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POTENTIAL, CHALLENGES AND PROSPECTS FOR PAKISTAN'S BLUE ECONOMY

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ABSTRACT

The value of water and oceans in fostering inhabitation and facilitating trade and economic connectivity is immense. Sea trade has historically played a crucial role in building a state's economic power. With over 1,000 km of coastline and an extended Exclusive Economic Zone covering 290,000 sq. km, Pakistan possesses abundant marine, fisheries, mineral, and energy resources that can generate significant revenue. Additionally, Pakistan's geo-oceanic position offers vast opportunities for sea-based activities like transportation, tourism, shipbuilding, port facilities, and renewable energy. Despite having such a great opportunity, Pakistan's "Blue Economy" potential is still untapped and unexplored as, for example, is evident from the fact that despite having such a lengthy coastline, there is only one merchant port at Karachi. At the same time, another at Gawadar is still not operational. This need is calling attention as the blue economy and sustainable development are integral and their exclusivity is unbearable for Pakistan. Blue economy development, if attended seriously, would pave the way for sustainable growth, keeping in view the geostrategic location of Pakistan and potential of Blue Economy. As envisaged by Dr. Abhijit Mitra *et al.* (2021), catering the information to develop the sustainable Blue Economy for the betterment of any nation is extremely significant. Therefore, this paper highlights in generalized way, the challenges and prospects of Pakistan's Blue Economy including its different aspects like Blue tourism, shipping and logistics, shipbreaking, sustainable fishing, Marine Spatial planning, research and exploration, marine environment and biodiversity conservation (although each aspect may be dealt individually from a research viewpoint) besides contributing in the budding literature on blue economy with reference to Pakistan, providing policy recommendations for its development as well as would attempt for future research direction in the arena of blue economy.

Keywords: Blue Economy, Exclusive Economic Zone, marine resources, coastline.

Introduction

Water plays a vital role in sustaining life and is full of resources, serving as a means of communication and livelihood, food security, and renewable energy, as indicated in a report by OECD titled OECD Ocean (2020) besides suggested by UNSTADS (2021), catering "as a mean of livelihood for over three billion people", majority of which are the world's poorest. Mark G. Macklin and John Lewin (2015) observe that throughout history, great civilizations like the Egyptians, Babylonians, Mesopotamians, and the Indus Valley civilization thrived by having their settlements along rivers such as the Nile, Tigris, Euphrates, and Indus. The Persians established trade routes connecting Africa, Asia, and Europe, contributing to the expansion of their empire. Similarly, the discovery of the 'New World' (The American Continent) by Christopher Columbus determines Childs, W. R. (1995) was made possible through his sea voyage.

Approximately 70% of the earth's surface, states Rai MK *et al.* (2023) and Kamran *et al.* (2023) is covered by water, including oceans, seas, and rivers. Moreover, Matekenya (2022) found that nearly 80% of global trade relies on the Sea Lines of Communication (SLOC), making sea-trade the most ancient, cost-effective, and reliable medium for connecting lands, people, and goods. Maritime trade played a significant role in the prosperity of empires like the Portuguese, Scandinavians, French and Great Britain, enabling them to exert power and influence on a global scale.

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In today's global security environment, the importance of sea-based activities has resurfaced with even greater significance. Tallis J. (2022) sees that various issues such as the Caspian Sea dispute, conflicts in the South China Sea, insecurity in the Korean Peninsula, and the US Indo-Pacific strategy involving the Quadrilateral Security Dialogue (QUAD) between Australia, India, Japan, and the United States in response to Chinese global outreach, demonstrate the geopolitical relevance of sea-based dynamics. Initiatives like Austria, UK and US (AUKUS) aiming to provide nuclear security to Australia and India, Israel and UAE-US (I2-U2) formation against Iran further exemplify the complexities of contemporary maritime security.

As observed by Voyer, M. (2018), nations have recognised maritime security's strategic importance due to concerns about offshore energy reserves, protection and denial of trade routes, and the rise of non-state actors engaging in piracy and terrorism at sea. In response to these challenges, many countries, including India have expanded their navies into "Blue Water Forces" to extend their influence into the high seas. Ensuring maritime security has become crucial, compelling states to conduct naval exercises individually and collectively to safeguard maritime activities, and secure their coastlines.

