Special Issue
Volume 10 Number 2 December 2024
ISSN 2454-5694

JOURNAL OF KOLKATA SOCIETY FOR ASIAN STUDIES

An International Bilingual Journal of
Social Science (UGC CARE)



JOURNAL OF
KOLKATA SOCIETY FOR ASIAN STUDIES
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Countries	**Institutional Subcribers**	**Individual**
India	**INR 1200.00**	**INR 1000.00**
Foreign Countries	**US $ 100.00**	**US $ 90.00**

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Editorial

This is a special volume based on the proceedings of the two day International conference on BENGAL BASIN AND BAY OF BENGAL INTERACTION SPHERE: PAN INDIAN AND PAN ASIAN CONTACTS, held on February 28 and 29th 2024, convened under the auspices of Kolkata Society for Asian Studies and Anthropological Survey of India. The Bengal basin was formed of deltaic sedimentary deposits brought down by Ganga- Brahmaputra system from the erosion of the Himalayan and Indo-Burmese ranges. Compared to most of the regions of the Indian subcontinent, geographically the Bengal basin took a long time for becoming suitable for human habitation. Because of fertile soil and congenial climate soon the basin became well populated. Bay of Bengal and numerous streams and tributaries traversing through the basin, provided navigable routes and people travelled both from inland and foreign lands for various purposes. Seafaring vessels could even travel further inland by sailing through the waters of the mighty rivers. Contributors of this volume have focused on the history, archaeology, economy of the region, political situation of the Bay of Bengal, people's migration in ancient times established through molecular biology, ecosystem of the coastal region, trade, politics, irregular migration and security concern at the littoral zones.

A total of twelve papers are published in this volume. Four abstracts, considering their importance to the theme of the conference are also included. The seminar had began with the presentation of the paper by Subhadra Mitra Channa, entitled as, *The Falsity of Boundaries, Cultural Continuities and Blurred Identities: Mapping the Connectivity of the Bengal Basin beyond its Geography and Imagined Location.* She has pointed out that Bengal basin cannot be limited by political boundaries. She has defended her point with example from history, ethnicity and culture of the Bengal basin. Durga Basu's paper, *Geo-Archaeological approaches for understanding settlement history of Deltaic Bengal and its contact with neighbouring countries* is on the archaeological evidence of the settlement and growth of civilization in Bengal basin. The article, *The Bay of Bengal in Indo-Pacific Geopolitics* by *Souradeep Sen* has dealt with foreign policy of India and its assessment in the present context of the countries in the Indo-Pacific zone. Sujon Ghosh, in his paper, *The Dynamics of Bay of Bengal: Asian Geopolitics in the Future* has discussed in the same line about present importance of Bay of Bengal in the perspective of present political importance of countries in the Indo-Pacific region. *The Sundarbans: A Mangrove Microcosm Shaping South Asian Geopolitics* is the article by Rakhi Mitra. She pointed out the economic potential of the Sunderbans with its eco-specific products, specially the fishing economy on the one hand and maritime vigilance on the other hand. Banrida T. Langstieh has dealt into the population and its molecular biology for understanding perspective of population dispersal and structure of the early

inhabitants of the coastal zone of Bengal basin, especially of the Austronesian group, in the paper titled as *Genetic, linguistic and molecular anthropological study of the Indian Ocean Littoral, in Austronesian dispersal, across the Pacific.* Suchandra Ghosh in the article, *The port of 'Samandar' in the Northern Bay of Bengal and its maritime and coastal linkages (c. 800CE-1500CE),* has given a detailed account of the importance of Bay of Bengal for trade of India with different countries both in the south east and western Asia. The author has taken the data from historical sources with an emphasis on the port *Samandar***,** successor of which later was the grand port of Chittagong. The author also has given account of some of the items that were exported in the medieval period, for which India was famous. Shreyashi Paul in the paper entitled, *Indian Saltpeter and the Political Economy of Bay of Bengal*, discussed about necessity of saltpeter for preparing gunpowder that were needed by the British army for their guns. Bihar was the primary source of saltpeter. It was heavy and waterways were convenient for its transport. Northern Bay of Bengal thus became an active area of trade and commerce. Illegal migration through the Bay of Bengal from the neighbouring countries have raised question of security for the people living along the coastal region in India. The paper titled as *Irregular Migration and Security Concerns in the Bay of Bengal Region* by Swagata Sarkhel has raised the question of security of such migration. Example is given of the Rohingya migration from the Myanmar. The paper, *The Shy Coconut Palm: A Cross-Cultural Understanding of its Imprint on the Ecocultural Landscapes of Bengal and Southeast Asia by* Shreyashi Chaudhuri and Kuntal Narayan Chaudhuri have discussed the importance of coconut plant in the intercultural realm of The countries in the zone of Bay of Bengal. Rana Rohit's paper, *A Socio Economic Analysis of Zero Tillage and Mechanical Rice Transplanter on Farm Economy in Punjab and Haryana State of India,* is a little bit diverted from Bengal Basin to Northwestern part of India.

Four abstracts are printed in this volume. These were of invited lectures and are of interest to the theme of the conference. *Bengal water craft: Unknown Heritage* by Swarup Bhattacharya is quite interesting and self explanatory with plates in the abstract where the age old craft of the boat makers are illustrated. Sumita Basu Majumdar proposed that the recently discovered Roman Coins from Khlong Thom in Thailand were actually made in India and is an imitation of the Roman coins, in the paper, *Bay of Bengal Interaction Sphere and the Roman Imitation Coins from Southeast Asia.* The third abstract is by Eng Jin OOI of an invited speech. The topic, *A dhāraṇī culture shared between Eastern India and the wider Asian region,* explained that *dhāraṇī* the Buddhist *mantra* , inscribed on stone slabs and stamped on multiple clay sealings, was found at a number of archaeological sites in Odisha, Bihar, and Uttar Pradesh. These Travelled to South East Asian peninsula through Bay of Bengal. *Approaches to the Development of the Bay of Bengal Region and Asian interactions: Communities, Agencies and Ecology by* Selvakumar. V describes the prehistoric period and interactions on important cultural region of Asia connecting South Asia and Southeast Asia from the first millennium BCE.

Finally and most importantly, Kalyan K. Chakravarty had delivered valedictory lecture and the title is, *Strategizing Positive Interaction in the Bay of Bengal Interaction Sphere.* He has meticulously analyzed all the presentations of the international conferences, synthesized the lectures, categorized them and has given a comprehensive understanding and conclusion derived out of the conference.

The editors of this volume would like to thank the participants who have provided with written versions of their papers presented and enriched the theme of the conference.

Ranjana Ray
Sarmistha De Basu
The Editors

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The Falsity of Boundaries, Cultural Continuities and Blurred Identities: Mapping the Connectivity of the Bengal Basin beyond its Geography and Imagined Location

Subhadra Mitra Channa

Abstract

The falsity of identifying certain geo-political demarcations as actual convergences of specific ethnic, social and cultural identities or as genetic pools has been demonstrated multiple times (Wouters and Heneisse 2023, Ramirez, 2014, Channa 2013). People have never been confined to the regions where they may be located at a specific time period and cultures have travelled through their human mediums across seas, mountains and deserts, intermingling and exchanging goods, ideas and influences. Each cultural region can only be located and captured in a moment of time, never across a temporal zone and these momentary captures are the photographic culmination of long histories and interactions that manifest as 'regional' only in that flash but otherwise they are a stream that has been flowing and continue to flow. The Bengal basin has been located within a stream of flow culture and human bodies across a vast region, linking it by trade, travel and ideological campaigns to the North, South, East and West. In my paper, I will specifically focus on the North-Eastward zone linking Bengal to Burma, via Assam, Meghalaya, Nagaland and Mizoram. This is a continuous zone especially through its mobile and diverse populations of indigenous people on the highlands bordering the various zones and just as the numerous waterways and major rivers of this region have made trade and population movement a continuous feature of the region, land routes through these mountain tracks have also linked the various zones, through trade, religious preachers and transfer of technology. From as early as the 13th century, horses from Mongolia were being traded in Bengal via Mynamar, when it was under Mongolian rule. Buddhist preachers known as *gosains* have traversed the hazardous Himalayan tracks to preach Buddhism in Tibet and peasants from Bengal, Hindus, Muslims and Santals; experts in plough cultivation have moved into upper Assam, Meghalaya and Tripura to do plough cultivation and clear the forests for settled agriculture as the local people there were only conversant with slash and burn cultivation. Mynamar, during the colonial period had a sizeable Bengali diaspora as Burma was part of British territory and seen almost as an extension of India. Bengali literature and family histories are replete with these connections. These flows of material goods, people, beliefs and technology deconstruct the artificial political entities of the various states whose identities too have

been constantly shifting with the changes in power regimes and transfer of populations. The Bengal basin is therefore best viewed as part of a larger landscape or more aptly a part of a larger flowing river of ways of life, languages, beliefs and patterns of culture whose outermost limits are always fuzzy.

Key words: *Boundaries, falsity, geopolitical identity*

Introduction

The falsity of identifying certain geo-political demarcations as actual convergences of specific ethnic, social and cultural identities or as genetic pools has been demonstrated multiple times (Wouters and Heneisse 2023, Ramirez, 2014, Channa 2013). People have never been confined to any location even if they may be located there at a specific time period. Cultures have travelled through their human mediums across seas, mountains and deserts, intermingling and exchanging goods, ideas and influences. The misconceptions created by European claims to have been the first to travel across the globe were set aside by Wolf (1982) in his monumental work, 'Europe and the People without History'. At present, there is enough archaeological and pre-historical evidences to show that humans have always travelled; if they had not, then we would have all been confined to the continent of Africa. Each cultural region can only be located and captured in a moment of time, never across a temporal zone and these momentary captures are the photographic culmination of long histories and interactions that manifest as 'regional' only in that flash but otherwise they are parts of a stream that has been flowing and continues to flow. What can be identified as a region is primarily in terms of its geography and ecology and not its cultural, political or ethnic identity. In that sense the use of the concept of Bengal Delta is appropriate as it refers to a geographical location and an ecology of which the cultural dimension has been changing over time and whose habitat exhibits the footprints of various shades of human populations and cultures that have both traversed it in transit or have settled down to intermingle and produce the present communities, which again are numerous in their differences and collective histories.

About a hundred years ago, Bishop F.B. Fisher of the Wesleyan Episcopal Church had written that Calcutta occupied a strategic position on the route taken by populations moving from the southern part of Asia, that is ' from the north-west to the south-east, from Persia, Mesopotamia, Afghanistan, the Punjab and Upper and Central India towards Bengal and Burma. Some of these lines of movement terminate with the coal and iron fields around Asansol; others end with the city of Calcutta itself, while others pass through Calcutta down into the wonderfully rich and fertile fields of Burma and the Malay Peninsula' (c.f. The Statesman 11th December, 2023:07). In this quote, the Bishop is trying to highlight the wisdom of Job Charnok in establishing a city in a pestilence swamp; a city that provided a key destination for many people, seeking trade and livelihood, especially those moving in from the

more arid regions in the north-west to the fertile regions around the Bengal Delta. The success of Charnok's settlement is seen in that by the year 1921, the population of Calcutta stood at 1,327, 547 (more than a million people). The Bengal basin, with its fertile agricultural potential, its rich resources as well as its strategic location between the seas and the mountains, has lured populations from many adjoining areas. It has also provided passage for a stream of culture and human bodies flowing in from a vast region, linking it by trade, travel and ideological campaigns to the North, South, East and West.

The major four major factors that one can identify, which motivated the flow of goods and people, both into and out of this region, were: trade, formation of new settlements, political upheavals and religion. However, as the following narrative will show, all these factors were intrinsically tied up with each other. Political usurpation was motivated by trade interests and people often settled in areas that were conducive to trade. As people moved from one region to another, they carried their gods and beliefs with them, often giving rise to syncretic traditions in the process. Movements have also been caused by war and famines but the prime motive for many centuries has been trade and the search for livelihoods.

The Ancient Period

Trade, livelihoods and the search for new horizons has been a motivating factor for land travel and sea voyages as seen from the ancient travel routes like the Silk Route, from the memoirs of travelers such as Marco Polo and Iban Batuta and the remains of those who went on foot across continents, even before the advent of the wheel, water travel and domestication of horses. Obscure graves, little shrines and faded resting points trace the foot prints of travelers, lonely or in groups who traversed long distances by whatever means that were at their disposal. What spirit of adventure drove those ancient humans, or what natural disaster, we may not know for certain, but what is surely known is the spread of human genetic material, physical substances like seeds and flora and fauna as well as cultural artifacts that is clear evidence of mobility. Neither political nor ecological barriers have ever stopped people from reaching out, to venture and seek out new territories. Bengal's strategic position between the sea-coast and the Himalayas has kept it open for movement through both land and water, and numerous movements have populated it from the very ancient times.

The Bengal delta is an ecological mix of different kinds of terrains, including mountains and highlands along with waterways, marshes and tropical rainforests. These different ecological zones specialize in certain key resources native to them, giving rise to exchange of these goods, like for example the Himalayan Salt trade through which the arid Tibetan plateau exchanged salt for essential food items like rice, oil and sugar of which there was a local scarcity (Channa 2013). Salt, wool, rice

and sugar are some examples of goods that passed through ancient trade routes that had existed for millennia and were part of the feudal and even tribal economies. Trade has always brought people in contact to intermingle, not as automatons but as cultured humans who exchange many intangible goods along with the objects they trade or barter with each other. Wouters and Heneise (2023:17) describe that in pre-colonial times, significant trade existed between highland North-East India and Burma, as substantial goods in the form of mineral wealth like gold, copper, limestone and jade and valuables like elephant tusks, silk, opium, and timber passed between Southern China and Bengal through the Burma corridor. From as early as the 13th century, horses from Mongolia were being traded in Bengal via Mynamar, when the latter was under Mongolian rule. Because of the market in Bengal for these horses, the Mongols ignored the Burmese market, preferring rather to trade at a longer distance. There is not much on record about those times, only the data available from history about the spread of the Mongolian Empire, their efficiency in trading in horses and the local interest in Bengal for those horses. What is certain is that goods and people have flowed across these regions, and various political strategies largely linked to the flow of these goods, have from time to time both created as well as dismantled political boundaries. However, both documental and ethnographic material shows that the cultural and social links have continued to to exist irrespective of the geo-political fractures.

The Colonial Period: Trade and Migrations

During the colonial period, the British transformed the face of every region they conquered and caused immense political upheavals because of their trade interests, such as that for pashmina wool and borax across the central Himalayas (Channa 2013) and for eastward trade to Tibet, Burma and beyond through the North-Eastern side of the Himalayan frontier. British capitalist aspirations across the Himalayan frontiers led them to annex territories, such as that of Sikkim, which they wrested from the Gurkhas and restored to the Chogyal in 1816 (Kotturan 1983:59), on the condition that the Chogyal will remain under British administration there by keeping open the trade corridor to Tibet, Western China and Inner Asia, through their territory. However, because of unrest from the Sikkimese side, British finally made it into an Indian state (Kotturan 1983: 63-67) and also annexed Kalimpong from Bhutan, to strengthen their control over the Tibetan corridor. The first tea plantations in this region were established in 1856 and further enhancement of trade from North Bengal was accomplished with the building of roads and railways. A road connected Darjeeling to the Grand Trunk Road in 1866 and a road was built from Darjeeling north to the Tibetan border at Jelap pass in 1877. A railroad connecting Calcutta to Darjeeling was completed in the year 1858. In this way North Bengal via Calcutta, was fully connected southwards to the Indian mainland and also northwards to Tibet through

the Northeast of India. The trade routes were therefore strengthened considerably during the colonial period but only to facilitate the movement of those materials that could feed into British capitalist interests. Not only goods but human bodies also traverse the corridors that were meant for trade, and for various reasons.

One category of people who are usually more mobile than the others are the ones on the margins both physically and politically, whose motivation to look for means of survival, pushes them a little further than what those who live within their comfort zones would attempt. The others are the ones who are less tied to power centers or who are more independent than subordinated, relying more on their own decisions than being dictated from above. These are also usually those who occupy regions that are on the peripheries of nations and states, far away from the seats of power and are both ungovernable and actually ungoverned. Scholars such as Michaud (2010) and Schengel (2020) have referred to these regions as Zomia, the ones which feel the least impact of power centers around them and which consequently get the least benefits also. Jean Muchaud (2010: 188) had drawn a map of Zomia in South Asia, imagining it as broadly stretching between the uplands of Pakistan and Afghanistan to the west and the central highlands of Vietnam in the East. We can imagine parts of the Bengal delta lying somewhere on this lines, contributing to the vitality of the whole. One such specific location in the Bengal region, is the Chittagong Hill Tracts (CHT) from where people have been moving out and in as a regular flow. During the medieval period, the CHT was a prosperous area of communities who did cotton cultivation and were the main suppliers of this essential commodity to the Mughal Empire. During British rule, many of them were transported to Burma as labour and later, when Burma and the Indian subcontinent were free of British rule and each of them became separate nations, the migrants from CHT, known now as Rohingyas were left with an ambiguous identity in their country of migration as they now became a Muslim minority in a predominantly Buddhist country. The story of their persecution is by now well known as also their reluctant acceptance back to their original country where they have now become migrants. Their region of origin has also undergone several political upheavals before settling down as Bangladesh, but the Rohingyas are left homeless although at the time they actually travelled, they were going from one part of an unified empire to another part. This story of becoming migrants without any actual movement has been dealt with extensively by scholars of borders and Van-Schendel is one who has paid close attention to the Indo-Bangladesh border, a border as we all know is an ambiguity.

While most people on these borderlands are more mobile than those living on the plains settlements, the tribal or indigenous people liable to be most mobile. The reasons can be seen in that they either have tenuous ties to the land being shifting cultivators, foragers or pastorals; or they often face oppression from the dominant communities. The settled cultivators and those closer to the centers

of power are less likely to be mobile. The Santals from Bengal and Bihar plateaus migrated to Assam in the North-East, Burma and the highlands of CHT, where they introduced wet rice cultivation to largely shifting cultivating people. The last named now refer to themselves are Pahariya Bengalis. In addition to the Santals, the Oraons and Mundas also travelled to Assam to do rice cultivation. In CHT, the local indigenous people, the Banthalees, Dangurs and Assamese welcomed them as rice cultivation was looked up to by them as a superior form of cultivation. The Santals had moved to other regions of Bengal also. Sarkar (2011:67) relates how the Santhals poured into the Malda district of West Bengal, from 1800 onwards and about 20,000 Santals had settled there till 1900. They were welcomed by the local landlords in what was known as the Barind tract, for their superior skills in rice farming. However it was here, due to the uneasy relationship between the landlords, and Hindu upper castes that the Jitu Santal rebellion occurred. Detailed account of which can be found in Sarkar (2011).

While CHT can be seen as a turbulent region for various reasons, Burma, lying east across the Bengal region has also been a hot seat of movements, especially as already mentioned, it was part of thriving trade routes between the East and the South West. After colonizing Bengal, the British, in their political attempts at control more territories and staging a counter attack on an aggressive Burma, entered into a conflict with it and the first Anglo-Burmese war (1824-1826), significantly impaired many of these trade routes, depleting mountain passages and depopulating the towns that were thriving on this trade. After losing the war, Burma became British territory and what we call North-East India was also controlled by the British Empire, leading to considerable loss of trade across the mountain ranges and the ancient links became weaker. Later with colonial rule providing safe passage, Burma became a destination for many people for different reasons. People belonging to higher class/castes, other than the indentured labour like the Rohingyas, also went from Bengal to Burma, like anthropologists Pandian's grandfather (Pandian 2014) who managed to set up a prosperous business in timber. While many went for trade, they went also as government servants and as a variety of professionals such as doctors and engineers. These expatriate Bengalis of those times are part of our family histories, as many of us, including myself have an uncle or someone who was in Burma and from where they were forced to return when the Japanese occupied Rangoon during the Second World War. Prosperous people had to leave everything behind and come away with nothing. Pandian has given an account of his grandfather's journey to Rangoon and then the awful trail back to India, by land and by bullock cart. In my family I was told about an elderly couple who boarded the last flight from Rangoon carrying nothing but the photograph of a dead son.

