antarctic Treaty Secretariat)

³ On 12 September 1983, India achieved the status of Consultative Party, on 1 October became a member of [Scientific Committee on Antarctic Research](#) (SCAR), and in 1986 became a member of the [Convention for the Conservation of Antarctic Marine Living Resources](#) (CCAMLR). In 1997 India also ratified the Protocol on Environmental Protection to the Antarctic Treaty thus reaffirming India's commitment to protecting the Antarctic environment.

India's maritime governance architecture and future needs



The global maritime order today is very eager to counter the challenges arising from and at sea. The sustainability concern is critical to adhere to the challenge of climate change and ensure good order at sea for the global sea boundary. Because global sea boundaries are the backbone of the economic interdependence framework, sustainable use of various exclusive economic zones is important for the global commons. Such a vast spectrum of challenges cannot be addressed without a new formal global maritime order and governance institutions. Thus, in a pursuit of Blue Economy, India will not only generate faster income but also create a new horizon to aspire for. Also, the country will surely benefit from this good governance generated.

Political and economic fragility of states located in non-strategic regions encounter issues like maritime crime, migration, degradation of ecology, thus causing a destabilising and growing threat. Perspectives are changing as the economies are becoming more destabilized. The first and only one global marine assessment of the world's oceans is the United Nations General Assembly (UNGA) document. It warns that blue activities (activities in the ocean) are so large in number and have huge impacts on the ocean that the limits of the carrying capacity have reached their highest levels already and now damaging the sea biodiversity and the corals. Larger communities depend on ocean for fishing and the extraction of minerals, oil and gas, rare earth metals, renewable energy and other resources is prerequisite for every economy. Thus to realise the full potential of Blue Economy and specially SDG14 by 2030, we need to stabilise the global warming at 1.5°C. This can be done by micro-coordinating with local communities, building new business models and thus decreasing the sectorial conflicts in the nation. India's approach does not address the complexities of non-traditional security threats so far and hence requires multi agency coordination in strict timelines. Strategic equilibrium is relevant to promote order at sea and the development of Blue Economy. For the next 12 years it is crucial for India and the world to achieve the 2030 benchmark for the SDGs, for this, a joint effort of developed and developing countries is needed while a lack of this coordination would raise uncertainties both, in the short and the long run. The SDGs include a new goal of ocean conservation that acknowledges the value and importance of coastal areas. However, the main challenge is the estimation of the true value of oceans and their exploitation cost from an economic, social and environmental perspective.

Non-traditional security and maritime order

Collaboration is the key to deal with coastal and ocean issues internationally. The security issues have also seen a transition as the maritime security moved from military and traditional issues to non-traditional security threats. The latest Naval Strategic Publication (NSP) 1.2 focused on three areas to ensure safety and safety along with national maritime interests. Firstly, security of seaborne trade which directly impinges on the national economy, secondly, maintenance of freedom of navigation while strengthening the UNCLOS and lastly, cooperation and coordination against common maritime threats facing India and its allies. Today, minerals are the significant drivers of economic development. India and China are the most active nations in the Indian Ocean region.

China is already exploring minerals at the South-West Indian border. Therefore, there are huge opportunities but uncertainty still looms over mineral exploration with the possibility of large scale pollution. There is a need to conduct further research to understand the impacts of deep sea mining on ocean ecosystem and ecology.

Blue Economy has increasingly become an integral component of ocean governance. The concept was promoted at the Rio+20 Conference as the marine dimension of the broader 'Green Economy', which defined Green Economy as "one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities".⁴ According to IORA, Blue Economy is the subset of ocean economy. Maritime security is an enabler of the Blue Economy, for example through safeguarding navigation routes, providing important oceanographic data to marine industries and protecting rights over valuable marine resources and activities within claimed zones of maritime jurisdiction. The non-traditional security threats have effects on the military and also on strategy, policy, operations, training, capacity building and environmental protection.