Pakistan, finds Nazir (2022) has been actively participating in sea-borne multilateral naval exercises, notably through the biennial AMAN series and commanding the Counter Piracy Combined Maritime Forces (CTF-151) on multiple occasions. Such engagements reflect the nation's commitment to maritime security and cooperation with other nations in addressing sea-based challenges.

Overall, in the contemporary global landscape, sea-based activities remain paramount, with issues of maritime security,

trade, and cooperation influencing the geopolitical dynamics of nations worldwide.

Despite Pakistan's historical neglect of its maritime potential, its geopolitical position offers immense opportunities to tap into the hidden resources and activities of the sea. However, the country only recently began to recognize the significance of maritime security and the potential of sea-based trade and commerce. The scarcity of energy resources and economic/financial hardships forced Pakistan to shift its focus towards sea-based activities, including offshore oil/gas feasibility studies and the development of Gawadar port as part of the China-Pakistan Economic Corridor (CPEC). This shift, as thought by Rutt Syed (2022), in perspective was further evident when Pakistan declared 2020 as the 'Year of Blue Economy'.

This paper aims to emphasise the importance of the Blue Economy from a global perspective, analysing the potential of Pakistan's Blue Economy while also addressing the challenges and prospects it presents. Furthermore, the paper offers recommendations on the way forward to unlock the tremendous opportunities awaiting exploitation. However, it is essential to note that this paper is not an exhaustive account of the subject, but rather an effort to contribute to academic literature, initiate constructive debates, and propose policy options for stakeholders to consider in shaping Pakistan's national security policy.

We may observe that despite past oversight, Pakistan's strategic location provides an excellent opportunity to harness the potential of the Blue Economy. By recognising and focusing on maritime security and sea-based activities, Pakistan can tap into significant economic and strategic benefits. This paper seeks to shed light on this potential and pave the way for further discussions and policy considerations to maximise the opportunities presented by the Blue Economy.

Conceptual Framework

Conceptual innovation is driven by human needs and the desire for progress. As the global population continues to grow, so does the demand for resources, leading to concerns about resource depletion and the search for new solutions. This quest has given rise to the transition from the “Green Economy” to the “Blue Economy”, representing a relatively new approach to economic and sustainable growth by utilising oceanic resources.

The term “Blue Economy” was introduced by Gunter Paul (2014), who described it as a “shift from scarcity to abundance, where everything available in the oceans and seas can be utilised in a sustainable manner”. The concept emphasises the regeneration of the ecosystem and functioning in harmony with nature. It gained concrete policy objectives during the United Nations Conference on Sustainable Development (2012) in Rio de Janeiro, where the idea of evolving the Blue Economy into a viable and sustained economic model was highlighted. The United Nations’ 2030 Agenda for Sustainable Development Goals (SDG) also includes SDG-14 (Life below Water), which focuses on conserving and sustainably using seas, oceans, and marine resources for sustainable development. To promote sustainable development through oceans and seas, the United Nations Department for Economic and Social Affairs (UNDESA) expert group, along with organisations like the Global Partnership for Oceans and Global Ocean Commission have been actively working in this field.

The concept of Blue Economy has gained widespread recognition and adoption by various global organizations and regional entities. Many countries, says Aijaz and Daud Butt (2021) have come to realised the significance of the Blue Economy Model as a crucial avenue for achieving sustainable economic growth, efficient resource

utilization, and job creation. However, the emphasis on unexplored oceanic resources and hidden treasures has also led to increased cooperation, competition, and rivalries among nations seeking access to or denying sea-based resources.

Briefly speaking, the Blue Economy, as suggested by Asaf *et al.* (2014), represents a novel approach to economic growth, driven by the need for sustainable resource utilisation and environmental harmony. Its adoption and promotion have led to strategic considerations and collaborations on both national and global levels as countries recognise the potential benefits and challenges associated with harnessing oceanic resources.

Indeed, prior to the emergence of the “Blue Economy Model”, another innovative perspective known as the “Blue Ocean Strategy” was introduced by Chan Kim and Renee Mauborgne (2004). This strategy emphasises the simultaneous pursuit of differentiation and low cost to create new market space and generate new demand. The goal is to move away from existing and competitive market spaces, referred to as “Red Oceans”, and instead explore new and uncontested market spaces, known as “Blue Oceans”. In “Red Oceans”, companies fiercely compete within well-defined industry boundaries, leading to intense competition and limited growth opportunities. On the other hand, “Blue Oceans” represents untapped and unexplored markets with vast potential for profitable growth and innovation.