Memories, Landscapes and Lingering Traditions

The close ties that were enabled during the days of the British Empire were almost abruptly severed by the World War and then by the freedom from colonial rule that left the two countries as sovereign

states. Yet, Burma, remains enshrined in the Bengali imaginary in the form of literature, songs and residual cultural elements, not to forget the unforgettable character of Abhaya created by Sarat Chandra Chatterjee, in his Srikanto series. Abhaya depicts what seems the impossible for those times, a married woman who leaves her husband to elope with her lover. The story of Abhaya also brings home another aspect of travel, the crossing of cultural boundaries where the normative sphere becomes more lax, as one moves away from the core centers of conservatism. The expatriates in Burma developed certain cultural traits, notably greater freedom for women, than was possible in Bengal, in fact in all of India, in the early part of the last century. Irawati Karve, the female doyen of anthropology, was born and raised in Burma, named after the Irrawaddy river and received an education rare for a female child to receive in India of those times. Similarly the fictional Abhaya displays immense courage in challenging societal norms. A distantly related aunt in my family also managed to become a doctor because of her residence in Burma and was known for her liberal life style.

But Burma was not the only region for interaction, countries as far away as European ones, also came close to the soil of Bengal. The French, Portuguese and the British were three major European powers who landed in the Bay of Bengal through the sea route. These traders and travelers ultimately decided to take over the country, but even as they did so, there was a two way and not a one way exchange of people and culture. We, in Bengal are all too familiar with the narratives of this intermingling of different streams, in the persona of Antony Kabiyal, the egg benedicts and plum cakes that our palate has adopted, the coining of the term *paunrutie* (a distortion of pound *ruti* or bread sold by the pound), for bread, in the blouses and chemise and petticoats of women's attire and in a myriad of other aspects. But the colonizers were also not left unaffected, as they adopted the ayahs and the coolies, the sherbet, kebabs and curry. It is ironical that British cuisine is now known for curry more than it is known for the Christmas puddings.

Intangible goods like technology, language and religious beliefs travel faster and have been doing so for centuries. But these goods were not the only things exchanged, beliefs, language and deities also travelled along with the material goods. There is sufficient evidence in terms of incorporation of words from each of these languages in this area, Portuguese and French have both contributed to modern Bengali as it is spoken but it is the British who finally took near complete control and their influence upon this region is more profound than anywhere else in India. The exchange was mutual although lop sided and the British genetic and cultural material remain as components of present day Bengal and may be observed floating in England as well. As Trautmann has pointed out, the base of the statue of Sir Willam Jones in the St. Paul's cathedral in London depicts the Hindu myth of Samudra Manthan, the Kurma Avatar and Visnu and Lakshmi, and Jones is shown with a large replica of the book of Manu (Manusmriti)resting on his hand. This statue crafted by John Bacon was installed by

the East India Company (Trautmann 2004: 76-79) is another symbol of the cultural syncretism made possible by institutes such as the Asiatic Society of Bengal.

Missionaries and carriers of various gospels were another kind of travelers that have existed for a long time. As pointed out by Clifford Geertz, religion is a very strong motivational force by its very nature of being outside of the rational. Just the preaching of their beliefs, not necessarily for proselytizing, was strong enough motivation to push fakirs, mendicants and other holy men across the seas and mountains. In the Bengal Delta, people travelled not only along water routes by ferry and boats, they also undertook some hazardous travels across the mountains and highlands. The Gosains traders from Bengal took the gospel of Buddhism to Tibet via some perilous mountain routes (Camman 1951:59). Hindu holy men, fakirs travelled to the mountains across to Afghanistan and other places. Having travelled from India in the early 13th to 14th century, Buddhism returned to India in the early sixties along with the Dalai Lama. The Himalayan borders are today dotted with small monasteries and shrines built by the lamas who accompanied him. In a fairly remote village near Harsil, almost at the Indo-Tibet border in Uttarakhand, I found a tiny shrine bearing the inscription that its foundation was laid by H.H. the Dalai Lama himself in 1965. While travelling, these beliefs and rituals take on the colours of the local culture and the result is a kaleidoscope of various practices and thoughts that spread across a landscape.

The concept of landscape makes it evident that it does not imply any boundaries but rather a spread, not uniform but shaded and in the case of a geo-political territory the shading is in terms of what Tsing (2016: 5) refers to as 'vernacular histories, which ties them to the contingencies of encounters and the peculiarities of places'. The idea of clear boundaries, of demarcated borderlands is alien to most people who were not educated in the Renaissance philosophy of Cartesian duality. For most indigenous people, as pointed out by Karlsson (2000: 31) who writes with reference to the Rabhas, 'It was hard to say where one village started and ended, and it was equally difficult for ethnographers to map the borders of a "tribe"' Such ethnographic predicaments have been met by most honest ethnographers who have not taken given categories for granted (Channa 2013, Ramirez 2014) and others. Not only tribes but even peasants would not have had such clear cut boundaries in mind as they cultivated their lands or traded or moved in search of livelihoods. It was only with the parceling out of land in the form of zamindaris that such boundaries became important for revenue collection, as did individual land ownership.

The region encompassing the Bengal delta is one with its own vernacular history but one that shades off into other wider global histories, for example, the conquest of Burma in the 12th and 13th centuries by the Mongolian empire, is one example of how a historical event in part of the world affects the other, as Bengal became entangled with far off Mongolia, in the importing of horses via

Burma. The Bengal Famine of 1942 is another example of a War in Europe affecting the poor peasants in another part of the world, beautifully depicted by Satyajit Ray in his film Asani Sanket. The colonization of Bengal linked it to European history, parts of which became incorporated into its soil through Christianity, the English language and literature and various other cultural elements like food and clothing. Because of the relatively open border with Myanmar during the colonial period and even later through the ethnic and linguistic similarities with certain indigenous groups, a number of ethno-linguistic groups are spread across India, Myanmar and Bangladesh, for example the Rohingyas and various Naga and Kuki groups. A map showing the Greater Naga Lim, as imagined by the Naga liberation movement, shows part of Burma, Manipur and Assam also as Naga territory (Lurstep 1992), a territory the Nagas would like to claim as their own.

Expulsions and Suffering

It is not possible to construct a narrative about any region, without describing the points of conflict, the disturbances and tensions that are to be found everywhere. Every landscape has its turbulence and schisms. The Bengal region has had more than its share of political upheavals in the form of multiple cleavages in recent history; once during the Partition of the country and secondly during the formation of Bangladesh. However, the position of the indigenous people of this region has always remained precarious. With greater integration of this region with the centers of power and control by the external colonizers the worst sufferers have been the indigenous tribes. As pointed out by Archana Prasad (2004: 109), the spread of industrial capitalism during the colonial period that led to the linking of the local forests to global market, deprived the forest dwelling tribes of their centuries old habitations and means of livelihoods as more and more forests were brought under control of the central state and reserved for profit making by them. The conversion of nature into a resource deprived these nature-dwelling communities a big blow not only in material terms but also in terms of the denigration of their belief systems and nature centric cosmology as 'primitive'.

In his ethnographic study of the Rabhas of sub-Himalayan Bengal, Karlsson (2000) has described the systemic expulsion of the Rabhas from their forest from the colonial period to the present. The process began with the establishment of the Jaldapara Sanctuary in the 1930, for the protection of the one-horned rhinos, and later in the 1980s by the creation of the Bux Tiger Reserve for the Project Tiger. The Rabhas consider themselves to be the subjects of their Kocha Raja, who has been historically replaced by the Bhutanese, the British and presently by the Bengalis. British educated and market oriented populations such as the Bengalis, soon overran the indigenous people such as the Tripuris, the Rabhas, and others present in the forests and lands of the Bengal Delta.

A region is therefore not made up just of myths and stories and of its flora and fauna but it is also representative of a shifting power field, where the narratives of the dominant hold center stage and overshadow the stories of those pushed to the margins. The Bengal Delta, its history and its imaginaries are mostly seen and understood through the eyes and practices of the dominant groups. Smaller entities have got lost, their stories turned to ashes, such the Tripuri, Lodhas, Lepchas and Rabhas among others, the earliest residents of this region have been the first to have faded away, victims of what Nathan and Xaxa (2012) have referred to as 'adverse inclusion' a process by which disenfranchised people are reintegrated in marginal and degraded position. The indigenous people, after being ousted from their original habitats are reduced to being laborers in urban slums or as coal mine laborers. They are almost always allotted the most hazardous and menial jobs as a token of compensation for their loss. A landscape is therefore not necessarily composed of happy colours but is often shadowed by dark shades of exploitation and deprivation. To look towards a sustainable and just future it is important to pay attention to what Karlsson (2000: 141) has called as 'eco-politics' to understand that there is a story of domination and suffering behind all that is upheld as beautiful, necessary and in 'national interest'. These dominant/subordinate equations are not isolated or purely local, though they are manifested in their local and specific forms at particular moments of history, but are the local expressions of larger, global power fields, like that of the neo-liberal market economy or the global network of trade (both legal and illegal) and the global manifestations of white supremacy.

In Conclusion

This brief excursion into the history and population movements across this region is just to introduce the region, not as a physical space or even a geo-political entity but as a landscape, a scenario that is imbued with meaning introduced through human perception which in turn is informed by the memories, by shadows the culturally significant events that spread much outside of their specific location to remain embedded in the mosaic of real and imagined tapestries of belongingness and identity. Take for example the name Polashi (Plassey), maybe now just a small village in Bengal but which for the Bengalis and to some extent for all Indians, evoke the larger image of colonization, a defeat and a betrayal and the entire transformation of an era, where one defeat on the battle field meant the beginning of the end; the entry of the East India Company into Indian territory, not just as traders but as rulers. In the same way for different people with different memories, the landscape is a site for tracing one's past and also one's future. Space and time coalesce into each other, for without reference to temporality, space becomes emptied of its events, its processes and associated narratives.

The Bengal Delta therefore has no boundaries that are real, what we assume as a delimitation of any kind is only conceptual, a facility to enable discourses and analysis and nothing beyond that. Thus, in spite of the formation of post-colonial nation-state boundaries that seek to impose strict

control on any kind of movement across their borders, there persists even in the 21st century, 'a continuous mobility in the Bengal or Burma/Mynamar-Thailand borderlands' (Wouters and Heneise 2023:19). One has seen the cinematic expression of the border crossings between West and East Bengal (politically India and Bangladesh), in the films such as Bisarjan and Sankhchil. Therefore for a region to have an ethnographic existence, it needs only to show some degree of density in its local relational structures and collective imaginaries, the rest is left to the analyst to construct and present in a credible form.

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Geo-Archaeological approaches for understanding settlement history of Deltaic Bengal and its contact with neighbouring countries

Durga Basu

Abstract

This essay aims to delve into the geo-archaeological and historical background of the Gangetic Delta region. The Gangetic Delta is formed where the Ganges River empties into the Bay of Bengal. The lower Ganges system encompasses two primary channels: the Ganga Bhagirathi on the right and the Padma on the left. In its upper non-tidal stretch, the Ganges is known as the Bhagirathi, while the lower portion is called the Hooghly. The entire area near the mouth of the Gangetic Delta is crisscrossed by a network of tidal channels and distributaries of the major rivers. Epic tales mention the existence of five hundred rivers once flowing in the region where the Ganges converges with the sea. Even in 15th/16th century Bengali texts, the Ganges is revered as Satamukhi, meaning a hundred mouths.

The Bengal Basin, the world's largest delta, is shaped by the Ganga-Brahmaputra river system and encompasses significant portions of West Bengal and Bangladesh. Within the mid-basin zone of the West Bengal sector of the Bengal Basin, three distinct deltaic plains can be identified. The uppermost, mature deltaic plain, known as the DumDum surface, spans the districts of Murshidabad, Nadia, and North 24 Parganas. The intermediate deltaic plain occupies parts of Nadia, Burdwan, North and South 24 Parganas, Hooghly, Howrah, and Midnapur on both sides of the Hooghly estuary. This plain developed under an estuary-deltaic environment and has since been modified by fluvial and tidal processes, asobserved by R.N. Ghosh. The lowest-level deltaic plain, characterized by extensive mud flats, mangrove marshes, swamps, and creeks, forms atide-dominated, active tidal estuary delta. This portion of the deltaic plain is predominantly found in South 24 Parganas.

This study aims to shed light on the human settlements in the deltaic region of West Bengal through geo-archaeological explorations. Geo-archaeology plays a crucial role in understanding not only the landscape and environmental conditions but also in deciphering human behavioural patterns and activities within their evolving environmental context. This paper seeks to highlight some key settlement sites, their distinctive characteristics, and their interconnectedness with surrounding regions.

This essay aims to delve into the geo- archaeological and historical back ground of the Gangetic Delta region. The delta region of West Bengal has been considered as one of the core regions of

human settlement of ancient Bengal. The growth of extensive settlements in any region depends on its geo- physical character which not only offers a congenial environment for this development but it can provide the sustainability to the people and their culture for a longer period. So before we discuss the settlement history of deltaic region in its geo- archaeological perspectives, it is pertinent to explain first what is Geo- archaeology and its significance and then the geological and physical conditions of Delta region of west Bengal. Only after this discussion we will put the archaeological situation of the deltaic West Bengal in a proper framework.

Key words: *Geo- archaeology, Deltaic region, Mature delta, Active delta, archaeological sites.*

Geo- Archaeology

Geo- Archaeology is a major discipline which shows involvement of two specific scientific disciplines – Geology & Archaeology. A very simple definition is that, it is the application of Geological techniques to answer the archaeological question. Geo- Archaeology is a multidisciplinary approach which involves subject matter of Geography, Geology, Geo- physics and other Earth Sciences to examine the archaeological data and thought. This discipline embraces the study of soil, sediments and geographical factors to contribute an Archaeological study. It can study the natural physical processes that effect archaeological sites such as geo-morphology. It is also known as the subfield of environmental Archaeology.

Geo- Archaeology intends to trace the human interactions with the geo-sphere dating back to ancient times. Geo-archaeological investigations provide the key to recognizing landscape and environmental change within a region as well as reconstructing ancient landscape and palaeo- climatic aspects. It studies human behaviour in its dynamic environmental context. This Geo-archaeological approach allows us to determine the effects of environmental change on human societies. From the primitive time men exploited and extracted and overused the natural resources. From geo-archaeological perspective it is now established that human life and human behavioural pattern are regulated by the nature. Geo- archaeology plays a crucial role in understanding not only the landscape and environmental conditions but also in deciphering human nature, behavior and activities within their evolving environmental context. With this back drop we will try to focus the geo-morphological environment of the delta region of West Bengal and after that archaeological situation will be discussed.

The Delta:

The Ganga River system in the lower stretches has two major channels,- the right hand flow is known as the Ganga- Bhagirathi and the left one is called the Padma. The Bengal Basin, World's largest delta formed by the Ganga- Brahmaputra River system, covers major parts of West Bengal and Bangladesh. In its upper non tidal stretch of Ganges, it is known as Bhagirathi where as the lower portion is called Hooghly.



Plate-1-Delta

The Gangetic Delta is formed where the river Ganges empties into the Bay of Bengal. Several scholars have discussed the formation of the Gangetic Delta. Thomas Oldham in the *Proceeding of the Asiatic Society Bengal,* in 1870, mentioned that the whole region including the Sundarban proper, lying between the River Hooghly on the west and Megna River on the east has been marked as Delta, caused by the deposition of the debris carried by the rivers Ganges and Bramhaputra and their tributaries (Oldham. 1870). Another interesting view had been given by C.S Fox in his article "Physical Geography for Indian Students". According to him the deltaic portion begins a little below the Rajmahal and close to the ancient town of Gaur**.** (Fox, 1938) The entire region near the mouth of the Gangetic Delta is crisscrossed by a network of tidal channels and distributaries of the major rivers. The Mahabharata tells the existence of five hundred rivers once flowing in the region where the Ganges converges with the sea.

The entire deltaic region has been divided into three major portions, depending on the state of maturity of the delta. These are Moribund Delta, Mature Delta and Active delta. (Ghosh and Majumdar 1991). The river condition is mainly responsible for the formation of these three deltaic units. The Moribund delta is characterized the dead rivers. Generally, the dead rivers lost their connections with the main

river flows. Here the active land formation is ceased and siltation does not happen anymore. In the second division i.e. in Mature delta area, siltation is ceased but the function of active land formation is maintained. The active deltaic division is endowed by active rivers and the land formation is still continued.

Geo-physical character – In the mid Basin zone of West Bengal sector, there are three distinct fluvial and forms which is characterized by typical estuary- deltaic environment with tidal aggradations (Ghosh & Majumder, 1991). The Moribund delta or the upper matured delta which is also known as the DumDum surface, has showed a compressed meander belt. The meander shift with onshore tidal mudflats has formed this deltaic plain. The Moribund delta plain covers mainly the districts of Murshidabad, Nadia and North 24 Parganas. The next deltaic plain is the Intermediate-level plain which is also known as mature deltaic plain. Generally it is said that under estuary deltaic environment this plain is formed and later onit is changed by fluvial and tidal processes. This portion includes the districts like parts of Nadia, North 24 Parganas South 24parganas Hooghly, Howrah and Midnapur. This area has different geomorphic aspects. It shows meander channels, palaeo- meander scars, tidal mud flats, creeks, marshes and swamps. The lowest level Active delta plain is characterized by extensive mud flats, mangrove marshes swamps, creeks which forms a tide dominated active tidal estuary delta. The rivers are broad meandering in character with low sinuosity. This plain mainly covers the district of south 24 Parganas.

These three distinct deltaic regions are richly covered with ancient settlements which have been identified by extensive archaeological investigations. The whole deltaic region has studded with many potential archaeological sites, the antiquities of which go back to the Christian era. Most of the key settlements of Delta show the urban character in their material culture; sometimes these sites have a chalcolithic village base. The growth of urban life depends on several aspects. The most important aspect is its trade and commercial activities which require suitable navigation system. The deltaic region provided these facilities for a rapid historical growth. The low lying marshy land, swamp with meandering of river channels of deltaic region became a core area of early historic settlements due to its suitable geo- physical environment.

In this present article, two early historic key sites namely Chandraketugarh in north 24 Parganas, now belonging to the Moribund delta area , but in ancient time it was associated with the active delta region and Tamluk, the ancient port town Tamralipta, located in Midnapur district, belongs to the Mature Delta land area will be discussed. In active delta region another early medieval site kankandighi in south 24parganas will be taken into consideration for unveiling the settlement history of the Deltaic region of West Bengal.

Archaeological Approaches – Numerous habitation sites have been found in Deltaic West Bengal. It is now evident from the archaeological data that there are both larger and smaller settlements in the Mature and Active delta basins. Larger settlements, considering as cities were surrounded by the smaller settlement areas which might be the ancillary towns. These ancillary towns are the secondary settlement areas that support the primary function of a city. In this study the characteristics of both early historic and Early Medieval settlements will be analyzed in the perspectives of local geo- physical aspects.

Chandraketugarh – The site of Chandraketugarh is located on the bank of the dried up river Vidyadhari, a tributary of Bhagirathi River in north 24 Parganas. The river Vidyadhari has shifted long ago from the vicinity of the site. Now a number of palaeo- channels have been noticed here. The site falls within the Moribund delta region. The fortified city of Chandraketugarh is encompassed by the archaeologically potential villages like Berachampa, Deulia, Deganga, Jhikra, Shanpukur, Mathbari, Hadipur, Gazitala, and others. The site has two distinct areas – one is the Garh area with fortification wall and another is the temple area.



Plate-2 Garh Area

This ancient site was visited by several archaeologists like A. L. Longhurst (Longhurst, *ASI-AR-1922-23*), R. D. Banerji (Banerji, 1911), K. N. Dikshit and others. K. G. Goswami first visited the site in 1949. He made two trial diggings at two different places. One digging was undertaken on the eastern rampart wall within the city area and another trial trench was dug out at Khana Mihirer Dhipi, the temple site area (Goswami, 1966). In ancient time the city was within the easy reach of river Vidyadhari which was navigable at that time and had a direct connection with the Bhagitathi River. From the trial diggings some of the very interesting antiquities came out, which inspired K. G. Goswami to undertake an elaborate excavation programme later on. From the trial diggings an underground pottery drain of about third century BCE was unearthed at eastern rampart wall. A number of potteries like NBP, red ware and a good number of black polished cups were recovered.

The systematic excavation works were undertaken by Asutosh Museum of Indian Art, under the supervision of Late K.G. Goswami and later on, by C. R. Ray Chaudhuri under the guidance of D. P. Ghosh. The excavations were carried out from 1956-1957 to 1966-67, revealing a continuous occupation from third century BCE i.e. Mauryan period to Pala period. Five different places were chosen for excavation by the excavator. These are Berachampa, Khana Mihirer Dhipi, It khola paddy field, Noongola and Hadipur. It is reported that in early occupational levels of Chandraketugarh, people lived in the *Kacha* houses and brick built structures were started emerging only from Gupta period. Pottery assemblages have revealed different types of potteries in different levels. Six occupational levels have been identified. Period –I has revealed a kind of red ware in pre Mauryan phase. Some ivory beads have also been recovered. Period II, according to the excavator belongs to the Mauryan / Sunga time. Most notable objects found from this level are the NBP wares in various shades along with black slipped ware and polished and unpolished grey ware. A few shards of NBP have beautiful polish and exquisitely designed A few pieces of coarse NBPware and beak like spout have also found in the assemblage. Other antiquities include terracotta objects, semi precious stones, terracotta. figurines, antimony copper rods, coins and others. From the antiquities of Period- II occupational level it is now clear that the city reached a prosperous socio- and economic stage. Period- III is marked as the late Sunga period which has produced stamped red wares, terracotta figurines copper cast coins and steatite casket. Period –IV belongs to the Kushana period which has revealed some very interesting findings like roulette wares, terracotta figurines and plaques. Period- Vhas been identified as Gupta occupational level. In this phase burnt bricks were introduced for building purpose (Chakrabarti.1989).