Global warming is one of the biggest threats, warming of waters is changing the ocean ecosystem rapidly and also transforming various ocean species that are still to be studied extensively. The ocean currents are carrying species, plastics and pollution from one part of the world to another causing massive disruption in the ecological chain of the receiving seas. While the world is seeking collaborative solutions, when it is the time to come together countries find it a challenge to do so due to economic, political and social issues. The marine species have been the most affected by climate change due to the heating of oceans. Jelly fish have almost thrived in warmer oceans and strategists are failing to look at the impact of evolving marine species on ocean eco system and on sea based infrastructure. Manmade infrastructures on oceans are slowly changing the ocean's ecology as they provide more room to certain species to thrive, leading to imbalance in food chain and ocean ecosystem. Jelly fish have been able to thrive in warmer oceans and received favourable conditions for polyps (young jellyfish) to grow, leading to population spurts in many areas. Large jellyfish congregations have deeply affected fishing in many countries and have played a central role in putting critical infrastructure under risk. Thermal and nuclear power plants in Florida, Japan and Scotland and also a desalination plant in Israel, were forced to shut down because jellyfish blooms were clogging the water inlets. Various cases of jellyfish blooms destroying aquaculture across the globe have emerged, highlighting the complex challenges climate change is throwing at the world. Japan has seen the largest amount of jellyfish blooms, costing billions of yens for the Japanese industry. The impact on critical infrastructure from ocean warming and acidification needs to be examined extensively to ensure and protect national infrastructure. Such incidents also highlight the need to emphasise on decommissioning of ocean based infrastructure in a methodical manner

⁴ United Nations Environment Programme (UNEP) 2012, " Briefing Green Economy"
<https://wedocs.unep.org/bitstream/handle/20.500.11822/8659/-%20Green%20economy%20what%20do%20we%20mean%20by%20green%20economy%20-2012Main%20briefing%202012--Final.pdf> NOT A COMMON WAY TO CITE

without damaging the surrounding ecosystem. There is a need for a detailed study to explore the precise linkages between effects of the climate change, non-traditional threats and between maritime agencies and their efficacy in dealing with naval operations. A modification of the doctrinal and tactical approaches accommodating such changes / challenges is needed. Modification of training patterns of associated maritime agencies and the incorporation of such changes in equipment parameters and infrastructure of such agencies is critical to address non-traditional security threats.

Unregulated and illegal fishing is another aspect that endangers the ocean ecology and while checks and balances have been established to address illegal, unreported and unregulated fishing (IUU), yet the current international law regime still lacks rigid barriers and stringent mechanisms to address the rising problem. The maritime regime is also clustered with a



few countries being the largest shipbuilders, some being the largest ship owners, few countries hosting the largest number of ship registries (flags of convenience), largest ship demolishers and others with the strategic presence (naval and coast guard) to tackle non-traditional security threats. Additionally, certain countries are signatories to international conventions, while some are not. Such clustering and uneven implementation of international law highlights a logistical and a challenge in international relations. However, coordination amongst international agencies and national governments is itself a tedious process, and the regulation of IUU and other illegal activities such as migration and trafficking becomes challenging in international waters with national forces not allowed to conduct hot pursuit beyond its borders. While technologies such as Automatic Identification System and special licences to catch particular fish species are in place, transnational criminals have found ways and means to avert these. A cohesive international system is required to address non-traditional security threats, and there is need to reform various aspects of the UNCLOS to address the issues of the present.

Global maritime order: Opportunities and challenges for India

India has a long way to go in the Blue Economy front. There is not only a lack of maritime consciousness but also a lack of technology, motivation for innovation and the identification of Blue Economy as a future prospect in the country. Though the Indian Navy has served its traditional maritime duties well, as illustrated by the history, there is a dire need for attention to the non-traditional security threats. In the technology front, India has developed technologies which unfortunately have not been utilised to their fullest capacities. India also needs technologies to harness the Blue Economy opportunities not just internally through scaling up R &D but from external sources also through technological collaboration, knowledge sharing and exchange.