Though the “Blue Ocean Strategy” is primarily relevant to economic growth and market strategies, it can be connected with the “Blue Economy” concept as an uncontested market space where competition and rivalries can be mitigated through the sustainable utilization of sea resources within a country’s maritime and coastal boundaries.

For the present study, the focus is on the concept of “Blue Economy”, which involves the utilisation of oceanic resources to generate economic activity and achieve sustained growth. Various definitions and interpretations of the “Blue Economy” exist. The United Nations Secretary-General of the Ocean Conference, Wu Hongbo (2017) describes it as a long-term strategy that supports sustainable growth through ocean-related sectors and activities while improving human well-being, social equity and preserving the environment. The World Bank (2022) defines it as the sustainable use of ocean resources to promote economic growth, improve livelihoods, create jobs, and preserve the health of ocean ecosystems. Masanori Kobayashi (2021) of the Tokyo Foundation for Policy Research broadly associates the “Blue Economy” with the ocean economy, encompassing diverse economic activities directly tied to the oceans such as fisheries and marine products, shipping, seaside tourism, marine sports, desalination, seabed mining, and offshore wind power.

In summary, the “Blue Economy” concept and policy revolve around sustainable utilisation of oceanic resources for human benefit while safeguarding the oceanic ecology. It offers equal opportunities to all states, including Island States, Littoral States, and Land-locked States to tap into the vast potential of sea resources for economic growth and development.

Global Perspective

The statistics and facts provided by Masanori Kobayashi (2021) of the Tokyo Foundation for Policy Research highlight the significance of the oceans in sustaining life on earth and their critical role in supporting human populations. Oceans cover the vast majority of the earth’s surface and a large portion of the global population lives in close proximity to the coasts, relying directly or indirectly on the ocean for their livelihoods and well-being.

Recognising the importance of the oceans and their potential for sustainable development, the United Nations 2021-2022 declared 2021-2030 as the Decade of Ocean Science for Sustainable Development, aiming to enhance global capacity building and promote innovative solutions through the Blue Economy.

The Blue Economy has immense economic potential, with global oceanic activities valued at around US\$1.5 trillion in 2010 and expected to reach US\$3 trillion by 2030. Estimates suggest that the Blue Economy has the capacity to generate approximately \$24 trillion in financial activities, along with creating new resources and job opportunities.

Various countries, including Japan, South Korea, Singapore, the Association of Southeast Asian Nations (ASEAN) member states, and India have embraced the Blue Economy model to achieve sustained growth and capitalize on their offshore resources. For instance, India’s Blue Economy supports 95% of the country’s business through transportation and contributes about 4% of its gross domestic product (GDP).

However, despite the promising prospects and the growing global interest in the Blue Economy, Pakistan’s utilisation of its Blue Economy found by Aijaz and Daud Butt (2021) resources remains relatively low, at just 37% of its potential. Currently, Pakistan’s main focus is on fisheries, generating US\$450 million, but the potential of the Blue Economy in Pakistan is estimated to be around US\$100 billion. This highlights the untapped opportunities and potential for Pakistan to harness its oceanic resources for economic growth and development.

China, India, Bangladesh, and Iran have already developed long-term visions and strategies to leverage their oceanic resources for economic gain. Similarly, other countries and global organizations,

including the United Nations and the World Bank, regional blocs like the European Union and ASEAN, and various global partnerships are actively engaged in harnessing the benefits of the Blue Economy (OECD, 2016).

In conclusion, the Blue Economy presents a significant opportunity for countries worldwide to achieve sustainable economic growth, create jobs, and improve livelihoods while preserving the health of ocean ecosystems. With the right policies, strategies, and investments, countries like Pakistan can tap into the immense potential of their Blue Economy and contribute to a more resilient and prosperous future.