Other antiquities include grey and black wares with stamped designs. The most fascinating thing of the site of Chandraketugarh is its terracotta assemblages which include some remarkable figurines and plaques. These plaques depict social scenes, domestic scenes epic and mythological stories. Some images have showed divine aspects.



Plate-3 Terracotta plaque



Plate-4 image of Kubera



Plate -5 Yakshi Image

The Chandraketugarh temple site has a magnificent brick building at Khana-Mihirerdhipi. It is identified as a temple complex, featuring a vestibule connected to the main temple and 4.26-meter-long projections on three sides. The sacred complex, consisting of a large brick temple and other shrines started emerging as prominent structures of the settlement in Gupta phase (Chattopadhyaya, 1993-1994). The excavator claimed that this temple is quite old, dating back to the Gupta dynasty. However, based on its structural features, S. K. Saraswati assigned it to the Pala period (Saraswati, 1976) Considering this time period it can be presumed that urban life at this region was in full swing also during Pala period.



Plate-6 Temple complex, Khanamihirerdhipi

Tamluk-Ancient Tamralipta —Widely known to the classical writers of early Christian era and to the Chinese pilgrims, Tamralipta, an active port on the mouth of the Ganges in West Bengal had a great role to play for the development of urban settlements, cultural heritage, and maritime activities in the coastal areas. Its relation with the Indian Ocean trade during early historic period is distinctly reported in the classical sources. Periplus of the Erythrean Sea mentioned the Port as a point of embarkation for overseas trade and travel. From the indigenous accounts it is also known that an unprecedented growth of the maritime activities took place at Tamralipta in early historic period. In about middle of the second century, Ptolemy referred to the port as Tamalites which stood actually on the river Ganges.

Ancient Tamralipta, as has been identified with modern town of Tamluk in Purba-Medinipur, lies on the western bank of the river Rupnarayan which meets the river Hooghli at Geokhali. The river has a length of sixty km while the estuarine portion of the river has a length of thirty km. The river Rupnarayan was known by different names in different phases of time. To the eighteenth century European geographers, Rupnarayan was known as Ganga. In Bowrey' map it was called as Tamalee. The seventeenth century Valentyne's map refers to the Rupnarayan as Patraghata and finally in Renell's

map it was mentioned as Rupnarayan. Hiuen Tsang referred to the land as a low lying country, situated on the sea coast which formed a bay, with a wet soil and hot climate. The Rupnarayan estuary is a sub-system of Hooghli estuarine complex. It occupies a sand silt clay dominated morpho - stratigraphic unit which is known as Panshkura formation.

The ancient Tamralipta still survives in the toponym, Tamluk which happens to be one of the sub-divisional headquarters of the sprawling district of Medinipur. The present day Tamluk with adjacent villages still bear the archaeological and historical edifices. A port which regulated the sea going vessels for distant countries for at least a millennium became one of the important cultural hubs of ancient Bengal. The archaeo- historical importance of this region has been established through the large scale discoveries of antiquities in and around Tamluk and its neighbouring areas. Within the periphery of ancient port city of Tamralipta, there are a number of archaeological sites which have revealed antiquities from third century BCE to the medieval period. Almost twenty eight archaeological sites have been reported, which have clustered around the modern town of Tamluk. All these sites are located on three major rivers of the region namely Rupnarayan, Hooghly and Haldi. The sites like Natsal, Amritberia, Nat- Patia, Ragunathbari are archaeologically very important. The sites of Tilda and Panna though located at some distance belong to the same culture complex. In the vicinity of the port city, the sites of Maynagarh and Mahishadal are also very important for their cultural heritage. According to Hunter, Tamluk figures as a kingdom of great antiquity and culture. Systematic excavation at Tamluk had been undertaken though in small scale during 1954-55 by M.N. Deshpande and 1974-75 by Archaeological Survey of India. The excavation of 1954-55 have revealed four successive occupational periods. Deshpande reported region's association with Neolithic Culture. The Tamralipta Museum and Research Centre explored around the excavated site of Tamluk and collected a large number of antiquities which include polished Neolithic bar celts , microliths, bone points, awls, harpoons, copper and bronze rings, bangles, fish hooks. The region has revealed both Neolithic and the Chalcolithic cultural assemblages

The antiquarian remains of the port city during this time show a great variety of terracotta figurines, cast copper coins N.B.P. potteries, rouletted wares amphoras, carnelian intaglio, inscribed pots, beads of semi precious stones, seals, sealings and a number of Buddha heads and other minor antiquities. Some of the archaeological objects show foreign influence thus indicating region's contact with foreign land. The port city has also revealed number stone sculptures of Pala- Sena Period.



Plate- 7 Pottery from Tamluk

Tilda, located in east Medinipur district belongs to the cultural zone of ancient Tamralipta port. (IAR 1954-55:23) A trial digging was conducted by the Asutosh Museum of the University of Calcutta under the direction of K.G. Goswami in the village of Tilda. The digging has resulted in the exposure of two phases of structural activities dated to the Gupta and Post Gupta periods Apart from a single shard of NBPW, quite a few terracotta specimens of early mediaeval affinity have been recovered.

NATSAL- Two trial trenches (2x2) m were taken up at Natsal in the district of East Medinipur by the State Directorate of Archaeology and Museums, Government of West Bengal under the supervision of Amal Roy in 1997-98 and 1998-99. The digging has yielded shards of BSW and associated wares along with some fragmented early historic terracotta figures. Subsequently, S.N. Rajaguru and Kaushik Gangopadhyay studied an 'exposed section cutting' at the site in 2003 and divided a deposit of more than 1.75m into three 'units' that yielded 'non-transported early historic' pottery. Panna is another archaeological site in the vicinity of ancient Tamralipta.

After analyzing the archaeological situations of two early historic key sites of deltaic region, now the discussion proposes to analyze an early medieval site in the Active delta region. This site can give us an idea of the characteristics of the material culture of early medieval people in Active delta. From the very beginning of the early historic period, the settlements that had developed in and around the Active delta part of West Bengal, have showed the evidences of a rich material culture,

indicating the growth of a well-established urban life. It is archaeologically proved that from the 3rd/ 2nd century BCE to 11th/12th century there is both a qualitative and quantitative improvement in the material culture of Deltaic Bengal.

The discussion currently suggests examining an early mediaeval site in the Active Delta region after examining the archaeological conditions of two early historic major sites in the deltaic region. We can get an idea of the features of the early mediaeval people's material culture in the Active Delta from the key site- Kankan dighi. The communities that sprung up in and around West Bengal's Active Delta region have demonstrated signs of a rich material culture since the early historic period, which suggests the development of a well-established urban life. Archaeological evidence indicates that Deltaic Bengal's material culture improved both qualitatively and quantitatively between the third and second centuries BCE and the eleventh and twelfth centuries.

Kankandighi- Very recently an early medieval site has been discovered in the village of Kankandighi in the district of south 24 Parganas in coastal region. The district of south 24 Parganas lies at the tail end of the Ganges flowing as Hooghly. This area is a part of the active delta region where river Hooghly along with a number of distributaries meets the Bay of Bengal. The district reveals hardly any well-defined stage of its evolution. It represents a typical deltaic strip with a flat terrain. South 24 Parganas can be considered as the district of islands interspersed with many rivers, innumerable distributaries and tidal creeks. The land marks lowest level deltaic plain with marshes, mud flats, swamps, creeks representing a very active tidal estuarine delta. The southern part of the district which is popularly known as Sundarbans, shows its uniqueness through the rich mangrove forest and numerous islands created by sedimentation and deposition of silts on the lands which were once the parts of river beds.

The village of Kankandighi lies at a distance of about 12 kilometers south west of Mathurapur railway station (on the south suburban section of Sealdah- Lakhmikantapur branch line). The site of Kankandighi was reported for the first time by late Kalidas Dutta who in his article 'The Antiquities of Khari' in Annual Report of Varendra Research Society, 1928-29 mentioned the importance of the site.

Endowed with the flows of the Mani River, the region of Kankandighi was once covered with dense forest and it was an inaccessible land during the British period. But in due course this forested land became a well-connected and habitable region. The village of Kankandighi is mainly divided into two major parts viz. Uttar Kankandighi and Dakshin Kankandighi. From archaeological point of view Uttar Kankandighi is more important than Dakshin Kankandighi. Mounds in the northern part

of Kankandighi are rolling and these are locally known as *Danga.* A number of mounds have been noticed in this area of which Pilkhana, Mathbari and Kacharidanga are archaeologically important. Among these mounds, Pilkhana in Mondalpara has revealed a structural mound which was excavated by the Department of Archaeology, Calcutta University during2013-214.



Plate- 8. Pilkhana mound, Kankandighi

The basic aim of this excavation was to expose the structural remains and thus the trenchs were laid out in horizontal method. Excavation was undertaken in nine trenches of 6x6 m. each. In each quadrant, structures were exposed except B_1 and ZA_1. The trenches at Pilkhana mound were excavated either partially or fully to different depths. These trenches are A_1, B_1, C_1, D_1, XA_1, YA_1, ZA_1, XB_1, YB_1. Among these trenches XA_1 was taken as index trench. In trench A_1 structure is represented by a north south oriented wall with a rammed floor. In trenches $C_1$and D_1 a square platform with four courses of brick alignment has been unearthed. The structure was built over a mud filling. The brick platform is 4.75m x 4.75m square in measurement with 4cm. projection at each side. The total height of the structure is 80cm. The trench XA_1 was excavated up to a depth of 4.29m. and it has revealed a massive north south oriented wall of 5.01m. in length. The excavation was carried out up to a maximum depth

of 4.29m without reaching the natural soil. The wall has exposed thirty courses of brick alignment in the present digging. It was made of burnt bricks (26x18x6cm). The large size of wall indicates a plinth of a super structure. The next important structure came up in trenchYA_1 where a number of small cells were unearthed. Some of these structures were made with reused bricks.



Fig. 9 Squre platform

Ceramics obtained during the excavation are dominated by red ware followed by black ware, grey ware, black and red ware and buff ware. A number of *handis,* bowls and dishes in various shapes and sizes have been found. These potteries have revealed different impressed designs, like basket impression, cord impression and floral motifs etc. Potteries found in this site range from very fine quality to coarse variety. A large in situ storage jar has been excavated in trench XA_1. Inside the jar, a number of ornamented brick fragments, broken lamps and lower part of one fragmented sculpture and terracotta image of Jambala have been found.

Conclusion- Using geo-archaeological methods, an effort has been made to comprehend the history of habitation in the deltaic region. The deltaic region is one of the primary locations for ancient

human habitation, according to archaeological research. Its deep alluvial cover and river plains provide an appropriate physiographical unit that aided in the development of concentrated settlements. Beginning in the second or first century BCE, the formation of cities was aided by large waterways and geophysical features. The Deltaic region was the core of early historic and early mediaeval settlements, as evidenced by the discoveries of abundance of archaeological materials.

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The Bay of Bengal in Indo-Pacific Geopolitics

Souradeep Sen

Abstract

The resurgence of state-centric geopolitics challenges optimistic narratives surrounding the fifth wave of globalisation, refuting thereby, the expectation of a geo-centric global politics that pivots on free markets and open lines of communication sans the costs. In this era of strategic turbulence, nations prioritise rational planning to safeguard their interests that often paradoxically snowball into the weaponisation of the once-glorified ways of economic interdependence: interaction, connectivity and access. This is particularly evident in the maritime domain. The Indo-Pacific, surpassing the Atlantic in strategic importance, has become the focal point for global geostrategic competition, with the Bay of Bengal playing a crucial role therein. This analysis explores the geopolitical significance of the Bay in the context of the contemporary maritime power competition in the Indo-Pacific, emphasising in the process, China's rise and the associated threat perceptions of South and East Asian countries. Additionally, it delves into the strategies of 'congagement' practiced by India and its regional and global partners towards China, thereby assessing the efficacy of such approaches in alignment with India's broader foreign policy goals in the Indo-Pacific.

Keywords: *Bay of Bengal; China; East Asia; Geopolitics; India's Maritime Strategy; Indo-Pacific; South Asia*

Introduction

In so far as India's national security, the geostrategic significance of the Bay of Bengal has been a fact recognised even before the country gained independence. Since the Second World War, it was argued that in the conceivable future, with waning British control over the Indian Ocean, the entire defence of the Arabian Sea and the Bay of Bengal will fall on India; not least, India's possession of strategic bases in the Andaman and Nicobar Islands shall convert the Bay of Bengal into a secure area (Panikkar 1951:96). Whereas, geopolitically minded thinkers of today identify that with the gradual transformation of narratives, the Bay has emerged as a critical arena of strategic competition not only for India and other littoral states, but also the extra-regional powers having stakes within the larger Indo-Pacific region (Majumdar 2023). To fathom the geostrategic and tactical utility of the Bay of Bengal, it is therefore, essential to identify the evolving geopolitical trends appertaining to the Indo-Pacific in

general and the Bay in particular. Such trends emanate from the dialectic of a post-historical, *global* politics with an imagery that is cardinally sensitive to historical power struggle and zero-sum competition.

This paper aims to present four arguments across dedicated sections. The initial section examines the origins and attributes of a post-historical, geocentric global politics, focusing on the ramifications of optimistic narratives concerning economic interdependence within the global maritime sphere. It subsequently evaluates the influence of the contemporary 'return of geopolitics' on such optimistic portrayals, contending that amidst strategic tumult, the prioritisation of rational planning often paradoxically transforms erstwhile celebrated mechanisms of economic interdependence into tools of geopolitical contention, notably within maritime domains. The second section elaborates on the understanding that while the maritime realm is geopolitically unified, the world's oceans concurrently exhibit both interconnected and segmented characteristics. With the eastward tilt of geo-economics, the Indo-Pacific region has supplanted the Atlantic as the foremost economic corridor, assuming prominence as the primary arena for global strategic competition. Emphasising the strategic centrality of the Bay of Bengal within the Indian conceptualisation of the Indo-Pacific and broader East Asian access, this section underscores its pivotal role in contemporary geopolitics. Subsequently, the third section assesses the implications of global geopolitical transformations, including perpetual crises, on the Bay of Bengal. It examines the functionality of the Bay as a geostrategic theatre within the context of on-going maritime power competitions in the Indo-Pacific, highlighting the ascent of China and attendant security concerns among South and East Asian nations. Finally, the concluding section delineates strategic scenarios pertinent to the Bay and elucidates strategic choices confronting India and its allies to safeguard against undue Chinese encroachments therein. It evaluates the efficacy of India's current strategy of 'congaging' China within the broader framework of its Indo-Pacific foreign policy objectives, ultimately advocating for measures that may enhance the future viability of congagement.

The end and the return of geopolitics: implications on the maritime

Following the end of the Cold War, the prevailing notion suggested the 'end of history', marked by the global triumph of liberalism over collectivist ideologies. The West, purportedly victorious, propagated liberalism and capitalism worldwide through the narrative of globalisation. The epistemological shifts in international relations scholarship also underscored a concomitant transition from state-centric to geocentric perspectives, epitomised by the substitution of 'global politics' for 'international politics'. The impact of globalisation unhinged international politics from territorial moorings, thereby re-establishing the significance of maritime dynamics, including freedom of

navigation, secure sea lines, and maritime connectivity in fostering economic interdependence. This transformation reflected a departure from ideological and geopolitical struggles towards concerns of global governance, such as trade liberalisation, nuclear non-proliferation, human rights, and climate change (Mead 2014:69). Consequently, the conceptualisation of global politics signified not only the end of ideological and geopolitical tensions, but also a renewed emphasis on maritime interactions as pivotal in the fifth wave of globalisation.

The initial challenge to the liberal paradigm arose from the 'revenge of the revisionist states', namely, Russia, Iran, and China (Mead 2014) and subsequently from within liberal factions attempting to counter systemic adversaries. Despite the global challenges posed by the pandemic, traditional security concerns have persistently tested conflict management agencies worldwide. The resurgence of geopolitics has been a global phenomenon: evident in North Korea and Iran's nuclear pursuits, the crisis in the Indo-Pacific, China's 'war by other means' against the US and the liberal international order, and Russia's invasion of Ukraine. Simultaneously, the US has sought to mitigate the destabilising influence of revisionist states through strategic interventions by employing a blend of geoeconomics, counter-proliferation efforts, and alliances with liberal democracies beyond Eurasia. Paradoxically, these measures have exacerbated global crises, instead of fostering conflict resolution. China, Russia, and Iran have perpetuated their concurrence on American power being the primary obstacle to their objectives, and have strived to reshape the present; US led global order, even at the cost of competing with states supportive of the liberal international order.

The effects of the return of geopolitics and the attendant strategic turbulence have been felt across the global maritime. The oceans, considered free, open and accessible in liberal narratives, have been securitised and militarised. With nations prioritising rational planning to safeguard their interests there has been the resultant weaponisation of globalisation's hallowed ways and means. These trends have become stark in the Indian Ocean, which carries roughly 75% of the world's maritime trade and 50% of daily global oil consumption.

The Indian Ocean's militarisation is globally significant due to its strategic trade routes. Although it began in 2007 to counter maritime piracy, militarisation has evolved into a semi-permanent geopolitical presence of regional and extra-regional powers, viz., the Chinese establishment in Gwadar, Djibouti and the Horn of Africa, the INFRUS agreement among India, France and the US to counter Chinese presence, not least, India, Afghanistan and Iran's participation in the Chabahar Port Development Project (Rana 2023). Chinese and Indian SSBNs have also nuclearized the Indian Ocean. For countering Chinese influence, the US has been expanding its naval presence, thereby potentially triggering alliances and tensions. Trends portend that the region's militarisation is expected to advance and take more complex forms. The major powers are likely to increase their naval presence and

control strategic bases to protect maritime interests and secure key SLOCs. Not least, establish listening posts for maritime reconnaissance, and deploy unmanned systems and cyber capabilities to be in an advantageous position in future resource wars.

Corollary to militarisation of the oceanic space, there has been the weaponisation of supply chains, chokepoints and even multilateral initiatives. With economic factors driving geopolitical competition today, China has emerged as the world's leading practitioner of geoeconomics. Nations that have become dependent upon Chinese exports and markets have become particularly vulnerable when their geopolitical interests collide. In such cases, China follows the tactic of blocking exports and delaying imports. Notable cases include the abrupt cessation of Chinese export of rare metals to Japan; blocking salmon purchases from Norway; and even banana shipments from the Philippines (Allison 2018:20-21).

Further, as the 'Ever Given' episode has adduced, the busiest maritime trade routes are most vulnerable at their chokepoints. This vulnerability might manifest in future not only in the Suez, but also the adjacent Bab al-Mandeb Strait, where Djibouti hosts a formidable Chinese presence as well as the Malacca Strait, the Bosporus Strait, and the Strait of Hormuz. With the return of geopolitics, "it is becoming ever more likely that states will weaponise these choke-points to coerce others into certain forms of behaviour" (Medunic 2021). Moreover, as regards multilateralism, Beijing's Maritime Silk Road (MSR) projects have been developing ports in the Indo-Pacific with civilian-military dual-use functionality. These 'strategic strongpoints' are equipped to help the People's Liberation Army-Navy (PLA-N) "secure critical maritime chokepoints, safeguard SLOCs, and expand the range of support that can be provided to Chinese citizens and PLA forces operating abroad" (Russel & Berger 2020:23).

Recent reports also suggest that Beijing's global maritime operations double as intelligence-gathering outposts. With the use of "China's logistical software system, LOGINK, to track a wide range of trade, market, and maritime information, including vessel and cargo status, customs information, billing and payment data, geolocation data," Beijing's systematic information gathering activities could help it identify "critical Western trade and supply chain vulnerabilities, as well as track the shipping of military supplies, equipment, and components" (Dezenski & Rader 2023).

The West, Japan and India have variously responded to the MSR through bolstering the narrative of the Free and Open Indo-Pacific (FOIP) and by reviving the Quadrilateral Security Dialogue (QUAD). Through the Indo-Pacific Economic Forum (IPEF) and the Blue Dot Network, the US has envisaged an alternative economic and developmental framework to the Belt and Road Initiative (BRI) in the region; while, India and Southeast Asian states have re-invigorated the BIMSTEC towards similar

ends (Lintner 2021). Moreover, to provide better security against Chinese coercion there has been the formation of the AUKUS pact.