In the recent decade, the government has made major contributions to bring out the agenda of Blue Economy, but the developments made are still unutilised be it due to lack of interest on the

The non-traditional security threats have an effect on the military too and in terms of strategy, policy, operations, training, capacity building and environmental protection.

part of government or private parties, which is why India has not fully used its own knowledge and expertise. The lack of synergy among all stakeholders also adds to challenges from maritime perspective. Maritime security has become more complex with the emergence of non-maritime security challenges that are emanating from land based sources- a critical example is plastics and microplastics. Food security has sprung as an important aspect of the role that marine environment plays in ensuring food security, and India's high hunger index shows that India still faces food shortage as well as malnutrition. Therefore, Africa and India have much higher potential in accessing marine resources to fulfil their nutrition and food security goals. There has been a persistent question of the demarcating line between Blue and non-Blue economy that needs to be addressed on an urgent basis. Though India has a robust strategy for the IORA, it needs to further strategize for the development of the Indo-Pacific agenda, Indian Ocean Naval Symposium and actively engage to increase its Maritime Domain Awareness (MDA). The recent establishment of the Information Fusion Centre (IFC) for the Indian Ocean Region by India is a vital step but shouldn't remain the only one. India needs to strategically engage with its neighbours, strengthen current relations and develop new alliances to enhance its presence in the high seas. While doing so, it needs to develop resources such as fisheries, deep sea mining and energy resources sustainably and implement a robust shipping industry that would serve the economic interests of the country. Therefore, there is a delicate balance that needs to be maintained for a vast country like India.

Mainstreaming non-traditional security threats in India, Maritime Domain is of critical importance for the progress of Blue Economy and for the achievement of SDGs. India wants to explore the far reaches of the Blue Economy however, current administrative arrangements have narrowed the Indian Ocean Region focus. There is also a lack of synergy and coordination among various governmental departments, which is essential to achieve Blue Economy. India would need to increase its strategic and economic presence in global maritime order and Blue Economy could act as a catalyst to achieve this. This requires an increased governmental momentum to synergise activities, agencies and ideas. Such an exercise can only be successful when all stakeholders are integral to adoption and implementation of Indian maritime agenda and policy.

The following are some of the concrete recommendations that emerged from the conference:

- **Need for Coordination** among all the governmental and non-governmental agencies working on maritime issues is prerequisite to address non-traditional security threats like climate change, IUU, Piracy, environmental degradation.
- **Technological collaboration** among different countries would be essential to harness Blue Economy potential.
- There is a need to **augment research in technology, policy, and oceanic sciences in relation to Blue Economy**. The critical need is to gather statistical data, define Blue Economy, and create an information repository from a transdisciplinary framework.
- Further cooperation to **share scientific technology and to develop tools and mechanisms to address the challenges of climate change and environmental degradation** which are critical for the success of sustainable development of the oceans.

- The **adoption and implementation of a singular Indian maritime policy** that encompasses security, economy, environmental sustainability and social impacts of the ocean in an integrated framework is prerequisite to address non-traditional threats.
- **Increase the level of coordination among local, national and international maritime agencies.** Establishment of single unified agency on maritime policy would be critical for India to implement the Blue Economy agenda.
- **Partnerships and coalitions with private players** in the maritime sector would be beneficial to ensure more coherence in maritime policy adoption and implementation.
- **Capacity building and training beyond scientists and technologists** in the maritime sector is essential for the success of Blue Economy. Stakeholders from the finance and insurance sector, academia, think tanks and business entities need to be made aware of the changing ocean ecosystem and should be well placed to contribute to the Blue Economy discussion and its implementation.

Annex 1: List of Participants

(Names in alphabetical order)