Pakistan’s Blue Economy Potential

The information provided highlights the vast potential that Pakistan’s coastal areas and oceanic resources hold for the development of its Blue Economy. With approximately

1,000 km of coastline and several seaports, including Karachi, Bin Qasim, and Gawadar, as well as additional ports in development, Pakistan has strategic access to global trade and energy supply lines, making it a key player in the regional and global partnership for the Blue Economy.

The Exclusive Economic Zone (EEZ) of 240,000 sq. km and an additional 50,000 sq. km of continental shelf offer access to untapped and unexplored oceanic resources, including marine, offshore, and deep-water resources. Pakistan’s heavy dependence on sea routes for trade and oil supplies, accounting for more than 30% of its total GDP, further emphasises the critical role of the ocean in the country’s economic activities.

In terms of specific opportunities, Pakistan has significant potential in various sectors of the Blue Economy, as has been depicted in the following table (Table 1).

Table 1: Potential of blue economy and present utilisation

Segment	Potential	Utilisation
Coastal tourism	US\$4.5 billion	US\$0.05 billion
Fisheries	US\$3 billion	US\$400-450 million
Seafood exports	US\$2 billion	US\$450 million
Oil & gas	US\$14 billion	No utilisation
Minerals	US\$4-5 billion	No utilisation
Shipbreaking	US\$3 billion	US\$100 million
Shipbuilding	Data not available	Data not available
Maintenance/repair jobs	Data not available	Data not available
	5 million	1.8 million
Renewable energy	No survey done	No utilisation
Coastal development	No survey done	No utilisation
Offshore development	No survey done	No utilisation

Source: Compiled from various secondary sources or research conducted by the author. As a result, the accuracy and reliability of the data provided may be subject to limitations and uncertainties

It is important for Pakistan to develop a comprehensive and sustainable strategy to tap into this potential and address any challenges that may arise in the process.

With careful planning and the right policies, Pakistan can position itself as a major player in the Blue Economy and reap the economic benefits while ensuring the preservation of its oceanic ecology.

Challenges

The challenges highlighted in the text are significant barriers to fully harnessing the potential of Pakistan's Blue Economy. Iftikhar (2022) states that sea blindness, which refers to the lack of awareness and understanding of the importance of oceanic resources is a critical issue. The overemphasis continues Iftikhar (2022) on land-based activities and the concentration of industrial setups in major cities may have led to neglecting the vast potential in the country's coastal areas and exclusive economic zone (EEZ). This has resulted in missed opportunities for economic growth, strategic outreach, and revenue generation.

The omission of Blue Economy from the National Security Policy of Pakistan (2021-2025) is a notable concern. Economic security and the potential of sea-based economic activities, suggested by Hussain D. N. (2021) are intricately linked, and incorporating the Blue Economy into the national security agenda can lead to more comprehensive and sustainable economic development. By not recognizing the importance of the Blue Economy, the country might miss critical strategic and economic advantages.

Another challenge is the lack of projection and promotion of sea-related activities and the Blue Economy by relevant ministries, media and institutions. Public perception, O'Halloran and Mary think that it plays a crucial role in shaping the priorities of the government and private sector. If the potential of the Blue Economy is not actively promoted and communicated, there may be a lack of interest from investors and businesses to invest in this sector. Raising awareness about the opportunities and benefits of the Blue Economy is essential for its growth and development.

The bureaucratic red-tapes and delays in formulating, approving, and implementing sea-related policies also hinder the development of the Blue Economy. Streamlining the policy-making process

and creating an enabling environment for businesses and investors can attract more investments and spur growth in the sector.

Addressing these challenges, says Martinez *et al.* (2021) will require a concerted effort from the government, private sector, media, and relevant institutions. Raising awareness about the potential of the Blue Economy, integrating it into national policies and creating a conducive business environment can unlock the untapped opportunities in Pakistan's coastal and maritime regions, leading to sustainable economic growth and prosperity.

The under-utilization of existing resources, found by Gill and Iqbal (2021) is a significant challenge that hinders the full potential of Pakistan's Blue Economy. Capacity-building issues such as outdated fishing methods and the lack of a deep-sea fishing fleet, limit the country's ability to fully exploit its fisheries resources. Similarly, the National Institute of Oceanography's lack of modern equipment for sea-bed resource exploration necessitates outside technical support.