These developments, however, have not necessarily enunciated a coherent policy for the Indo-Pacific. Neither could a fragmented approach by the supporters of the liberal *status quo* successfully counter Chinese influence therein. Instead, the dialectic of the MSR with the FOIP has only cemented the maritime security dilemma as the lasting bequest of the return of geopolitics upon the Indo-Pacific region. This statement needs unpacking to evaluate the impact of the dilemma upon the Indo-Pacific in general and the Bay of Bengal in particular.

Locating the Bay of Bengal within the Indo-Pacific

Although the maritime is one, particularly as a geopolitical entity, the world's oceans are at once connected and separate. The maritime geopolitical realm, comprising of the world's oceans are considered as a part of the global commons. The Indian Ocean, as a case in point, is one of the world's most shared water resources. Being rich in natural resources, it bears the potential for a thriving blue economy. As the Indian Ocean was becoming a hub for economic exploration and relentless global commercial activity during the past decade, two geopolitically significant developments have occurred: first, the conflation of the eastern reaches of the Indian Ocean with western Pacific Ocean through the Southeast Asian littoral states, thereafter encapsulated as the 'Indo-Pacific'; and, consequent to the narrative, the region has witnessed an increase in great power competition and regional geopolitical rivalry. For one analyst,

> [T]he Indo-Pacific region has six nuclear weapon states—the United States, Russia, China, India, Pakistan, North Korea; five chokepoints—Suez, Hormuz, Malacca, Lumbok, Sunda; four major players—India, U.S., China, Japan; three rogue, pariah, failed, or seriously troubled countries—North Korea, Iran, Pakistan; five disputed land and maritime borders—India-China, India-Pakistan (in Kashmir), China-ASEAN states in the South China Sea, China-Japan over the Senkaku/Diaoyu Islands, and the post-Second World War-related Russia-Japan tussle over the Kurile Islands; two hotly contested stretches of water—the South China Sea and the Senkaku Islands… and innumerable sources of sub-regional terrorist action…(Karnad 2015:89).

The Indo-Pacific is, in effect, "a new mental map that transcends some of the mental divisions between the 'Asia-Pacific' and the 'Indian Ocean' regions. The concept reflects the growing economic and strategic interdependence of states right along the Asian littoral between the Korean peninsula and the Persian Gulf" (Brewster 2020). India adopted the Indo-Pacific outlook after the expansion of its economic and strategic interests in the Asia-Pacific—as reflected in its Look East/Act East Policy.

India's stakes in the security of East and South Asia have also augmented for the not-so-peaceful rise and consequent revanchism of China. By 2000, India was clear that its 'legitimate areas of interest' stretched from the Strait of Hormuz to the Strait of Malacca. In 2004, the Indian Naval Doctrine endorsed this point and strategized on the future course of naval expansionism (Majumdar 2018:76).

Since China's rise, it has inculcated imperial/classical geopolitical doctrines within its foreign policy, and has been expanding its tentacles through the MSR towards the South China Sea, the Gulf of Thailand, the Andaman Sea, and the Bay of Bengal. The expansion of the MSR close to its territorial waters in the Bay has put India on a collision course with China. Consequently, India's Indo-Pacific Vision (2018) has expanded the ambit of the geopolitical space from the shores of Africa to that of the Americas—conceptualising it a free, open, and rules-based region that embraces all in common pursuit of freedom, progress and prosperity (Ministry of Defence, Government of India Press Release 2022).

Prior to the geopolitical formation of the Indo-Pacific, the conceptual division of the Bay of Bengal had led to the creation of the 'Asia-Pacific' narrative. It also helped in establishing the Asia-Pacific Economic Cooperation (APEC), *sans* the participation of India, Bangladesh and Sri Lanka. With the new mental map of the Indo-Pacific, however, the conceptual bifurcation of the Bay has ended. Since 2013, the Bay has been propelled from the periphery of Southeast Asia to close to the centre of the broader Indo-Pacific region. Concomitantly, the Bay has emerged as a coherent geopolitical region for a multiplicity of reasons encompassing its geographical attributes.

The Bay of Bengal not only physically connects the Pacific and Indian Oceans, it also acts as an economic hub for interaction between the Indian Ocean economic system, on the one hand, and East Asia, on the other. A quarter of the world's traded goods are carried through the Bay, which include huge volumes of Persian Gulf oil and liquefied natural gas, thereby providing energy-scarce countries in East Asia with a corridor to securing resources. Since the Japanese pitch for the Indo-Pacific in 2013, the conceptual reunification of the 'Bay of Bengal Crescent' has emphasised shared developmental and security issues along with the intra-regional dynamics among littoral states (Brewster 2020). For Akihiko Tanaka, the former head of Japan's International Cooperation Agency,

> …the Bay of Bengal is centrally located within this tectonic change as it can function as a key junction between the two oceans. Unfortunately, we are often bound by outdated geographic divisions. We still draw a dividing line at the Arakan Mountains to separate South Asia from Southeast Asia… perhaps it is high time for the Bay of Bengal to be considered as a coherent strategic region within the broader framework of the Indo-Pacific (Tanaka 2014).

In contemporary times, however, the Bay has become an entrenched theatre of geostrategic competition featuring littoral as well as extra-regional states. The Bay has been perceived by such actors as crucial for the protection and promotion of interests, whereby its geographical attributes can be leveraged to actualise and achieve such interests (Majumdar 2023:65). Upon this understanding, durable geopolitical narratives of the Bay have been created. As the geostrategic centrality of the Bay within the Indo-Pacific region is perceived on its geoeconomic heft, including trade volume, infrastructure and connectivity and geopolitical importance, as regards domestic politics of South and East Asian states, and traditional and non-traditional security concerns, intermeshed narratives of challenges and opportunities have been created. Moreover, since the geopolitics of the Bay shall continue to transform in tune with changes in the larger Indo-Pacific region and, vice versa transactional narratives shall, arguably, remain intact. Such narratives have implications for the 'great game' in the Bay.

Transactional narratives of the Bay of Bengal

The transactional narratives of the Bay of Bengal may either extol interaction and connectivity, or highlight competition and advice caution among states. The dramatis personae of the 'great game' in the Bay are India, the South and East Asian states, China, Australia, and Japan; whereas, the US, the UK, and France are the extra-regional participants. Each state has a narrative surrounding the Bay, but only a few among the plethora of contending narratives having direct bearing upon the present inquiry shall be evaluated.

Firstly, the narratives of interaction and connectivity are taken into consideration. Such narratives of the Bay pivot on India's geo-location for a plethora of reasons. Among the basin countries, India has the longest land border along the Bay, and also the greatest share of territorial waters by virtue of its size in comparison with Sri Lanka, Indonesia, Bangladesh and Myanmar. Besides the very etymology of the Bay, the opportunities provided by its geography have often tempted India to view it as South Asia's 'gateway', which in geopolitics alludes to regions serving as bridges between different geopolitical regions or realms to East Asia. This has entailed a shift of focus institutionalised through the Act East policy to the immediate eastern neighbourhood, the Far East, and even beyond towards the Western Pacific.

The Bay shall continue to remain India's most vital sea. It is within this maritime space and conceptual gateway that India's Act East policy coalesces with its larger Neighbourhood First policy (Majumdar 2023:65-66). The erstwhile BIST-EC (now BIMSTEC) was founded in 1997 on the recognition of the Bay as a self-determining geostrategic theatre. India, as a founding member of the BIMSTEC, has recently incentivised the formation of a shared security infrastructure encompassing

disaster management, counterterrorism and transnational crime, and energy. This goes well with India's intentions of becoming the 'net security provider' in the Indo-Pacific, whereby it has amped up frequent ship deployments, large-scale training support, assistance in various disasters/crises in littoral areas, and increased maritime connectivity with Myanmar, Thailand, Singapore, and Indonesia (Basu Ray Choudhury, et al. 2019; Upadhyaya 2020:52, 59).

With the recognition of the Bay as an inter-regional space and a security complex that is amenable to both crises and convergences within the Indo-Pacific, India has also launched the Project Mausam in 2014. It aims at engaging and connecting the Indian Ocean littorals on the basis of shared history, cultural identity, and economic interests. In 2015, the Mission Security and Growth for All (SAGAR) in the Indian Ocean was launched towards the fulfilment of economic and security cooperation. Together with the BIMSTEC, if Mausam and Mission SAGAR become effective, these may lead the Bay littorals to constitute a security community, with the add-on effect of securing India's maritime interests (Majumdar and Sen 2023:7).

Such optimistic narratives aside, there is always the possibility that mechanisms of regionalism shall fail to deliver. India's past experiences reveal incremental progress with several insurmountable roadblocks placed in its way by actors external to the region. Not least, any narrative of interaction and connectivity engenders, inexorably, its own antithesis: competition. Since all states participating within ventures of regional integration neither sacrifice their sovereignty in the process, nor subscribe to similar visions of a shared future, they often end up pursuing interests which are specific to their nationality. Ergo, an admixture of competing futuristic visions and particularistic national interests engender zero-sum narratives, whereby plurilateralism or bilateralism often supersedes multilateral regionalism. Moreover, the Bay also reveals a set of challenges to freedom of navigation and maritime security with changing power dynamics largely pivoting upon the rise of China and the concomitant security concerns of South and East Asian nations. Such narratives, however transactional, are complementary to the return of geopolitics.

Insofar as competitive multilateralism among the Bay littorals, membership and sectors of cooperation often overlap. To wit, the BIMSTEC is basically the SAARC minus Afghanistan and Pakistan; whereas, the Mekong-Ganga Cooperation (MGC) overlaps with the BIMSTEC, the SAARC, and the Indian Ocean Rim Association (IORA). Also, these initiatives, originating from within India's neighbourhood have been founded on conceptions of minimal multilateralism and non-institutionalised cooperation which have, heretofore, posed tremendous challenges to their operational success (Michael 2015). Challenges to these organisations have also been issued externally: through the BRI—including the proposed MSR—Beijing has sought to wed the whole of South Asia, including the Bay of Bengal, firmly to its 'Chinese Dream'.

The resultant scramble for connectivity in the Bay—realised through competing Chinese, Indian, and Japanese ventures of building ports, roads, pipelines, and railways throughout the region (Brewster 2014) has often worked to the detriment of multilateralism, fomenting instead, a spirit among the Bay littorals for leveraging bilateral channels of development within multilateral frameworks. In this regard, Myanmar has become an entrenched arena of Sino-Indian competition pursued through the China Myanmar Economic Corridor (CMEC), on the one hand, and the Kaladan Multi-Modal Transit Transport Project (KMMTTP), on the other (Cameron 2023; Bhattacherjee 2024). Further, given the trajectory in which the Maldives is moving, it may soon fall prey to similar patterns of competing bilateralism, or a debt crisis largely engineered by China.

The same spirit can be witnessed amongst the Bay littorals which are either fearful of the security ramifications of the BRI or have already fallen prey to the Chinese 'debt trap'. Notable cases include Sri Lanka, where the government continue to bear the debt for the commercially unviable Hambantota Port, "despite restructuring it and handing it over to a Chinese entity for 99 years" (Gupta 2022). Although not a Bay littoral, Nepal has had a similar experience with the BRI. Akin to the Hambantota case, China has been claiming Nepal's Pokhara airport, by "using economic losses at the airport as a pretext" (Roy Chaudhury 2024). Further east, port and resort development around the Koh Kong province of Cambodia offers another example of Beijing translating its economic influence into military use. The port has been designed to support the docking of PLA-N vessels, and the nearby Dara Sakor airport is hosting a Beijing-backed construction of an air-force length airstrip. Both projects are on 99-year leases to Chinese entities (Cameron 2023). Not least, to circumvent its 'Malacca Dilemma', China has been instigating Thailand to expedite the construction of the fabled Kra Canal, a vast waterway envisaged to pass through the Kra Isthmus via loan offers under BRI schemes. Although the project has not taken off for a plethora of geopolitical, economic, technical, and environmental concerns; if ever realised, shall greatly benefit China while negatively impacting India's island exclave on the Bay of Bengal (Gokhale 2023).

The proposed Kra Canal is indicative of the perpetual turbulence in the Bay of Bengal, triggered by strategic competition. Given competing national interests enunciated through divergent narratives of major powers in the Indo-Pacific, the very ideas of interaction, connectivity, and access have been problematized. This has snowballed further in the wake of the pandemic, whereby, defying the sway of globalisation, States have become more insular. The vapidity of international organisations has also been revealed, with concomitant degradation of America's global leadership, and damage to China's moral authority to replace the former (Majumdar 2023:70-71).

Since the pandemic, the risks associated with the BRI have only become starker: attendant corruption, the practice of debt diplomacy, and the violation of the sovereignty and territorial integrity

of participating countries have been revealed (Singh 2023). Ergo, the BRI's stock has been falling: ostensible from the dip in capital exports, construction contracts, and the disastrous consequences of the Health Silk Road (The Economist 2023). Not least, Beijing's involvement in the Regional Comprehensive Economic Partnership (RCEP), the FTA in the Indo-Pacific is likely to be affected due to its notoriety in the Asia-Pacific (Majumdar 2023:71). Nevertheless, as it is imperative for China to continue accessing the Indian Ocean through the Bay of Bengal nominally, for meeting burgeoning energy needs that Beijing maintains its regional assertiveness through an admixture of persuasion and coercion. These factors have entailed a set of challenges for India, and turn the analysis toward the future of zero-sum narratives of the Bay and India's strategic responses to fend off China.

Coda: strategic futures of the Bay

An influential publication on the Indo-Pacific had proffered three potential outcomes for ordering the protean region: the likelihood of a cooperative security edifice comprising major and littoral powers; the formation of an Asian concert in the European model; and, the development of a balance of power system comprising Japan, China, and India (Mohan 2012:216-234). When transposed to the Bay, not a single of these ideal formationscould, however, inform its future. Meanwhile, zero-sum narratives and micro-strategic formations have gained currency: cooperative security has been mired in competitive multilateralism; Sino-Indian rivalry in the Indo-Pacific has negated the possibilities of an Asian concert; not least, the viability of any regional balance of power system has receded due to multiple, contradictory efforts by extra-regional powers to order the Indo-Pacific. In all likelihood, therefore, strategic futures of the Bay shall be informed by an admixture of the 'security dilemma' and the 'cooperation dilemma' for the ostensible durability of zero-sum narratives. Such narratives largely emanate from entrenched Sino-Indian competition, underscored by the United States' lasting influence in the Indo-Pacific.

In the early 2000s, there were competing narratives of the 'String of Pearls', denoting China's quest for military modernisation to extend naval presence from South China Sea to the Arabian Gulf, and the acquisition of naval bases in the Indian Ocean and the consequential 'Necklace of Diamonds' or the Indian counter to Chinese encirclement through arrangements of port access, fuelling facilities, and regular joint military exercises with the navies of East and Southeast Asian states, operational coordination with the US, and the creation of naval and listening posts across the Indian Ocean littorals (Majumdar 2022:16-17). Essentially an American narrative, the 'String' was perceived by Washington and New Delhi as a threat to the freedom of navigation. These narratives, however, have been superseded by China's MSR and India's counter-formulations through the QUAD.

As Beijing's aggressive 'Wolf Warrior' style of diplomacy began to unravel in the Asia-Pacific, not least, India's profile consequently rose higher. Chinese Foreign Minister Wang Yi dubbed the QUAD as the 'Asian NATO'. He accused the US of using its global clout upon regional allies to suppress Beijing's rise by staging a '5 4 3 2' posture: where 5 refers to the Five Eyes Intelligence Sharing Network, 4 refers to the QUAD, 3 refers to the AUKUS, and 2 refers to bilateral military alliances (PTI 2022). Accusations despite heavy economic interdependence, frequent brinkmanship, and crisscrossing naval footprints in the Bay of Bengal not only exacerbate the Sino-Indian security dilemma, but also engender the mutual cooperation dilemma: denoting the willingness to cooperate for economic prosperity, but the tendency to compete for securing legitimate spheres of influence.

In fine, what are the strategic options open to India for ensuring its preponderance over the Bay? Given its imperatives of 'strategic autonomy' and maritime connectivity in the post-cold war oligo-polar world order, India is likely to continue with the strategy of multi-alignment with multiple states across a plethora of issue-areas. Since 2014, India has endeavoured to establish a security structure in the Indo-Pacific by synthesising elements of cooperative security, Asian concert, and the balance of power system.

Insofar as the Bay littorals, India has extant strategic partnerships, multilateral dialogues and fora, such as the QUAD, BIMSTEC, IORA, and the Indian Ocean Naval Symposium (IONS) to nurture; not least, having extended the defence lines of credit to Vietnam and Bangladesh, among others, it has infrastructure development in South and East Asia to buttress. With the BRI falling and China's RCEP stock also in decline, the moment is opportune for India to reinforce its narrative of the Bay through direct involvements in the BIMSTEC's cooperative security framework; also, for preventing the PLA-N's numerical superiority, east of the Andaman and Nicobar to have a spill-over effect upon the Bay.

As the Bay moves increasingly to the center of the Indo-Pacific, it shall become *the* geostrategic theatre for testing the efficacy of India's maritime capability enhancement plans and diplomatic outreach. The first ranges from India's intentions of becoming the 'net security provider' in the Indo-Pacific to the dissemination of the Maritime Domain Awareness through the Information Fusion Centre, and thepromulgation of the Maritime Capability Perspective Plan. Besides, India holds regular trilateral dialogues with France, Australia, Japan, Indonesia, and the US. With India maintaining the strongest navy in the Bay, in the foreseeable future, the cumulative impact of such plans and outreach activities may ultimately snowball towards the creation of an India-led Asian concert, with the Bay as its epicentre.

Since any such concert cannot be sustained by discounting China, India and the US have variously deployed the strategy of 'congagement'. In international politics, congagement is a portmanteau of simultaneous strategies of 'containment' and 'engagement' towards a perceived adversary. As both

countries also have their respective economies heavily linked to the Chinese manufacturing juggernaut, India and the US have variously engaged China to participate in extant institutions of global governance, not least, respect laws and treaties. While simultaneously, attempting to 'contain' Chinese maritime adventurism and expansionism with fresh alliances and alignments. By implication of the 'Chinese Dream', the balance, however, needs to be readjusted towards containment without any overt bias towards gradualist engagement, as the latter would not be enough in the face of Chinese irredentism.

Insofar as the Bay, the future viability of congaging China shall ultimately depend upon the operation capability of the Indian Navy, not least, the tactical and geostrategic significance of the Andaman and Nicobar Islands (ANI) chain.These islands provide India with immense strategic advantage in the Indo-Pacific region and have been regarded as India's 'springboard' into the Pacific, and, in the obverse, the reason for China's so-called 'Malacca dilemma'. Following the announcement of India's Look East Policy, the Andaman and Nicobar Tri-Service Command was created in 2001, as India's first operational theatre command. However, since the beginning, the ANC was mired in ideational and logistical issues. These issues are being addressed, as the Indian government has come to understand the Navy's role vis-à-vis its larger foreign policy interests in the Indo-Pacific.

As India has every intention of policing the Bay, a strong naval presence in the ANI chain would deter not only attacks emanating from the east, but also promotes counterterrorism and anti-piracy operations. Moreover, even if the Kra Canal materialises, a strong ANC would inexorably reinforce China's chokepoint dilemma, since the proposed Kra route would bring Chinese ships directly to the eastern seaboard of the ANI chain. Recent naval modernisation, including the placement of defense mechanisms comprising Barak 1 and Barak 8 missiles, and regular Milan and Malabar multilateral naval exercises in the wake of China's deployment of unmanned submarines in the IOR, are therefore, undoubtedly calibrated towards the realisation of India's strongman intent and capacity to project power through the Bay. A fledging ANC shall also enable the Indian Navy to have a forward presence in the Bay for protecting SLOCs, preventing piracy, interdicting terrorists and other unwanted elements, not least, for undertaking a host of goodwill missions.

Ultimately, as India's augmented operational and strategic interventions in the Bay shall be perceived negatively by China, the Indian leadership would have to be wary of countervailing naval build-up especially since Beijing's long-term plans entail the establishment of a unipolar Asia with the concomitant subjugation of India and Japan. As this element of Chinese grand strategy would trigger commensurate Indian response, strategic futures of the Bay of Bengal are likely to be anything but peaceful.