Sl No.	Name of Participant	Affiliation	Place
1.	A. Subramanyam Raju	Coordinator, Centre for Maritime Studies, Pondicherry University	Pondicherry
2.	Abhijit Singh	Head, Maritime Policy Initiative, Observer Research Foundation	New Delhi
3.	Ameey Sapre	Assistant Professor, National Institute of Public Finance and Policy	New Delhi
4.	Amit Kumar	Research Fellow for Indian Ocean Region/Maritime Affairs, Indian Council for World Affairs	New Delhi
5.	Ann-Margret Bolmer	Programme Assistant, Konrad-Adenauer-Stiftung	New Delhi
6.	Arun Prakash	Former Chief of Naval Staff, Indian Navy and Distinguished Fellow	Goa
7.	C Uday Bhaskar	Director, Society for Policy Studies	New Delhi
8.	Chaitanya Giri	Fellow, Space & Ocean Studies Programme, Gateway House	Mumbai
9.	Chandrashekar Dasgupta	Distinguished Fellow Emeritus, The Energy and Resources Institute (TERI)	New Delhi
10.	Deepica Sachdeva	Research Officer, Konrad-Adenauer-Stiftung	New Delhi
11.	Deepak Shetty	Former Director General of Shipping & Secretary to the Government of India	Mumbai
12.	Fraddry D Souza	Fellow & Area Convenor, The Energy and Resources Institute (TERI)	Goa
13.	Gurpreet S Khurana	Executive Director, National Maritime Foundation	New Delhi
14.	Hariharan Pakshi Rajan	FICCI Task force on Blue Economy & Former Dy. Director, Division of Legal Affairs and the Law of the Sea, United Nations	New Delhi
15.	Ipshta Chaturvedi	Partner, C&C Advisors	Mumbai
16.	K. Somasunder	Adviser, Ministry of Earth Sciences, Government of India	New Delhi
17.	Karin Stoll	Consul General, German Consulate General, Chennai	Chennai
18.	Krishnendra Meena	Assistant Professor, Jawaharlal Nehru University	New Delhi
19.	L. Ramkumar	President, Madras Management Association	Chennai
20.	M Ravichandran	Director, National Centre for Polar and Ocean Research	Goa
21.	Mani Juneja	Research Associate, The Energy and Resources Institute (TERI)	New Delhi
22.	N. Sathiya Moorthy	Senior Fellow & Director of the Chennai Chapter, Observer Research Foundation	Chennai
23.	Nitya Nanda	Senior Fellow and Associate Director, The Energy and Resources Institute (TERI)	New Delhi
24.	Pankaj Madan	Advisor/Teamleader Program Coordination, Konrad-Adenauer-Stiftung	New Delhi
25.	Peter Rimmele	Resident Representative India, Konrad-Adenauer-Stiftung India Office	New Delhi
26.	P K Ghosh	Former Co Chairman and India Representative to CSCAP and Former Senior Fellow ORF	New Delhi
27.	P V Rao	National Fellow, ICSSR and Member of the Advisory Board of Indian Ocean Research Group Inc. (IORG)	Hyderabad
28.	Pankaj Jha	Assistant Professor, Jindal School of International Affairs	New Delhi

Sl No.	Name of Participant	Affiliation	Place
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30.	Ruchita Beri	Senior Research Associate, Institute for Defense Studies and Analyses	New Delhi
31.	S K Mohanty	Professor, Research and Information System for Developing Countries	New Delhi
32.	Sanjay Chaturvedi	Professor and Dean, South Asian University	New Delhi
33.	Shailesh Nayak	Director, National Institute of Advanced Studies (NIAS)	Bengaluru
34.	Swati Ganeshan	Fellow, Centre for Resource Efficiency and Governance, The Energy and Resources Institute (TERI)	New Delhi
35.	W. Lawrence S. Prabhakar	Associate Professor, Madras Christian College	Chennai
36.	Yogendra Kumar	Former Indian Ambassador to the Philippines	New Delhi

Annex 2: Group Photo





The Energy and Resource Institute (TERI)

TERI is independent, multi-dimensional organization, with capabilities in research, policy, consultancy and implementation. Over the last four decades of its journey, TERI has emerged as one of the world's pre-eminent think tanks and research institutions in the field of energy, climate change and sustainability. Our work across sectors is focused on promoting efficient use of resources, increasing access and uptake of sustainable inputs and practices and reducing the impact on environment and climate

Headquartered in New Delhi, we have regional centres and campuses in Gurugram, Bengaluru, Guwahati, Mumbai, Panaji , and Nainital. Our 1200-plus team of scientists, sociologists, economists and engineers delivers insightful, high quality action-oriented research and transformative solutions supported by state- of-the-art infrastructure.

Konrad-Adenauer-Stiftung

Freedom, justice and solidarity are the basic principles underlying the work of the Konrad-Adenauer-Stiftung (KAS). The KAS is a political foundation, with a strong presence throughout Germany and all over the world. We encourage people to lend a hand in shaping the future along these lines. With more than 80 offices abroad and projects in over 120 countries, we make a unique contribution to the promotion of democracy, the rule of law and a social market economy. To foster peace and freedom we encourage a continuous dialog at the national and international levels as well as the exchange between cultures and religions.

The Konrad-Adenauer-Stiftung has organized its program priorities in India into **five working areas**: Foreign and Security Policy; Economic and Energy Policy; Rule of Law; Social and Political Change and local Self-Government; Training programmes for students of journalism.

Conference Summary

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