The scarcity of trained and skilled human resources, as explored by Rutt and Aiyasha (2021) is another constraint that affects production and development in the Blue Economy sector. Improving the skill sets of the workforce can lead to increased productivity and efficiency.

Ahmed and Siddiq (2013), and Nida (2022) revealed that the shipbreaking industry, which used to be a major source of income for Pakistan faces obstacles due to primitive methods, non-compliance with international standards, and a lack of certification. These issues deter international cooperation and investment in this sector.

The insufficient capacity for handling at ports, particularly the under-utilization of Gawadar port, limits the country's ability to fully tap into its sea trade potential. With

Pakistan, Chohan and Chandio (2022) find being dependent on sea-routes for trade and energy supplies, improving port infrastructure and equipment is essential to enhance efficiency and reduce reliance on foreign vessels for freight services.

Internal security concerns, worded by Menzel (2022), political and economic instabilities, and the lack of official and authentic data also pose challenges to the development of the Blue Economy. These factors can deter domestic and international investors and hinder progress in the sector.

Despite these challenges, the text points out that they are not insurmountable. The growing recognition of the importance of the Blue Economy in the country's policy outlook, regional economic connectivity, and domestic resource compulsion is gradually giving the sector more attention. As Pakistan begins to prioritize and invest in its Blue Economy, there are bright prospects for sustained economic growth and prosperity in the country. Addressing the challenges and implementing strategic policies can unlock the immense potential of oceanic resources for Pakistan's benefit.

Prospects

Indeed, Pakistan's Blue Economy presents a significant opportunity for economic growth and development. With an estimated US\$100 billion in untapped resources, estimated by Gill and Iqbal (2021), the sector has the potential to create millions of jobs, stimulate socio-economic activities, and boost regional trade. Prioritising and implementing effective policies can drive Pakistan's economic progression and stability.

The development of Gawadar port, investigated by Hadi (2020) is a key factor in unlocking the full potential of Pakistan's oceanic resources. Its strategic geo-oceanic location makes it a crucial littoral state in Asia-Pacific region. By optimising Gawadar's capacity, the port can offer

repair and maintenance services for local and foreign vessels, facilitate regional trade connectivity between China, Central Asia, the Persian Gulf, and ASEAN countries, and create significant employment opportunities for the local population. Moreover, Gawadar's role as a gateway to China's Belt and Road Initiative (BRI) and the China-Pakistan Economic Corridor (CPEC), as found by Galiskan (2022) and Akash *et al.* (2023), further enhances its significance in Pakistan's economic landscape.

The underutilised existing facilities such as shipbuilding, shipbreaking, fisheries, and sea-trade can be upgraded with relatively less effort, providing important prospects for the Blue Economy's growth. Additionally, exploring untapped avenues, proposed by Gill and Iqbal (2021), and Akash *et al.* (2023) such as recreational/tourism, coastal development, offshore exploration, and alternate energy sources can further contribute to the sector's long-term potential.

By capitalising on its geo-oceanic advantages and strategically developing its maritime resources, emphasises Ahmer (2013), Parveen *et al.* (2015), Alharthi, M., & Hanif, I. (2020), and Bahar Khan, D. M., & Muhammad Rizwan, D. (2022), Pakistan can position itself as a significant player in the global Blue Economy.

However, achieving these goals will require the concerted efforts of the government, private sector, and relevant stakeholders to overcome challenges and fully realise the benefits of the Blue Economy for the country's sustainable economic growth.

Way Forward

No state and its institutions can operate in isolation; direction, planning, guidance, and determination are crucial elements for effectively utilising its untapped resources. To unlock Pakistan's true potential in the Blue Economy, proposes Alharthi, M., & Hanif,

I. (2020), consistent policies with effective implementation are essential, backed by necessary investments from both the public and private sectors. Accomplishing this goal also necessitates organisational reform and regulatory mechanisms to maximise the use of existing resources. Embracing modern equipment, acquiring new vessels, and fostering human resource development specifically for the Blue Economy, as worded by Tagar H. K. *et al.* (2021) are vital steps to meet international standards. Above all, it is imperative to adopt an all-encompassing Integrated Maritime Policy that places the Blue Economy at its core.