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The Dynamics of Bay of Bengal: Asian Geopolitics in the Future

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Abstract

Bay of Bengal is emerging as an important geopolitical, economic and strategic theatre in the twenty first century in parallel to the developments in the broader Indo-Pacific region. The Bay of Bengal was important for world trade till the close of the nineteenth century. This has led the Bay to acquire an importance that cannot be ignored. With the withdrawal of the colonial powers and the onset of the post-war state arrangement, Asia discarded the erstwhile networks and connections. Previously a highway of migration among nations, Bay of Bengal as an arena was mostly dormant in the latter half of the 20th century. The onset of citizenship norms restricted free migration, while the new states turned inward and did not trade frequently. Among the newly independent nations mistrust grew and weakened the bond of cohesiveness and unity, making the Bay to lose its identity. This was extenuated by the creation of regional identities of 'Southeast Asia' and 'South Asia'. While Southeast Asia restored their unity under ASEAN in 1965 and South Asia under SAARC in 1985, no real effort to revitalize the entire swath of the Bay as one entity was made until the initiation of India's 'Look East' policy in 1991 and later the formation of BIMSTEC in 1997 brought the Bay of Bengal further into focus. The Bay of Bengal as a region is presently going through a reorientation from a dormant sea to a hotbed of new opportunities and opened the gates of trade and exchange, laying greater emphasis on a region that was not prioritized previously. The result transformed the Bay of Bengal from a forgotten sea to a sea-bridge that would connect South with Southeast Asia. In the new millennium, the rise of China and India and their interest and focus on this region, has brought about forced cooperation, connectivity and conflict forcing bilateral, multilateral, regional and sub-regional agreements by littoral states. This has led the Bay to acquire an importance that cannot be ignored. As the Chinese footprint is growing across the Indian Ocean, the possibility of a Sino-Indian conflict at the sea is increasing as well. Through its Belt and Road Initiative, Beijing is encircling India with the so called 'string of pearls' around the neck of India's coastline. Beijing, through the 'bridgehead' strategy, plans to connect to the Bay of Bengal through an overland transport system through Myanmar. As the scramble for connectivity has peaked, India and other extra-regional states have also joined the bandwagon. For New Delhi, the Bay of Bengal is becoming important for its eastward ambitions and for countering China. The Bay of Bengal not only forms the centrepiece of India's Act East Policy but

it is also New Delhi's springboard to venture further east. The new geopolitical nomenclature of the Indo-Pacific, extending from the western shores of the United States of America to the eastern shores of Africa, also places the Bay of Bengal at the centre. The strategic factors for the resurgence of the Bay of Bengal are also supplemented by a host of conditions exclusive to the region, which has a trans-boundary effect. The Bay of Bengal oversees the most important trading routes owing to its proximity to the Malaccan straits. These routes are susceptible to threats ranging from maritime terrorism to piracy, drug trafficking to illegal migration. Further, the waters of the region have been witnessing one of the largest refugee movements in the recent past owing to the Rohingya crisis. The strategies of the regional and extra-regional actors as well as non-traditional security factors are reinvigorating the emergence of the Bay of Bengal. The dynamics of the region will determine the geopolitics of Asia in the years to come.

Keywords: *Bay of Bengal, ASEAN, Act East, geopolitics*

Introduction:

Bay of Bengal is the most significant spatial phenomena for South and South East Asia in political means. If its significance is condensed on geopolitical terms; it could reveal some very outstanding phases. One interesting thing is that, the Bay of Bengal is a major concern not only for India but also for Bangladesh, Myanmar and other Asian countries. Bay of Bengal is emerging as an important geopolitical, economic and strategic theatre in the twenty first century in parallel to the developments in the broader Indo-Pacific region. The Bay of Bengal was important for world trade till the close of the nineteenth century. This has led the Bay to acquire an importance that cannot be ignored. With the withdrawal of the colonial powers and the onset of the post-war state arrangement, Asia discarded the erstwhile networks and connections. Previously a highway of migration among nations, Bay of Bengal as an arena was mostly dormant in the latter half of the 20th century. The onset of citizenship norms restricted free migration, while the new states turned inward and did not trade frequently. Among the newly independent nations mistrust grew and weakened the bond of cohesiveness and unity, making the Bay to lose its identity. This was extenuated by the creation of regional identities of 'Southeast Asia' and 'South Asia'. While Southeast Asia reunited their unity under ASEAN in 1965 and South Asia under SAARC in 1985, no real effort to revitalize the entire swath of the Bay as one entity was made until the initiation of India's 'Look East' policy in 1991 and later the formation of BIMSTEC in 1997 brought the Bay of Bengal further into limelight (Das 2019). The Bay of Bengal as a region is presently going through a reorientation from a dormant sea to a hotbed of new opportunities and opened the gates of trade and exchange, laying greater emphasis on a region that was not prioritized previously. The result transformed the Bay of Bengal from a forgotten sea to a sea-bridge that would

connect South with Southeast Asia. In the new millennium, the rise of China and India and their interest and focus on this region, has brought about forced cooperation, connectivity and conflict forcing bilateral, multilateral, regional and sub-regional agreements by littoral states. This has led the Bay to acquire an importance that cannot be ignored (Bhattacharya & Lorea 2020).

Location:

The Bay of Bengal is a northern extension of the Indian Ocean, located between India and Sri Lanka in the west, Bangladesh to the north, and Myanmar (Burma) and the northern part of the Andaman-Nicobar to the east.It's approximately 1,000 miles (1,600 km) wide, with an average depth near 8,500 feet (2,600 meters). The maximum depth is recorded at 15,400 feet (4,694 meters).The Bay occupies an area of about 2,172,000 km². It is the largest bay of the world. The Bay receives inflows from many large rivers. A number of large rivers – the Ganges, Meghna, Jamuna, Ayeyarwady, Godavari, Mahanadi, Krishna and Kaveri – flow into the Bay of Bengal. As we can see in the picture, it is shaped like 'U'. Geographically it is a source of water, salt, energy, fish, minerals, transport, and business and so on. But if we look through the lens of International Relations; it is a very significant ground of power politics. As it is situated in the dead point of strategically rival countries, the geopolitical value of the Bay of Bengal is far beyond important than its esteemed values.

The International Hydrographic Organization defines the limits of the Bay of Bengal as follows. On the East: A line running from Cape Negrais (16°03'N) in Burma through the larger islands of the Andaman group, in such a way that all the narrow waters between the islands lie to the Eastward of the line and are excluded from the Bay of Bengal, as far as a point in Little Andaman Island in latitude 10°48'N, longitude 92°24'E and thence along the Southwest limit of the Burma Sea (5°322N 95°122E) in Sumatra to Poeloe Bras and on through the Western Islands of the Nicobar Group to Sandy Point in Little Andaman Island, in such a way that all the narrow waters appertain to the Burma Sea. On the South: Adam's Bridge (between India and Sri Lanka) and from the Southern extreme of a Dondr Head (South point of Sri Lanka) to the North point of Poeloe Bras. (5°442N 95°042E) (Britannica: 2024)

History:

Northern Circars occupied the western coast of the Bay of Bengal and is now considered to be India's Madras state. Chola dynasty (9th century to 12th century) when ruled by Rajaraja Chola I occupied the western coastline of the Bay of Bengal circa AD 1014, The Bay of Bengal was also called as the Chola Lake. The Kakatiya dynasty reached the western coastline of the Bay of Bengal between the Godavari and the Krishna rivers. Kushanas about the middle of the 1st century AD invaded northern India perhaps extending as far as the Bay of Bengal. Chandragupta Maurya extended the Maurya

Dynasty across Northern India to the Bay of Bengal. Hajipur was a stronghold of Portuguese Pirates. In the 16th century the Portuguese built trading posts in the North of the Bay at Chittagong (Porto Grande) and Satgaon (Porto Pequeno). The Bay of Bengal appears as Sinus Gangeticus or Gangeticus Sinus, meaning "Gulf of the Ganges", in ancient maps. In the 10th century the explosion of Indian kingdoms, led by the Chola Empire, resulted in the Bay of Bengal being known as the Chola Lake. It later came to be known as Bay of Bengal in after the region of Bengal.

Basin Countries: India, Bangladesh, Thailand, Myanmar, Indonesia, Malaysia and Sri Lanka.

Sea Ports: Some of the biggest ports in the world Kolkata and Chennai are in the bay. Chittagong in Bangladesh and Yangon, the largest city and former capital of Burma, are also important ports on the bay. Other ports on the bay include, India: Port Blair, Kakinada, Pondicherry and Vishakhapatnam; Bangladesh: Mongla, Payra; Myanmar: Sittwe (Agarwala: 2020).

Geopolitical significance of Bay of Bengal:

The Bay of Bengal, spanning a vast expanse of 2.17 million sq-km, is the world's largest bay. Positioned as the central bay within the expansive "Great Middle Bay" of the Indian Ocean, it occupies a pivotal role in the region's geography. The Bay of Bengal countries have a population of 1.7 billion and a GDP of USD 7 trillion. Geopolitically, the Bay of Bengal is surrounded by key nations on its western and northwest shores, including India, while Bangladesh borders it to the north. To the east, Myanmar and the Andaman and Nicobar Islands of India define its boundaries. The southern limit is marked by an imaginary line stretching between Sangaman Kanda in Sri Lanka and the northeastern most point of Sumatra, Indonesia (FAIR Team: 2023).

Geo political significance of Bay of Bengal is many. The Bay of Bengal is strategically crucial for India since it is a natural extension of its sphere of influence. Secondly, because of the presence of outlying islands, namely, Andaman islands and Nicobar islands and most importantly several major ports such as Kolkata, Chennai, Visakhapatnam, and Tuticorin along its coast with the Bay of Bengal. India with its population of about 1,441,719,852 in a land territory of 32, 87, 263 sq.km needs to explore and exploit the living and non-living resources of the adjacent to sea. The full extent of marine resources is yet unknown to us. Some experts consider that mineral deposits are greater in sea than those in land territory. The oceans are without doubt the most important resources on the planet. Maritime states can boast of their fortune having economic, political, strategic and social advantages over other states in reaping benefit from those resources while their interests are manifest in a variety of activates including shipping of goods, fishing, naval mission and scientific research. India is too bestowed with the same geographic endowments with 7516 km coastline. So, significance and importance of the Bay of Bengal are huge for the south Asia and south East Asian region.

Seas help rather than obstruct interrelations among the peoples who surrounded them. South Asian power India compounded by seas on its three sides, has always looked upon the seas for contacts with the outside world. Indeed due to a continental mindset, the policy makers try to realize the geographical endowments and rich maritime importance of the Bay of Bengal. The Bay of Bengal is much more than the eastern segment of the Indian Ocean. The maritime region surrounding the countries around the coastal, always maintained a thriving contact through movements of trade, people, religious, cultural and political missions, which gave the region an autonomous character. The six coastal countries including India, Bangladesh, Myanmar, Sri Lanka, Thailand, Malaysia and Indonesia have their outlet in this region. These countries have been associated with the Bay of Bengal since ages. Given its centrality, the emerging multifaceted influences will continue to converge and will be further catalyzed by the strategic sea lines and the significance of region that remains volatile and unstable due to presence of extra-territorial countries and non- state actors in the region. Bay of Bengal has played an important historical role because of its deep inland penetration. The vast sea is facilitating communication with them. It has been argued that the conceptual division of the Bay of Bengal region between South Asia and Southeast Asia may no longer be appropriate and that the rise of India as a major power may lead to a new mental mapping of the Bay of Bengal as a coherent strategic region (Islam: 2023).

Strategic Importance of Bay of Bengal:

The strategic importance of a location or an area is dependent on some variable and non-variable factors. One needs to recognize and understand the ways how these factors tend to influence a country's geo-strategic strength or its vulnerability. The elements are as follows:

1. Geographic setting of state and region.
2. Resources,
3. Population,
4. Military History, and
5. Military ability

The Bay of Bengal is centrally located in the region from the Middle East to the Philippine Sea. Even from aviation's strategic aerial position it lies at the Centre. It lies at dead center of two huge economic blocks, the SAARC and ASEAN. China's southern landlocked region in the North and major sea ports of Bangladesh and India. Both rising economic though with chaotic democracies China and India have forged naval cooperation agreements with Malaysia, Thailand and Indonesia to increase its cooperation in checking terrorism in the high seas. The Bay of Bengal is strategically crucial for India since it is a natural extension of its sphere of influence. Secondly, due to the presence

of outlying islands, namely Andaman islands and Nicobar islands and most importantly several major ports such as Kolkata, Chennai, Vizag, and Tuticorin along its coast with the Bay of Bengal.

China has recently made some efforts to project influence into the region through tie-ups with Myanmar and Bangladesh. The United States held several major exercises with India, Bangladesh, Malaysia, Singapore and Thailand. The largest ever war exercise in Bay of Bengal, known as Malabar 2007, was held in 2007 and naval warships from US, Singapore, Japan and Australia took part in it. India was also a participant.

For a long time, the Bay of Bengal was a backwater and isolated from world concern. The importance increases in the 20th century approximately in 1980 when Myanmar opened its contribution to the world community. Over the years influence now that changed shape to compete in between India, Myanmar, China, USA, Bangladesh, and southeast Asian Neighbor country. There are some factors behind the competition among the regional and global power in the Bay of Bengal (Anwar: 2022).

Economic Significance:

Despite their generally large populations, the Bay of Bengal countries have relatively small economies. In terms of GDP, none of them ranks among the world's top ten. All Bay of Bengal nations have experienced rapid growth over the past two decades – particularly in the Industry and Service Sectors - this has led to increasing levels of industrial development in the coastal zones surrounding the Bay of Bengal. Much of the industry has centered on transforming raw materials into steel, paper, chemicals, paints, plastics and textiles; also important are leather tanning, oil refining, and electricity generation, fishing and tourism.

One of the first trading ventures along the Bay of Bengal was The Company of Merchants of London Trading into the East Indies more commonly referred to as British East India Company Gopalpur was one of their main trading centers. Other trading companies along the Bay of Bengal shorelines were English East India Company and French East India Company. BIMSTEC Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) supports free trade internationally around the Bay of Bengal between Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand.

The main shipping route passing through the Bay of Bengal runs along the south of Sri Lanka and across the Bay of Bengal before entering the Straits of Malacca. The strait is the main shipping channel between the Indian Ocean and the Pacific Ocean, linking major Asian economies such as India, China, Japan and South Korea. Over 50,000 vessels pass through the strait per year, carrying

about one-quarter of the world's traded goods including oil, Chinese manufactures, and Indonesian coffee.

The ascent of Asian economies started with the Chinese movement to neighboring Asian nations in the sixteenth century achieving its peak in 1949. Chinese policy has a great impact on the basin country of The Bay of Bengal. If we see, in the ongoing years' Japan put a ton of cash in the development of infrastructure and technological advancement and modern division around the bay basin countries, that makes this area financially more grounded. After individual nations had picked up their autonomy, present-day ventures followed in oil, car plants, and telecoms driving the economies of the countries exceptionally India and Bangladesh. The accompanying ASEAN part nations are the significant movers in the locale's economy. Then again BIMSTEC, SAARC, ASEAN have increased two-sided exchange, and financial collaboration, mutual trust, among the country. If we break down the financial state of Southeast Asian Country-we see that China is the country that has turned into the primary merchant of crude materials, is one of the greatest assembling countries all around, and is irrefutably the biggest purchaser showcase on the planet. India and the littler littoral nations have likewise expanded fares and reciprocal exchange with South and Southeast Asian nations. Bangladesh likewise assumes a fundamental job with regards to the Southeast Asian Economy (Jony & Nomani 2021).

Energy:

Most of the Asian nations have growing energy demand because of industrialization in this region. Asian superpower China is expected to surpass the USA in terms of energy demand by 2015. China and India are the highest net oil importers among all the developed country (World Energy Report-2015). China and India have now become heavily dependent on oil imports, which are expected to rise to 75% and 95% respectively of their total oil consumption by 2030. India mainly imports its oil from Iran and middle-eastern countries. In terms of natural gas, their imports are also expected to increase to 40% (China) and 50% (India) (HCSS 2010). This will make the two nations (China, India) alliance on vitality imports over land and via ocean. Therefore, the significance of the Bay of Bengal as a traveled area will continue expanding, as it will observe the development of SLOCs and increase of maritime nearness for the two powers India and China. Because of its vital area, the Bay of Bengal not just serves the littoral countries around the Bay yet, in addition, other significant performing artists like China and Japan, which through the Malacca Strait, get to it for exchange merchandise and vitality.

Large deposits of natural gas also incited a serious up for grabs urgency by India. Disputes over rights of some oil and gas blocks have caused brief diplomatic spats between Myanmar and India with Bangladesh. The Bay of Bengal is a source of huge natural resources for its locational reason. The

Bay of Bengal and the adjoining sea like Andaman and Nicobar Sea and Malacca straits are the link between south east and south Asia. They are known as major source of oil and natural gas producing area. It is one of the least explored or extracted offshore or onshore regions. It is a home to a number of energy. In recent years there have been discoveries of natural gas in the offshore areas of Myanmar, inland and offshore of Bangladesh and knavery Godavari and Krishna basins on the east coast of India. They can be described as a hub for oil and natural gas for the countries of south and Southeast Asia. As well as north coast Asia. Countries of the Bay of Bengal region may leverage their energy endowment on policy relationship with other as well as major Asian neighbors like china and India in realm of energy security. India Bangladesh relationship in the field of energy, Myanmar with India or china in the oil and gas sector could get overall political relationship.

Hydrocarbon resources in the Bay of Bengal generally located in deep areas, as compared to those in the Arabian Sea. There are placer deposits of titanium off northeastern Sri Lanka and rare earths off northeastern India. Heavy mineral sands occur around Nagapatnam in Tamilnadu state on the southeastern Indian coast, near Chennai, and in coastal areas around Vishakhapatnam. Coastal regions bordering the Bay of Bengal are rich in minerals. Sri Lanka is also known as Serendib or Ratna Deep which means Gem Island. Amethyst, beryl, ruby, sapphire, topaz, and garnet are just some of the gems of Sri Lanka. Garnet and other precious gems are also found in abundance in the Indian states of Orissa and Andhra Pradesh (Ahmad 2018).

Politics:

Southeast Asian countries' politics are now more stable. Now India is the world's biggest democratic country. In the 20th century, the political condition of South Asia is not stable. The assassination of political leaders in this period happened rapidly. The politics of South East Asia especially in India and Bangladesh has controlled by family politics. Indira Gandhi, Rajiv Gandhi, Sheikh Mujibur Rahman killing is the result of the political instability of the 20th century in Southeast Asia. On the other hand, the politics of China is controlled by one-party rule and their Chinese communism has a big influence over Chinese people. This political stability makes China now the world superpower, economical giant. Now the political stability and democracy make south Asia the world rising political power. India now plays as a regional power (Rajamohan, C. 2020).

Connectivity:

South Asian countries' connectivity through BIMSTEC, SAARC and ASEAN plays an important role. South Asian countries signed (SAFTA) South Asian Free Trade Area through SAARC and growing connectivity in the development and technology sector through BIMSTEC. Now we see that bilateral connectivity increasing among the nations, Indo-Bangla, Indo-China, Bangladesh-China bi-lateral

trade relations, and trade agreements are signed. Chinese investment in the Bay of Bengal region also increases connectivity among the nation.

Marine transit:

Geographical location of the Andaman and Nicobar Islands near to Malacca strait gives ample scope for free port, transhipment port, ship repair base and offshore bunkering facility for International Sea Lanes. To create potentially a very strong maritime power and felicitator in the region and to eliminate the sea piracy, drug trafficking and gunrunners in the region, the Andaman and Nicobar Command formed recently, playing decisive role and promoting cooperation among littoral countries of Bay of Bengal. The important ports are Cuddalore, Ennore, Chennai, Karaikal, Pondicherry, Tuticorin, Kakinada, Machilipatnam, Vishakhapatnam, Gangavaram, Krishnapatnam, Paradip, Kolkata, Mongla, Chittagong and Yangon (Chaudhuri & Chatterji 2019).

Regional significance:

India being situated in South Asia, its importance, because of its geopolitical location is increasing day by day with the increasing importance of South Asia and broadly Asia in International Politics. The geographical location of India is a prevalent fact that influences the decision making process in making foreign policy. Because of the various elements in the formulation of foreign policy of a country, geographic location occupies a significant position. Not only India has interest over the geopolitical location but also countries like Bangladesh, Nepal, Bhutan, China, and USA and even courtiers like Japan and Australia are showing their interest considering the geo political importance of the Bay. Nepal and Bhutan being land locked and not having sea access very much interested to use Bangladeshis sea ports to foster their trade. As china has competing relationship with India always seeks opportunities to contain India geo-strategically where Bangladesh becomes one of the perfect positions to her intention. Though USA has its biggest naval base in Andaman and Nicobar Islands it intended to use Chittagong Sea port to strengthen its strategic position in South Asia considering the importance of the region in World politics. More clearly in terms of any dispute with India and china Chittagong port is the better place to contain two nuclear power and which are growing as a super power in international system. Japan and Australia also for their national interest maintain good relations with India and Bangladesh and where Australia has different projects and aids. No state regulates its foreign policy without being motivated by its national interest. Again India's North East, Bangladesh and Myanmar are important for transit way, Asian highway. The Bay of Bengal is strategically crucial for India because of the presence of outlying islands, namely Andaman and Nicobar and several major ports such as Kolkata, Chennai, Vizag, and Tuticorin along its coast with the Bay of Bengal. Much of the naval operations of the 1971 Indo-Pakistani War took place in the Bay of Bengal.

The growing influence of China due to support provided by Myanmar has created geopolitical implications for India. India has held several major naval exercises with friendly countries, especially United States, to counter increasing Chinese presence in the Indian Ocean. This exercise was widely viewed as "strategic encirclement of China". India has forged naval cooperation agreements with Malaysia, Thailand and Indonesia to increase its strategic reach in the region. India also established Far Eastern Naval Command off Port Blair to increase surveillance in the adjoining Andaman Sea (Brewster 2014).

The potential of natural gas exploitation also makes the Bay of Bengal important for India, Bangladesh and Myanmar. Disputes over rights of some oil and gas blocks have caused brief diplomatic spats between India and Bangladesh. The disputed maritime boundary between Bangladesh and Myanmar has twice resulted in military tension, in 2008 and 2009 and currently they are pursuing a settlement to the boundary dispute through the International Tribunal on the Law of the Sea, while India and Bangladesh are working towards a settlement using an arbitrator (Brent 2018).

Recent Significance:

Once upon a time, Andaman and Nicobar Island were known as Kalapani. People participating in the anti-British movement were sent there in exile. The islands are connected with the names of many legendary figures and are still discissed. On November 16, 2018, John Allen Chaouk, the American Christian missionary was killed by indigenous Sentinelese. He tried to land on North Sentinel Island for the promotion of Christianity. But the indigenous people did not want him to land there. That island is a talked of the US priest. But there is a big story behind the scenes of Andaman, and how modern geopolitical problems arise. In the remote islands in the middle of Southeast Asia and the Indian sub-continent, India is now building sophisticated and highly decorated bases. India is now seeking to conduct surveillance of Chinese submarines in the Malacca Route adjacent to Andaman and Nicobar Island and developed its first and only Tri-service command. Its headquarters in the main city of Port Blair and Nicobar has its own boat station. In the context of China's expansion of its naval presence in the Indian Ocean, Andaman became the land of the geopolitical competition for two Asian giants (Devnath 2016). India's Prime Minister Narendra Modi visited Andaman on December 30, 2018 to celebrate the 75th anniversary of the hoisting of the Indian National Flag at Port Blair and the Azad Hind Government Declaration, which was a temporary government established in 1943 with assistance from Japan and Germany during World War II. During the war, the Japanese captured Andaman and Nicobar. At that time the allies of Japan were Indian National Army chief Subhash Chandra Bose. He was fighting alongside with Japanese forces (PIB: 2018). Modi and then Japanese Prime Minister Shinzo Abe signed a treaty that in a short time, the ships of the Japanese Navy will

appear in Port Blair. Both aim to resist China in the Indian Ocean. Apart from China's Belt and Road Initiative (BRI), Japan and India are also made coalition. The decision to set up military command in Andaman with the assistance of USA was made before the BRI, in 1995 at a closed-door meeting between then Prime Minister of India Narseema Rao and US President Bill Clinton, because it was clear that China wants to establish its presence in the Indian Ocean. The plan was finalized during Clinton's visit to India in 2000. The US naval ship was anchored in Port Blair. India has opened its naval fleet to the US in 2016, in exchange for the benefit of arms to reduce the military technical gap with China. In particular, India is getting US assistance to identify Chinese submarines. But during the Donald Trump period, India is not getting assured support as usual. That is why they are going to Japan. During the visit of Modi to Japan last October, the two countries agreed on various military assistances. Especially the advantage of surveillance is that India has the advantage of getting more. There are logical reasons for the Chinese presence in the Indian Ocean. Most of the country's trade is on this route, with most of its energy being imported here (Brewster: 2018). In the Sea Lane Strategy, China is engaged in acquiring port facilities through its "String of Pearls" strategy around the neck of India's coastline which is now being called "Maritime Silk Route". This will enable the People's Liberation Army (PLA) and navy to operate in the seas around India. It has already built ports in Gwadar of Pakistan, Myanmar's Kyawk Pyiu, and Sri Lankan Hambantota and is operating Kra Canal in Thailand and Cambodia. The Gwadar port on the Makran coast of Pakistan has been leased to China for 40 years. China has also upgraded ports in Chittagong, Bangladesh; Lamu in Northern Kenya and Djibouti in East Africa. These ports have converted to naval bases. India therefore concentrated on gains while dealing with China on trade and security issues (Ghosh 2015). In this context Narendra Modi's Andaman tour was actually an attempt to make relations between Japan and India closer. But the rest of the world knows, the new Cold War is beginning on the horizon of the Indian Ocean, and this battle is going to be the important center for the Andaman Islands. But who will benefit? The islands area is now turned into a land of horrific competition.

A Multi-layered Geopolitical Competition

The geopolitical maneuvering of the regional powers and competition among extra-regional powers will further accelerate the geostrategic significance of the Bay of Bengal. The competition will take place in two tiers — both conflicting and converging in nature. The first tier is among regional powers, primarily between India and China and among the mid-size states of the Bay such as Bangladesh and Myanmar, whose relations largely remain competitive and conflictual in nature. The second tier of this competition will be between and among extra-regional powers such as Australia, European countries, Japan, and the United States. In this tier, competition is more complementary with each

other, but more in conflict with China. These countries are building new types of security architecture such as the Quadrilateral Security Dialogue and Australia, the US and UK nuclear propulsion technology (AUKUS), and are strengthening of bilateral ties throughout the Indo-Pacific region. Under such frameworks, the division between the United States and its friends with China will sharpen further.

While the United States may seem like the leader or driver of this competition, in fact, the traditional rivalry between India and China may become far more prominent. India is the traditionally dominant regional power in the Bay of Bengal. The influence of China, however, is rising rapidly, driven primarily by the massive financial support it offers and its proactive infrastructure programs under the Belt and Road Initiative. India and China both view the Bay of Bengal as a crucial frontier in their competition over energy resources, shipping lanes, and cultural influence. The competition stemming from the two countries expanding their regional spheres of influence in each other's backyards may result in skirmishes over energy and sea lanes of communications, not to mention confrontation over political influence in the more fragile states such as Myanmar and non-Bay of Bengal littoral state Nepal.

So far, the strongest manifestation of Sino-Indian rivalry in the Bay of Bengal has been situated in Myanmar, where both countries need overland transit to connect their economically weaker regions, namely India's northeast and China's Yunnan province, with the Bay of Bengal. However, between 2011 and 2021, Myanmar opened its economy to the Western world after the United States and Europe lifted sanctions, creating more partnership options as the reforms attracted a wave of foreign investors. This in turn reduced Sino-Indian competition by making space available to new actors, creating more balance in the previously polarized scenario. However, after military coup in 2021, the country has now taken backslide to the status quo ante as Western investors are leaving and the regime is under strict sanctions, leaving Naypyidaw at the mercy of Beijing.

Competition in the security realm is greater than ever. In recent years, the only multilateral military exercise of this region, the naval Malabar Exercise held among India, Japan, the United States, and more recently Australia, has also taken place in the Bay several times. China, the largest supplier of military hardware to Bangladesh and Myanmar, provided two Ming-class submarines to Bangladesh's navy, which aims, under its "Forces Goal-2030" plan, to modernize its armed forces. In response, India gave a submarine to Myanmar. Under the rubric of Beijing's "Look South" strategy, the PLA Navy has increased its deployment of warships in the Bay of Bengal and Chinese vessels have even entered India's special economic zone. Chinese submarine patrols in the Indian Ocean have also increased, particularly near the Andaman and Nicobar Islands, which are considered critical to New Delhi's regional intelligence and monitoring operations. To counter China's increasing presence

in the Bay of Bengal region, India is setting up coastal surveillance radar systems in its neighborhood, such as in Bangladesh and Sri Lanka. In short, China and India are doubling down on their efforts to reshape the strategic security environment of the Bay of Bengal in their own favor (Samaranayake 2012).

Domestic Politics as Underlying Factors

The domestic political constraints on Bay of Bengal states such as political instability, ethno-religious tensions, urbanization, and the coronavirus pandemic will have a knock-on effect on this sub-region. To tackle these emerging challenges and establish a rules-based order in the region, the United States, along with its regional allies and partners and international organizations, will need to provide technical, financial, and humanitarian assistance to the Bay countries. Leadership succession in domestic politics in both Myanmar and Bangladesh further complicates the prospect of a sound resolution. Sri Lanka poses the highest risk, as it is currently facing an unprecedented economic crisis in addition to its decade long ethno-religious and political impasse. India's responses have been instrumental in ameliorating the recent crisis in Sri Lanka. However, a collective regional response of major Indo-Pacific proponents — India, Japan, and the United States could change the trajectory of the Bay of Bengal. The Rohingya issue is a major political problem for Bangladesh and Myanmar, with spillover effects on Thailand, Malaysia, and Indonesia, and thus has significant geopolitical consequences. It is also a humanitarian priority for the international community, due to the human suffering involved, the tensions it provokes between Myanmar and Bangladesh, and the long-term security implications for the region. Bangladesh hosts millions of refugees despite its limited capacity, but as the solution is beyond its control, there should be strong support from United Nations Security Council members, especially from regional countries that may have some leverage over the Burmese military junta.

China and India are on the top of that list, but considering their own national interests in Myanmar, the role they play in resolving this issue has been rather limited. Bangladesh also had high expectations of Japan, its long-time development partner, but it, too, is prioritizing its own national interest. The United States, Europe, and international organizations, however, have a critical role to play in this crisis, from providing assistance to pressuring Myanmar, which resonates with the spirit of the Indo-Pacific vision of establishing a rules-based order for all (Bhadrakumar: 2013).

Nontraditional Security is Also Significant

While traditional security concerns are mostly along or around national boundaries, nontraditional security issues pertaining to the Bay such as climate change, natural disaster, terrorism, refugees, drugs, piracy, and illegal, unreported, and unregulated fishing transect boundaries and affect the region as a whole. The negative impacts of climate change, especially rising sea levels and an alarming level

of salinity, pose existential threats to several Bay states, including Bangladesh and Sri Lanka. Two-thirds of Bangladesh is less than five meters above the sea level rise. The latest projection says that if there is a 50-centimeter rise by 2050, 11 percent of Bangladesh might be underwater, making millions homeless. Thus, the issue of potential climate refugees is more silent in the Bay of Bengal region than anywhere else in the world. This demands cooperation, as well as assistance from Indo-Pacific promoters such as the United States. This is particularly critical as the Biden administration made tackling climate change a top priority an area where the Bay of Bengal could play a leading role, which would ultimately yield stronger ties between Indo-Pacific promoters and the countries in the region. While strategic interests often dictate conflicting positions, a consensus over the principle of *mare liberum* (free seas for everyone) as one of the four global commons is required for the protection of marine resources. Since the Indo-Pacific vision aspires to establish international rules and norms, these nontraditional security concerns in the Bay of Bengal could give impetus to other regional organizations, such as the South Asian Association for Regional Cooperation and the Bay of Bengal Initiative for Multi-Sectoral Technical Economic Cooperation, to bring countries to work together on common challenges (Anwar 2023).

Conclusion

For decades, the significance of the Bay of Bengal remained under appreciated due to the absence of great powers' interest and lack of economic vitality, but this has changed as strategic competition in the area intensifies according to its own dynamic. The Bay of Bengal now has considerable and growing strategic importance for Asia, and for the world as a whole. In many ways, the Bay of Bengal lies at the core of the Indo-Pacific region, a centerpiece of the broader Indo-Pacific concept and the place where the strategic interests of the major powers of East and South Asia intersect. The new geopolitical nomenclature of the Indo-Pacific, extending from the western shores of the United States of America to the eastern shores of Africa, also places the Bay of Bengal at the centre. The strategic factors for the resurgence of the Bay of Bengal are also supplemented by a host of conditions exclusive to the region, which has a trans-boundary effect. The Bay of Bengal oversees the most important trading routes owing to its proximity to the Malaccan straits. These routes are susceptible to threats ranging from maritime terrorism to piracy, drug trafficking to illegal migration. Further, the waters of the region have been witnessing one of the largest refugee movements in the recent past owing to the Rohingya crisis. As the Bay will become a test case for a nascent multipolar world order, it is of the utmost importance to establish governance frameworks that can facilitate the integration of rising powers in regulating this order and upholding the principles of a Free and Open Indo-Pacific. The strategies of the regional and extra-regional actors as well as non-traditional security factors are

reinvigorating the emergence of the Bay of Bengal. The dynamics of the region will determine the geopolitics of Asia in the years to come.

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The Sundarbans: A Mangrove Microcosm Shaping South Asian Geopolitics

Rakhi Mitra

Abstract

The Bengal Basin and the Bay of Bengal have historically connected South Asia. This article examines how the Sundarbans, a vast mangrove forest shared by India and Bangladesh, shape the geopolitical landscape of South Asia. The Sundarbans' significance goes beyond national borders, impacting the region's economic ties, environmental health, cultural exchange, and strategic partnerships. The research employs environmental security and governance theories to analyse the Sundarbans' multifaceted influence on the region's geopolitics. The analysis focuses on three key areas: ecological interdependence, the blue economy, and governance structures. This approach reconnoitres the interplay between local dynamics within the Sundarbans and the broader regional context. While previous investigations recognise the Sundarbans' ecological significance, their role in shaping South Asian geopolitics has been understudied. The article emphasises the Sundarbans' critical position in maintaining regional biodiversity, mitigating climate change impacts, and protecting coastlines. Additionally, it supports the blue economy by enduring activities like fishing and potentially offering resources for economic development. However, challenges exist. Maritime security concerns, intricate border management, and regional rivalries in the Bay of Bengal pose noteworthy threats. The Sundarbans are a captivating case study, highlighting how seemingly local environmental issues can have profound geopolitical consequences. The article concludes by calling for a unified regional approach highlighting ecological sustainability, economic development, and enhanced maritime security cooperation. This collaborative approach would promote stability and shared prosperity across South Asia, benefiting India and Bangladesh.

Keywords: *Sundarbans, geopolitics, South Asia, environment, economy, security, cooperation, sustainability.*

Introduction

The vast Sundarbans mangrove forest, straddling the India-Bangladesh border, transcends its ecological grandeur to emerge as a key player in shaping the evolving geopolitics of South Asia. The Sundarbans' dense network of waterways, rich biodiversity, and strategic location places it at the centre of regional

dynamics concerning economic integration, security cooperation, environmental sustainability and cultural exchange. While there is a wealth of literature on the ecological significance of the Sundarbans, little is known about its multi-level governance structure and its impact on the economy, especially the circular economy. This paper delves deep into this unexplored territory, examining how the mangroves and their local habitats act as microcosms, magnifying regional trends. The Sundarbans' ecological health is linked to regional power dynamics through environmental geopolitics. Its role as a natural safeguard against climate change and natural disasters, a key centre for the blue economy and a source of sustainable resources, and the challenges of maritime security and border management in this complex mangrove maze. Understanding the Sundarbans' multifaceted impact can secure its ecological future and promote a more stable, prosperous South Asia. By harnessing its potential and working together, we can create a united regional approach that prioritises ecological sustainability, economic growth, maritime security cooperation, and a brighter future for the Sundarbans and the wider region. Internally, they act as a natural barrier against cyclones, storm surges, and tsunamis, protecting millions living in coastal communities from natural disasters. This translates to reduced economic losses and humanitarian crises, bolstering regional stability.

In addition, mangroves are an asset to the range of livelihoods, including fisheries and aquaculture, as well as honey manufacturing and tourism. The sustainable management of these sources ensures economic well-being and the reduction of the potential for any economic and social unrest. Externally, illegal activities such as piracy and infiltration challenge the Sundarbans' intricate waterways. In order to protect the marine environment, safeguard trade routes, and avoid potential threats, effective management and collaboration between coast authorities must be ensured. Preserving the Sundarbans is vital to the environment and an investment in the region's internal and external security, ensuring a more stable and prosperous future for all.

Objective: The Sundarbans, the extensive mangrove forest at the heart of the Ganges Delta, surpass their ecological magnificence to intertwine an intricate tapestry of effect on the evolving geopolitics of South Asia. This research delves into this interwoven fabric, seeking to untie the multilayered effect of the Sundarbans on an array of perilous geopolitical aspects, ultimately aiming to foster regional stability and prosperity.

***Environmental Governance**:* We examine the existing frameworks surrounding the Sundarbans, assessing their effectiveness in ensuring the ecosystem's sustainable management and ability to adapt to climate change and other environmental challenges. This paper delves into the various stakeholders involved, including national governments, international organisations, and local communities, and their roles in shaping environmental policies and practices. We explore the challenges and opportunities

for transboundary environmental cooperation between India and Bangladesh, aiming to identify potential pathways for strengthening governance and ensuring the long-term ecological health of the Sundarbans.

Economic Significance: We explore the Sundarbans' contribution to the regional blue economy, analysing its value in supporting traditional livelihoods like fishing and aquaculture and emerging sustainable practices like ecotourism. The paper investigates the Sundarbans' role as a natural capital asset, evaluating its economic potential for resource extraction while emphasising the need for sustainable and equitable management practices. We examine the impact of the Sundarbans on regional trade and investment, considering its location along vital trade routes and its potential further to facilitate economic connectivity between South Asian countries.

Intersecting Threads: This paper also emphasises the intricate inter dependence between these geopolitical aspects. We will analyse how environmental governance decisions impact the Sundarbans' economic potential and how economic activities, in turn, influence the ecosystem's health and sustainability. Furthermore, we will explore how these factors shape regional security dynamics, cultural exchanges, and overall stability. By unravelling the complex interplay between environment, governance, and economy within the Sundarbans, the paper aims to (1) Inform policy decisions related to the Sundarbans' sustainable management, promoting effective environmental governance and inclusive economic development. (2) Advocate for a collaborative approach that prioritises ecological integrity and regional prosperity, ensuring the Sundarbans continue to serve as a beacon of stability and opportunity in the heart of the Bay of Bengal.

Theoretical Foundations*:* The Sundarbans' influence on South Asian geopolitics extends beyond its ecological majesty. Understanding this multifaceted impact requires exploring its intricate interplay with various theoretical frameworks encompassing environmental governance, the blue economy, and broader geopolitical forces.

Polycentric governance: This framework, advanced by Elinor Ostrom (2009), acknowledges the multilayered and interconnected nature of governance structures. In the Sundarbans, this translates to understanding how local communities, national governments (India and Bangladesh), and international organisations like UNESCO interact and collaborate to manage the ecosystem. Analysing power dynamics, decision-making processes, and accountability mechanisms within this intricate web is crucial to evaluating the effectiveness of current governance practices. Ghezelbash's (2020) analysis of ocean governance highlighted the management of marine resources in the Bay of Bengal, where the Sundarbans are located. Examining international instruments like the UN Convention on the Law of the Sea and regional cooperation mechanisms like the Bay of Bengal Initiative for Multi-Sectoral

Technical and Economic Cooperation (BIMSTEC) becomes crucial for understanding how shared resources are managed and addressing potential conflicts. This framework fosters collaboration and ensures sustainable resource management across national boundaries.

Adaptive governance: Developed by Carl Folke (2005), this framework acknowledges the dynamic nature of social-ecological systems like the Sundarbans. Climate change, rising sea levels, and resource use constantly challenge the ecosystem's health. The framework tried to analyse how governance systems adapt to these challenges, learning from past experiences and incorporating flexibility into decision-making that is essential for long-term sustainability.

Equity and justice: Frameworks like Jentoch's (2018) work explore how different stakeholders access and benefit from the Sundarbans' resources. Recognising the needs and concerns of diverse communities, including fishing communities, indigenous populations, and conservation groups, is vital for ensuring fair and equitable governance practices. This framework helps identify potential power imbalances and advocate for inclusive decision-making processes.

Blue Economy:

Sustainable economic development: As Jacobs et al. (2021) emphasise, economic activities within the Sundarbans must prioritise long-term ecological sustainability. Evaluating economic practices like fishing, aquaculture, and ecotourism through this lens ensures that resource use does not compromise the ecosystem's health. Balancing economic benefits with conservation efforts is crucial for achieving sustainable development.