Based on the preceding analysis, the paper proposes a number of actions, as detailed below to stakeholders for severe consideration and conversion into specific policy formulation. Therefore, it is imperative that the concept of the Blue Economy holds significant importance in the context of our Revised National Security Policy document (National Security Policy Document Pakistan 2021), which places a strong emphasis on economic security. To effectively harness the potential of the Blue Economy, we propose the following strategic initiatives:

Firstly, we recommend the establishment of an autonomous Blue Economy Authority. This entity will be tasked with conducting in-depth research, formulating policies, and fostering collaboration with stakeholders to fully capitalise on the opportunities offered by our maritime resources.

To ensure effective leadership, we propose appointing a visionary and experienced decision-maker to lead the Blue Economy Authority. This individual will be supported by a team of experts, practitioners, and business entrepreneurs who will collectively drive the growth of the Blue Economy.

To integrate sea-related aspects into our National Security Policy, we suggest creating a specialized desk for the Blue

Economy within the Ministry of Defence. This will facilitate seamless coordination and a comprehensive approach to maritime matters.

A crucial aspect of our strategy involves developing an Integrated Maritime Policy that adopts an innovative perspective and anticipates future needs. This forward-looking approach will pave the way for sustainable and well-informed decision-making.

In line with this vision, we prioritise the expedited development of the Gawadar Port to its full capacity. This will unlock its tremendous potential and serve as a key driver of economic growth.

To demonstrate our commitment to international standards, we will adopt and implement all relevant international conventions pertaining to the sea, existing facilities, and the Blue Economy. This will enhance our global standing and foster international cooperation.

Recognising the need for comprehensive infrastructure development, we will initiate feasibility studies and surveys to build infrastructure, recreational facilities, and industrial zones in the coastal belt and offshore areas. Public-private partnerships will be encouraged in a business-friendly environment to attract investments into Blue Economy projects.

To ensure a skilled workforce that meets international standards, we will provide training opportunities and promote skill development in relevant fields.

Modernisation is essential to maximise our maritime potential. We will invest in advanced equipment, new vessels and expand existing facilities such as shipbuilding, shipbreaking, and fisheries catchment.

Public awareness and education are vital to garner support for our Blue Economy initiatives. Knowledgeable individuals and institutions will lead public awareness

campaigns through media, educational institutions, and visits to sea-related organisations.

The research will be a cornerstone of our approach. We will establish a data bank and encourage academic research at Higher Educational Institutions to generate innovative ideas and valuable policy inputs.

In addition, we will promote dynamic and policy-oriented research in existing think-tanks and institutions actively engaged in Blue Economy activities. Collaboration with international think-tanks and organizations will further enrich our knowledge base.

By implementing these strategic initiatives, we are confident that Pakistan will unlock the full potential of its Blue Economy and achieve sustainable economic growth while reinforcing its position in the international arena.

Conclusion

The ever-increasing demands and scarcity of resources have compelled the search for alternative sources to address emerging challenges. This exploration has shifted from green sources to blue sources, aiming for sustainable economic solutions. The concept of the Blue Economy has emerged as a new buzzword, offering an oceanic alternative for littoral states in coastal areas and high seas, free from competition or conflict, to tap into untapped treasures. Many countries are now adopting the Blue Economy Model to achieve sustained economic growth, with the global Blue Economic activity having the potential to grow from US\$1.5 trillion to US\$24 trillion.

Pakistan is blessed with a strategic oceanic location, hosting significant Sea Lines of Communication (SLOCs) and playing a role in global sea-trade. However, historically, Pakistan has not fully recognized the hidden potential of its blue resources. In recent years, due to resource constraints and the quest for new opportunities, the concept of the Blue Economy has gained attention in

academic discussions, think-tank debates, and policy circles. It is estimated that Pakistan possesses approximately US\$100 billion worth of oceanic resources, including fisheries, trade, shipbuilding, shipbreaking, minerals, oil/gas, tourism, employment, and blue energy. Despite this potential, the lack of an innovative roadmap, necessary expertise, adequate equipment, required infrastructure, and international recognition has resulted in an under-utilisation of these resources.

Nevertheless, by adopting a proactive approach and implementing sustained efforts, Pakistan can overcome these challenges and fully exploit the potential of its Blue Economy. With proper planning and strategic actions, Pakistan can harness the wealth of opportunities offered by its strategic oceanic setting to bolster its economy and ensure sustainable development.

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