Circular economy: Potentially, the effect of sustainable development must accept and integrate the conservation of the environment. It originates from the idea of circular economy. The Ellen MacArthur Foundation (2023) promotes the circular economy framework, advocating for minimising waste and maximising resource reuse within the blue economy. Exploring how to implement closed-loop systems in the Sundarbans, where waste management poses significant challenges, can offer innovative solutions for sustainable economic development. This framework encourages efficient resource utilisation and minimises environmental impact.

Critical environmental geopolitics: As Bryant (2001) discussed, this framework highlights the power dynamics and inequalities embedded within environmental issues. Exploring how powerful actors influence environmental decision-making in the Sundarbans and navigating issues like climate change with diverse interests is crucial for understanding the region's geopolitical landscape.

When applied systematically, these frameworks offer a holistic lens to analyse the Sundarbans' multifaceted geopolitical significance. Their combined exploration allows us to understand the complex

interplay between environment, governance, economy, and broader geopolitical forces shaping the Sundarbans' future and ultimately influencing regional stability and prosperity.

Research Gap: While existing theoretical structures illuminate the intricate mechanism of environmental governance, the blue economy, and broader geopolitical forces, a distinct research gap remains regarding their interconnected application in understanding the Sundarbans' distinct influence on South Asian geopolitics. While individual studies have explored these factors in isolation, none have comprehensively examined their combined and dynamic interplay within the Sundarbans' specific context. This research gap brings unaddressed questions to the fore, which are as follows:

1.Bridging Governance and Economy: How effectively do polycentric governance structures incorporate blue economy principles like sustainability and circularity within the Sundarbans?
How do major power rivalries in the Bay of Bengal impact the governance and sustainability of the Sundarbans' blue economy?
How can adaptive governance mechanisms be operationalised within the multilayered context to ensure timely and effective responses to challenges like climate change and resource diminution?
Can active environmental governance in the Sundarbans raise trust and cooperation between India and Bangladesh, potentially mitigating potential border disputes and other security concerns?

2.Blue Economy and Geopolitics: Do existing policy frameworks effectually tackle the trade-offs between economic development and ecological conservation in the blue economy of the Sundarbans?
How can the blue economy act as a bridge for international collaboration on shared challenges like climate change adaptation and disaster preparedness in the Sundarbans region?

3.Environment and Security: How do environmental governance practices in the Sundarbans, particularly regarding transboundary resource management and climate change adaptation, influence regional security dynamics in South Asia?
How can a critical environmental geopolitics framework empower marginalised communities within the Sundarbans and ensure their voices are heard in decision-making processes impacting their environment and livelihoods?

Methodology

1. Integrating Blue Economy Principles: The effectiveness of polycentric governance structures in integrating blue economy principles within the Sundarbans remains a complex and under-researched question. Studies suggest challenges in coordinating sustainable livelihood practices across the Sundarban Reserve area, but habitat suitability analysis (Sahana et al., 2022) also revealed that nearly half of the grids are highly suitable for mangrove habitats. However, the extent to which these challenges

translate into concrete policy gaps and their impact on sustainability indicators like fish stock depletion or traditional livelihood practices remains unclear.

Data collection: ***Policy analysis*****:** Examining national and regional policies promoting sustainable fishing and circular economy principles in the Sundarbans.

Stakeholder interviews: Interviewing fishermen, local inhabitants, government officials, and NGOs to understand their perspectives on policy implementation and adoption of blue economy principles. Analysing fish catch volumes and species composition data to assess existing practices' impact on resource sustainability.

2. Balancing Economic Development and Conservation: Whether existing policy frameworks adequately address the trade-offs between economic development and ecological conservation in the Sundarbans' blue economy requires a nuanced understanding of current practices and their outcomes. While studies like UNEP (2023) highlight the potential of sustainable practices, data on their actual implementation and economic viability is limited.

Data collection: ***Economic analysis*****:** Assessing the economic contribution of various blue economy activities (e.g., sustainable fishing, ecotourism) compared to traditional practices.

Ecological impact assessment: Evaluating the environmental impact of different blue economy activities on key ecological indicators (e.g., mangrove health, biodiversity).

Cost-benefit analysis: we have examined various policy measures and actions taken report toexamine the economic costs and benefits of implementing specific sustainability measures and conservation efforts.

4. Operationalizing Adaptive Governance: Translating adaptive governance principles into action within the Sundarbans' multilayered context demands a deeper understanding of existing mechanisms and their effectiveness in responding to climate change and resource depletion. Studies like Mondal et al. (2023) identify challenges in information sharing and stakeholder collaboration. However, concrete examples of successful adaptation and their impact on resource management remain largely unexplored.

Data collection: ***Case studies*****:** Analysing specific instances where adaptive governance mechanisms were employed to address challenges (e.g., community-based resource management, early warning systems).

Expert interviews: Interviewing policymakers, scientists, and community leaders to understand theirperspectives on existing adaptive governance mechanisms and their effectiveness.

Document analysis: Examining reports and plans outlining strategies for adapting to climate change and resource depletion challenges. By combining these data collection methods, one can gain valuable insights into the effectiveness of polycentric governance structures, the trade-offs between economic development and conservation, and the operationalisation of adaptive governance mechanisms within the Sundarbans' blue economy. This information will be crucial for informing policy recommendations and promoting more sustainable and equitable blue economy practices in the region.

Challenges and threats

1. Governance Challenges: A Top-Down Approach and the Need for co-management is imminent in Sundarban. Traditionally, forest management in the Sundarbans has adopted a top-down approach, with centralised agencies like the Forest Department dictating policies and regulations (Dasgupta & Shaw, 2013). While this approach aims for uniformity and efficiency, it often overlooks the crucial role of local communities in conservation efforts. This approach has been criticised for failing to consider local knowledge and neglecting community participation, hindering the effectiveness of conservation strategies (Dasgupta & Shaw, 2013). An alternative approach gaining traction is co-management, which involves collaborative decision-making between government agencies, local communities, and other stakeholders (Dasgupta & Shaw, 2013). This approach fosters a sense of ownership and responsibility among local communities, potentially leading to more sustainable resource management practices. While the Sundarbans has witnessed some recent attempts at co-management initiatives, these remain limited in scope and require further scaling up and deeper engagement with local communities (Ghosh & Ghosh, 2019).

2. Economic Pressures: This area's significant challenges are unsustainable resource extraction and land use changes. The Sundarbans faces intense pressure from unsustainable resource extraction practices driven primarily by high population growth and poverty in the surrounding areas (Singh, 2017; Ghosh, 2015). Local communities, often lacking alternative livelihood options, resort to overfishing, extracting non-timber forest products (NTFPs) like fuelwood and leaves, and engaging in activities like shrimp farming, all contributing to habitat degradation and resource depletion (Chowdhury & Brahma, 2019; Chakraborty, 2011). This overexploitation, coupled with weak enforcement of regulations and inadequate monitoring, further exacerbates the situation (Dasgupta & Shaw, 2013).

Land-use changes also pose a significant threat. Conversion of mangrove forests for agricultural expansion and aquaculture ventures, particularly shrimp farming, is a major driver of habitat loss (Dasgupta & Shaw, 2013). The extent of this conversion is alarming, with regional reports suggesting that 90% of mangrove loss is attributed to agricultural and aquaculture development (Dasgupta & Shaw, 2013).

3. Climate Change and its Cascading Effects: Climate change, with its rising sea levels, increased cyclone frequency and intensity, and altered precipitation patterns, poses another significant threat to the Sundarbans (Dasgupta & Shaw, 2013; Ghosh, 2015). Sea level rise leads to coastal erosion and inundation of low-lying islands, displacing communities and further impacting the ecosystem (Chaudhury, 2015; Guha & Roy, 2016). Cyclones wreak havoc on the fragile ecosystem, causing widespread damage to mangroves and infrastructure while altering sedimentation patterns and disrupting ecological processes (Raha, 2012).

These climate-induced changes have cascading effects on livelihoods and social structures. Increased vulnerability to food insecurity due to disrupted fishing practices and agricultural losses disrupt traditional food sources (Kanjilal, 2010). Livelihood options like kitchen gardens and livestock rearing become unreliable due to erratic weather patterns and rising salinity levels, forcing communities to become more dependent on markets and potentially unsustainable practices (Ghosh et al., 2018). Male migration in search of work, while a coping strategy for some families, often places additional burdens on women who must manage households, contribute to income, and care for children and elders (Kanjilal, 2010). These combined pressures exacerbate vulnerabilities and threaten the social fabric of communities.

The Sundarbans face complex challenges, including governance shortcomings, unsustainable resource use, and climate change. Addressing these challenges requires a multifaceted approach that prioritises integrated management strategies. This approach should encompass empowering local communities by fostering co-management initiatives, ensuring their participation in decision-making processes, and providing alternative livelihood options that reduce dependence on unsustainable practices. Strengthening governance by promoting transparency, accountability, and effective enforcement of regulations alongside collaborative decision-making with stakeholders is imperative.

While ecotourism has been promoted as a potential solution, with its promise of involving tourists, investors, government officials, and local communities (Ghosh & Ghosh, 2019), concerns linger regarding its effectiveness in the Sundarbans. Experts and authorities harbour scepticism about the actual benefits accruing to local communities. Literature suggests minimal control by local communities over ecotourism activities and limited economic participation (Ghosh & Ghosh, 2019). Concerns exist about tourist behaviour, with evidence suggesting a lack of respect for the fragile ecosystem and its processes. Research by Ghosh and Ghosh (2019) highlights the unequal distribution of economic benefits from ecotourism in the Sundarbans, with the poorest and most marginalised communities failing to reap tangible rewards. These factors necessitate a critical evaluation of the current ecotourism model in the Sundarbans.

4. Dependence on Natural Resources and Environmental Degradation

Precarious Livelihoods: Women in the Sundarbans, particularly those from low-income families, are disproportionately affected by environmental degradation due to their dependence on natural resources for survival. This includes gathering resources like fruit and roots for food, fetching water for household use, and relying on biofuels for cooking.

Exacerbated by Climate Change: The depletion of natural resources and the effects of climate change, such as cyclones and erratic weather further threatens their livelihoods. They are forced to travel increasingly longer distances to obtain essential resources, facing dangers like physical assaults and increased economic hardship.

Limited Control and Unequal Impact: Pre-existing gender inequalities further disadvantage women. They lack control over decision-making and resource distribution, often lacking access to education and alternative livelihood options. This makes them more vulnerable to the negative consequences of environmental degradation and climate change than men.

5. Gendered Problem

5.1. ***Governance and Gender Equity***: While government interventions like housing schemes and subsidised food distribution have alleviated some pressure on the environment, other aspects of governance raise concerns.

5.2. ***Forest Management and Community Disconnect:*** The Forest Department's regulations and lack of involvement of local communities in forest management are perceived as ineffective and create resentment. Women feel their dependence on forest resources is not fully understood by authorities, leading to unsustainable practices and limited involvement in conservation efforts.

5.3. ***Ecotourism's Uneven Benefits:*** Government-led ecotourism initiatives are criticised for failing to consider the real needs of local communities, particularly women, and potentially exacerbating existing inequalities.

5.4. ***Livelihood Strategies and Challenges:*** Crab Catching: Many women rely on crab catching as their primary source of income, often accompanying their husbands into the forest despite the challenging conditions and safety risks. This work depends entirely on the tidal cycle, requiring long hours and significant physical exertion.

5.5. ***Limited Options and Vulnerability:*** Apart from crab catching, honey bee farming and livestock rearing are present in the region, but they are either seasonal or declining due to environmental factors. This limited range of options increases women's vulnerability and dependence on the increasingly stressed ecosystem.

5.6. ***Power Dynamics and Domestic Realities:*** While tribal women appear to have a slightly greater voice in financial decisions within their households, overall control over income and assets remains limited for most women. This lack of agency restricts their ability to plan for the future and address basic needs. Women in the Sundarbans face a double burden of earning income and managing household chores. They often receive little to no help from men, leading to feelings of exhaustion, resentment, and hopelessness.

5.7. ***Violence and Social Norms:*** Domestic violence is reported as a common occurrence, further adding to women's struggles and highlighting the societal power imbalances they face. The normalisation of such violence within the community demonstrates the need for broader social and cultural change.

Overall, the women of the Sundarbans face many challenges related to livelihood security, lack of agency, and limited access to essential resources and services. Addressing these issues requires a multifaceted approach that prioritises empowering women through education, skills training, and access to decision-making processes. It may also promote sustainable resource management practices in collaboration with local communities, including women. Addressing gender inequalities within the household and broader society through social awareness campaigns, policy changes, and improving access to essential services like healthcare and education for women and their families is essential for understanding the island.

Due to space restraints, we cannot bring the true representation of all the data gathered, but we would like to bring in two interviews that could reflect part of it. Many of our respondents (name and address withheld) also resonate the same. By integrating all of their records, the key findings are:

Two case studies: a) Interview with Maya (Female, age 45, widowed, collects fish and crabs): ***Livelihood struggles***: Maya describes a decline in fish populations and increased difficulty in earning a living. This is attributed to tourism activities and more frequent, intense storms.

Vulnerability and Limited Options: Losing a spouse leaves Maya in a precarious position, forcing her to rely on depleting natural resources. Her daughter Asha's dream of becoming a doctor seems out of reach due to limited educational opportunities.

Need for Sustainable Solutions: Maya desires alternative livelihoods less dependent on the already stressed ecosystem. It suggests that interventions aimed at sustainable resource management and improved access to education and healthcare are imminent. Empowering women through income generation opportunities is crucial for improving women's lives in the Sundarbans and ensuring a more sustainable future for the region.

b) Circular Solutions for a Sustainable Sundarbans: A Conversation with Jeet: This piece explores the potential of a circular economy in the Sundarbans through a conversation with Jeet, a 35-year-old fisherman with a family of 4 persons- two kids and a wife. Jeet's perspective highlights the community's challenges and inherent resourcefulness in utilising what they have.

1. Resource Scarcity and Waste Management: Jeet emphasises the decline in fish populations and the increasing difficulty in making a living. He identifies plastic waste from tourism as a significant concern, polluting the ecosystem and damaging fishing nets.

2. Traditional Practices and Circular Ethos: Despite limited resources, Jeet exemplifies the existing circular practices within the community. Mending nets until they are practically unusable demonstrates their commitment to minimising waste.

3. Potential for Innovation: The interview explores the possibility of adopting new practices that align with circular economy principles. Collecting and recycling plastic waste into usable objects like fishing nets resonates with Jeet, offering a solution to waste management and resource scarcity.

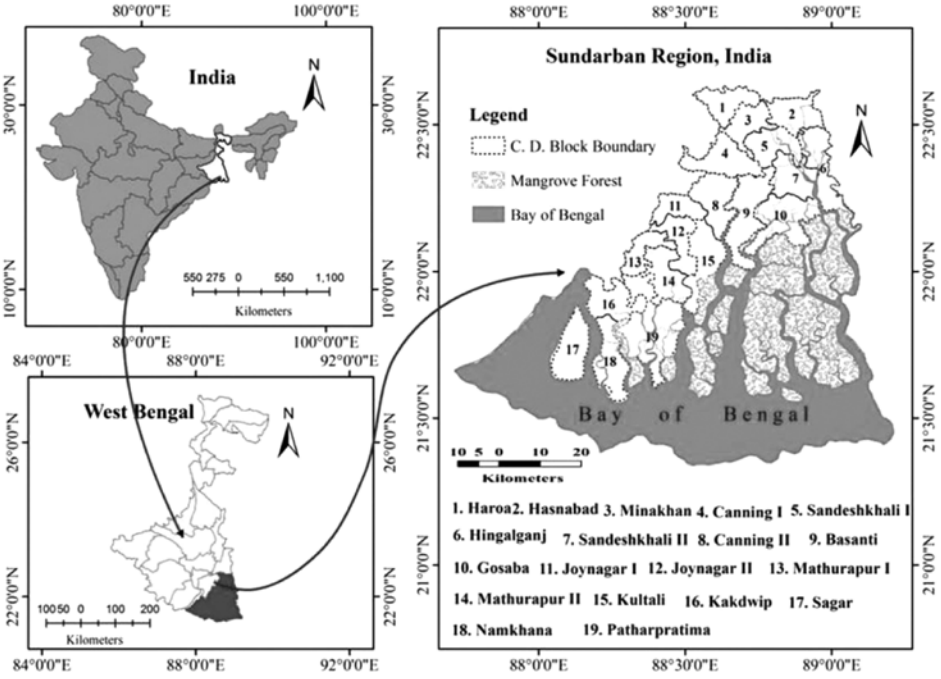
4. Minimising Waste and Maximising Resource Use: Jeet acknowledges the issue of wasted fish due to market fluctuations. The suggestion of fish preservation techniques like drying or salting for later sale or conversion into fertiliser resonates with him, demonstrating the potential for minimising waste and maximising resource utilisation within the food system.

5. Collaboration for a Sustainable Future: Jeet's openness to new ideas underscores the importance of collaborative efforts between researchers and local communities. Integrating traditional knowledge with innovative solutions can pave the way for a more sustainable future for the Sundarbans and its inhabitants. This brief exchange with Jeet highlights the potential of a circular economy approach to address waste management, resource scarcity, and livelihood challenges in the Sundarbans. Further research and collaboration with the community are crucial to developing and implementing practical solutions that ensure the ecosystem's and its people's well-being.

Conclusion: The Sundarbans face complex challenges from environmental degradation, climate change, and socio-economic pressures. Based on interviews with Maya (a widowed resident) and Jeet (a fisherman), this report underscores the disproportionate impact these challenges have on women and the critical need for a multifaceted approach to ensure the region's sustainability. Education and skill development are significant areas to highlight. Investing in girls' education and providing women with alternative livelihood options beyond resource extraction are crucial steps towards empowering and reducing their vulnerability.

Collaborative efforts between local communities, government agencies, and NGOs are necessary to develop and implement sustainable resource management practices that minimise environmental degradation while ensuring long-term livelihoods. Initiatives aimed at collecting and recycling plastic waste, exploring fish preservation techniques, and promoting using recycled materials can significantly reduce waste and increase resource efficiency. Effective governance requires active participation from local communities in decision-making processes. This fosters a sense of ownership and promotes solutions that address their specific needs and concerns. Targeted interventions are needed to address gender inequalities within households and broader society. This includes promoting shared domestic responsibilities, ensuring women's control over income and assets, and providing access to essential services like healthcare and education. By prioritising women's empowerment, promoting a circular economy, and strengthening governance, a more sustainable future for the Sundarbans can be achieved. This future will ensure the well-being of the ecosystem and the communities that depend on it for generations.

On the other hand, the state should recognise the maritime infrastructure development, including infrastructure, maritime connectivity projects, and maritime trade facilitation initiatives. Enhanced maritime infrastructure can enhance the strategic position of South Asian countries such as India and Bangladesh as maritime hubs and promote regional economic growth and development. Better cooperation among states in disaster risk management and humanitarian assistance, including coordination of disaster response efforts and capacity-building initiatives, could easily facilitate this area as the critical point of trade and commerce. Improved disaster risk management can enhance the resilience of South Asian countries to natural disasters such as cyclones, floods, and tsunamis, contributing to regional stability and security. Sustainable development of the blue economy, including fisheries management, marine biodiversity conservation, and ocean renewable energy, could enhance cooperation in the blue economy, promoting economic growth and sustainable development in South Asian countries with significant marine resources, such as India, Bangladesh, and Sri Lanka. Overall, the Sundarbans contribute to the strategic relationship of South Asian countries by fostering cooperation in maritime security, trade and connectivity, maritime infrastructure development, disaster risk management, and blue economy development, thereby promoting regional stability, prosperity, and security.



Source: Ali, Sk Ajim & Khatun, Rumana & Ahmad, Ateeque & Ahmad, Syed. (2019). Application of GIS-based analytic hierarchy process and frequency ratio model to flood vulnerable mapping and risk area estimation at Sundarban region, India.Modeling Earth Systems and Environment.

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Genetic, linguistic and molecular anthropological study of the Indian Ocean Littoral, in Austronesian dispersal, across the Pacific

Banrida T. Langstieh

Abstract

The Indian Ocean region is a critical route/corridor/barrier for the migration and settlement of people whose social, linguistic and genetic ancestry is of interest to anthropologists worldwide. Varying from the 'little tradition' of small isolated populations to the 'great tradition' of global and admixed heritage, in the field of collating evidences from culture, language and anthropological genetics this paper will examine the 'Austronesian dispersal' within the boundaries of the Indian ocean sporadically sprinkled across Pacific islanders. Littoral or near shore settlements may have simply act as 'gateways' as would have been the case with pre-historic settlements somewhere near a fresh water source or river bank. Physical environmental changes such as those driven by drastic ecological catastrophes including severe and acute adaptations to climatic and nutritional stressors can leave signatures providing vital clues for the dispersal of humankind.

During the last two decades or more, a plethora of genomic information has surfaced tracing the genetic history of an archaic hominin group from ancient DNA. In the light of ensuing works by palaeoanthropologists and evolutionary biologists, the dispersal and migration of people, genes and languages studying human history either directly through their remains or indirectly through tools, pottery or other cultural items have provided concerns over interpretation of archaeological dates. Similarly assessing the reliability of linguistic data which may favour a close correlation between genes and languages, yet at times appear to conflict with genetic evidence.

Despite these limitations, several ideas has been put forth concerning the dispersal of modern humans from Africa via the southern route, along the coast of India, eventually reaching Sahul the landmass consisting of Australia and New Guinea, which were connected until rising sea levels separated them about 8000 years ago. This putative "early southern dispersal", as it came to be known, would now be underwater. From single versus multiple dispersal models molecular anthropologists have re-examined hypotheses about the colonization of the Pacific with different pliable approaches to understand population histories in the context of the 'Austronesian dispersal' across the Pacific.

Keywords: *Molecular Anthropology, Genetic, Linguistic, Archaeological, Migration, Dispersal, Austro-Asiatic, Austronesian, Indian Ocean, Pacific.*

Introduction

At the outset of this brief presentation, as an outsider to this august gathering of the Kolkata Society for Asian Studies, I express my humble appreciation and acceptance to your kind invitation for this Conference under the theme titled *"Bengal Basin and Bay of Bengal interaction sphere: Pan Indian and Pan Asian Contacts".* As a lay scholar to proto-history and ancienthistory or even the Geo-politics of our region, country and continent mere observations from being an anthropologist as a 'participant or non-participant observer' on my half centurion year might not be so enough. Somewhere down the line in the quest of corroborating scientific research developments in genetics and its ever upgrading technology whatsoever with queries and interpretations on our understanding of dispersal of the humankind, I shall present here a collection of research findings which were put forth during these last two decades or so, with an update from where I had left off while pursuing my research interest in molecular anthropology.

In today's age and time, even for an anthropologist we rely on trying to detect physical evidences from the visible or un-visible elements in nature; from atoms and molecules; genes and genomic, living, dead or decayed biological matter including cultural artifacts which can provide vital clues and be given utmost importance in the most scientific of laboratory analysis and data interpretation. Not to mention that with the rapidly evolving tools and techniques of research in molecular biology, genetics, archaeology and/or linguistics or in any scientific field of research and development the applications of STEM Science, Technology, Engineering and Medical Sciences cannot be ignored.

As for the relevance of this given title of my presentation, entitled Genetic, linguistic and molecular anthropological study of the Indian Ocean Littoral, in Austronesian dispersal, across the Pacific, I would like to address and be specific in collating the reviewed information on post-genomic era that is, research publications available in these past two decades or more with an over lay of the classical findings on archaeological and linguistic research.

Genetic: Evolutionary Theories & Practical Applications

Our contemporary understanding of evolutionary processes builds on theory developed during the "Evolutionary Synthesis" of the 1930s-1940s when Darwin's ideas especially "Natural Selection" were joined with Mendelian Genetics. Continuing elaboration with discoveries in molecular genetics has helped us understand the genetic changes that are often reflected notably in population genetic

studies on phenotypic and/or genotypic variation. From an anthropological geneticist's perspective, what we understand today is that any changes in genetic variation originate by mutation and/or by recombination of DNA sequences albeit in any form of bio-chemical protein substances. Compilation of these genetic variation studies quantitative and qualitative traits has helped guide us to understand the nuances of polymorphism, heritability, genetic mapping, drift, selection, admixture or gene flow within and among populations. The use of DNA sequence data theoretically to act as "molecular clock" accumulating substitutions over the course of timeless generations, "calibrating" and recalibrating based on geologically dated events such as fossils of studied lineages or the separation of two landmasses on which related phylogenic taxa resides or the calculations based on nucleotide substitutions some of which maybe neutral mutations molecular evolution, provide a basis for many important references. For example, inferring effective population size, time of the most recent ancestor TMRCA, historical relationships of populations, divergence and genetic polymorphism of advantageous as well as detrimental genes related to health, heritable diseases, human adaptation and many more.

Academically, combining micro level field observations within a macro level framework, the study of small scale movement within a particular habitat dispersal and longer distance directional movements from one habitat to another migration have led to our understanding that no doubt the human species arose in Africa, but then what happened to the trails of human dispersal beyond the vast oceans. The Indian Ocean region for that matter would it be called a critical route/corridor/ barrier for the migration and settlement of people whose social, linguistic and genetic ancestry subsumes a varied characterization of socio-cultural, linguistic, economic, behavioural and biologically related history of humankind in Asia and beyond. On the same lines of thought as that applied for the 'Peopling in India' with lineages mentioned for the Ancestrally North Indian ANI and Ancestrally South Indian ASI as referred by Reich *et al.* 2009 plotted on a larger scale for the 'Pan Asian' distribution whether would it be in majority via the 'Southern Route' by water or seaways along the coastline of vast oceans or by foot on land taken by 'Northern Route' the spread of distinct ethnic identity through language and culture says it all.

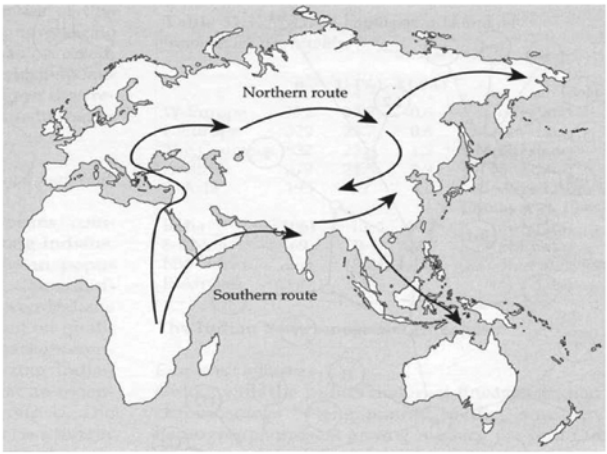


FIGURE 1: *Two alternative routes for out-of-Africa migration (Gadgil et al. 1997)*

Addressing these issues of population history today, we have had the opportunity to read and know and be aware that there is a plethora of good research publications generated from genetic, linguistic, archaeological and geological and not to mention anthropological data that seeks to provide updates pertinent to the interest of this region.

In global context, the magnum opus of Cavalli-Sforza and colleagues 1994 on the *"History and Geography of Human Genes"* as well as its popular version of *"Genes, Peoples and Languages"* gavea detailed description of probable human migration by continents based on theories and corroboration with classical genetic markers Blood groups, Serum protein, enzymes, etc.. A mention was provided with a focus on the compilation under the following themes:

1) the initial Out-of-Africa dispersal of modern humans;
2) the colonisation of the New World; and
3) the colonisation of the Pacific

Indian Scenario

With reference to studies in India or the Indian subcontinent a reference may be made to the initiatives published by the Indian Academy of Sciences, in the Journal of Bioscience Special Issue 345, November 2009 on India's fossil Biota: Current perspectives and emerging approaches. A plethora of articles were compiled from multidisciplinary views by Palaeontologist, Geologist and other research working groups from the Centre for Ecological Sciences, Indian Institute of Science, Bangalore; Birbal Sahni

Institute of Palaeobotany, Lucknow; IIT Kharagpur, ISI Kolkata, etc. Notable contributions by these articles discussed divergence time estimates of mammals from molecular clocks and fossils, relevance of new fossil finds from India, examining the potential of an "Out of India Hypothesis" which was put in question as to whether India was at the cross-roads of human evolution?

In a previous collaborative findings by Gadgil *et al.* 1997 on 'The Indian Heritage' a published report from Archaeological, Linguistic and Anthropological patterns, suggests that the Indian subcontinent has been populated by a series of migrations. Notable among them was the classfication of four basic distinct linguistic groups in India namely, Austro-Asiatic, Indo-Aryan, Dravidian and Sino-Tibetan which is briefly summarize in the following :

i. Austric language speakers came soon after 65,000 years BP, probably from the northeast
ii. Dravidian speakers around 6,000 years BP from the mid-east with knowledge of cultivation of crops like wheat and domestication of animals like cattle, sheep and goats
iii. Indo-European speakers in several waves after 4000 years BP with control over horses and knowledge of Iron technology
iv. Sino-Tibetan speakers in several waves after 6000 years BP with knowledge of rice cultivation etc…

Thus, in the context of India with reference to linguistic evidences from theory and praxis four language families namely, [1]Indo-Aryan, [2]Dravidian, [3]Tibeto-Burman Trans-Himalayan group and [4]Austro-Asiatic are clearly identified in the context of its people.For this presentation I will be reviewing only the latter two language families and stretching towards the Pacific Islanders with glimpsesand insights into the Austronesian dispersal.

A good sizeable number of publications has been received when in the light of multidisciplinary research collaborations, we see the names of practicing historical linguists among them George van Driem 2014 for Tibeto-Burman linguistic group who would prefer to the usage of the term 'Trans-Himalayan group'. On the other hand Gerard Diffloth 2005 had proposed a re-classification of the Austro-Asiatic linguistic group whereby he identified a subclade categorizing the Khasi and Nicobarese as Southeast Asian 'Mon Khmuic' and not 'Mon Khmer' though the latter is still preferred.

On the contrary a closer examination of the Mongoloid populations in India particularly those that beloned to the Trans-himalayan linguistic group also known as the Tibeto-Burman or Sino-Tibetan groups, their affinity towards the East Asian dispersal by land is one of the most common. Though

relatively dated to a much later wave of comparatively recent migratory route, by less than 6000 bp settled in the young fold mountains of the Himalayas, with supporting genetic evidences linked to the Asian continent. Evaluating the gene flow along the sides of the Bay-of-Bengal an extensive analysis revealed that the population history of South Asian Tibeto-Burman speakers is more complex (Gazi *et al.*2013). Reported studies about the contrasting maternal and paternal genetic variation of Asian populations (Kutanan *et al.* 2018) with increased genetic variants and/or reportedly high genetic diversity indices using Y-chromosome, mitochondrial DNA and HLA gene systems (Trejaut *et al.* 2019) is not found uncommon.

The Austro-Asiatic element

Being a Khasi and an Austro-Asiatic language speaker myself, I would like to look back into my PhD from Calcutta University 2004 & the subsequent post doctoral researches which is about 2 decades ago, an initiation into the molecular anthropological journey unravelled by DNA studies on the autosomal, mitochondrial and Y-Chromosomal markers (Langstieh *et al.* 2004; Kumar *et al.* 2006a; 2006b; 2007a; Reddy *et al.* 2007; Langstieh *et al.* 2012). The extension of this study on the Austro-Asiatic linguistic group had provided biological evidences or signatures of genetic lineages Y-chromosomal haplogroups and mitochondrial DNA data from India dispersing beyond the Bay of Bengal via the sea shores and coastal entry points into Southeast Asia and beyond. Of late, an updated research on the genetic legacy of Indian Austroasiatic speakers (Tätte *et al.* 2019) provided astating remark aboutthe eminentcontinental scale admixture for a subset of ancestral populations when map for South and Southeast Asia indicating that through Y chromosomal paternal lineages the Indian Ocean was a permeating Corridor for human population dispersal in the region with signals found extending towards the Austronesian language speakers of the Pacific.

In the context of Austronesian dispersal

In line with the given topic of this presentation entitled “Genetic, linguistic and molecular anthropological study of the Indian Ocean Littoral, in Austronesian dispersal, across the Pacific” a brief knowledge showing the distribution of the various subgroups of Austronesian languages.

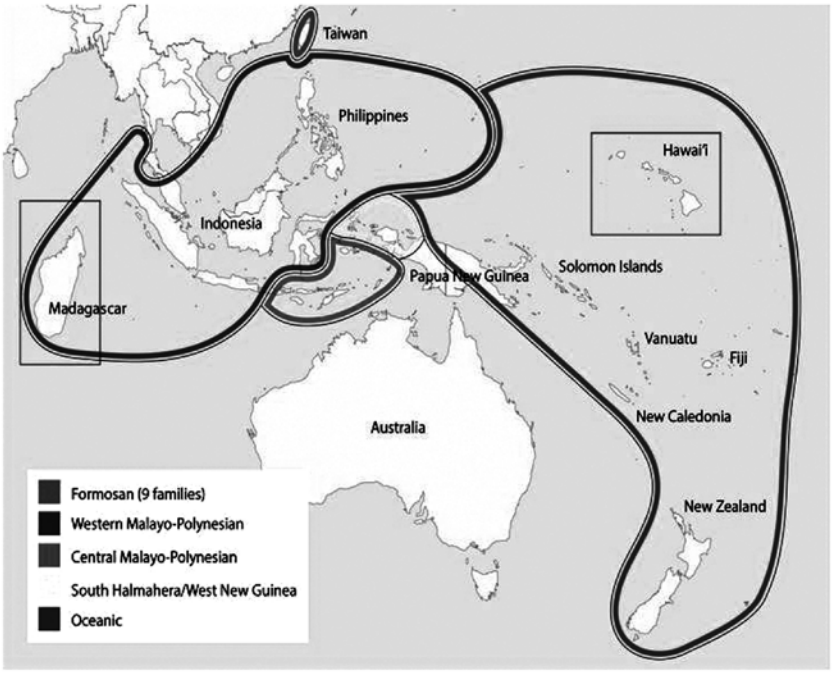


FIGURE 2: Map showing Distribution of Austronesian language speakers (Bellwood 2011)
[Map showing Distribution of Austronesian language speakers cited from Bellwood 2011]

needs a special mention here. Beyond the Indian Ocean into the Pacific contains a large geographical expansion whose area coverage stretches from Madagscar in the West, Taiwan in the North, Hawaii islands in the East and New Zealand in the South. Historically the South Pacific islands has also been known to be divided into regions defined partly by geography Near Oceania and Remote Oceania and culture Melanesia, Micronesia and Polynesia

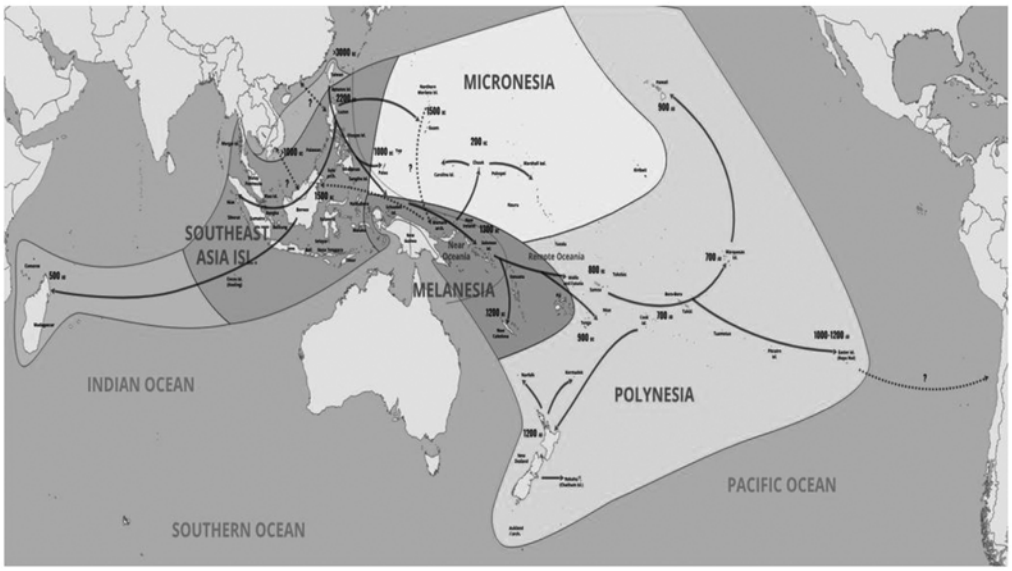


FIGURE 3: Chronological dispersal of Austronesian people across the Pacific

Academicians who are interested in collating information from linguistic, archaeological and anthropological findings from Australia, Europe, Asia and the US have published quite a number of research findings particularly reporting about the estimated initial colonization of these islands, including plausible migratory routes based on radio carbon dating of shells, bone, plant materials, etc as well as the type of dentate pottery called 'Lapita'.

With respect to linguistic evidence, three identified major groups associated with the Pacific include - Australian, Papuan and Austronesian. In contrast to the Australian and Papuan languages which are extremely heterogenous groups of very divergent languages, the Austronesian languages are considered to be definitely related to one another forming a comparatively homogenous family. With the help of linguists in this field, biologist Rusell Gray and colleagues 2009 compiled and produced a tree of Austroneian languages which showed remarkable congruence with geography of near and remote Oceania.

Through archaeological and linguistic evidences interesting findings emerged which includes distinctive pottery and rice agriculture, suggesting the proposition of interests on different migratory

models affiliating Austronesian cultural and perhaps biological origin to Southeast Asia. Whether by land or by sea, below are some of the proposed models related to the Austronesian dispersal:

(i) "Express Train" model of Jarred Diamond 2000

(ii) "Out of Taiwan" model of Peter Bellwood 2007

(iii) "Triple I" model of Roger Green 2010 which stands for Intrusion, Integration and Innovation emphasizing the roles of migration, admixture and new inventions.

(iv) "Entangled Bank" model of John Terrell 1988 also referred to as the "Out of Melanesia" model which denies the importance of any single wave of migration for the Austronesian dispersal in Southeast Asia and Near Oceania.

On a similar note, a few other compilations on Anthropological Genetics published by Michael Crawford 2007 mentions of a brief historical update on theory, methods and application including human diaspora of four continents Africa, Europe, Oceania and Americas. On one such issues was the reporting about the peopling of the Pacific Oceania, by Elizabeth Matisoo-Smith 2007 who reiterated the significance of the archaeologically recognized '*Lapita Cultural Complex*' and agenetic deletion of one copy of a 9 base pair bp repeat sequence in the COII/tRNAlys intergenic region, a marker generally referred to as the *'Polynesian motif'*(Melton et al., 1998; Redd et al., 1995) with its Asian and Non-Asian origin derivatives.*Linguistic* analyses have played a key role in developing models for Pacific settlement, particularly with regard to the origins of the Lapita peoples, associated with the spread of the Austronesian languages.

In this era of molecular genetic information being provided by ancestry informative markers when deciphering elements of the Mitochondrial DNA maternal, Y chromosomal DNA paternal and Autosomal DNA biparental inheritance through Genotyping, Whole Genome Sequencing with Microarray and GenoChip technologies both quantitative and qualitative data are more easily accessed today than ever before. This is made possible when one goes through publications and the ever updated data banks maintained by such research groups. For a molecular anthropologist, studying these analytical variation in mitochondrial DNA, Y-chromosome DNA and/or autosomal DNA including X chromosome either incontemporary populations or ancient specimens allows us to reexamine both the classical findings and contextualize with the current research trends on population genetic history in this field.

Evidences from the molecule: ancient and modern

Thus, one of the most common ways to investigate questions concerning with the origin, relationships and history, structure and migration patterns of human populations is of interest to those who does research in this field. Of late, biological information of these kind helps probe studies on the ancient or archaic DNA bioengineered from human fossil remains, such as those reported cases of interest

from the Neanderthal and Denisovan ancestry (Reich *et al.* 2010; Meyer *et al.* 2012; Browning *et al.* 2018;Jacobs *et al.* 2019). A few reported studies stretched with headline references such as - "Did archaic genetic variants help Melanesians adapt?" whereby it was reported that the DNA of Melanesian populations carries some of the largest percentage of ancestry from now-extinct Neanderthals and Denisovans. PingHsun Hsieh and Evan Eichler 2019 genome scientists at the University Of Washington School Of Medicine were interested to discover structural changes in the DNA of modern-day Melanesians that might have been inherited from Neanderthal and Denisovan ancestors. This research team specifically focused on a structural change called copy-number variants, which occur when a large stretch of DNA sequence in the genome becomes duplicated or deleted. To this and many more such research findings from multi disciplinary fields being exercised in the past will continue to be carried forward by those who are interested in this field for future interest of this discipline.

In conclusion, such molecular anthropological insights with inferences from Archaeology and Linguistics have provided emerging trends of expanding researches in this ever growing field of interest. As living example, the Bay of Bengal region will definitely have reflections of bio-social interest whether from Prehistoric to the Protohistoric times. Palaeo anthropologists and anthropological geneticists has put forth several ideas concerning the dispersal of modern humans from Africa via the southern route, along the coast of India, eventually reaching Sahul the landmass consisting of Australia and New Guinea, which were connected until rising sea levels separated them about 8000 years ago. This putative "early southern dispersal", as it came to be known, would now be underwater. From single versus multiple dispersal models,in these last two decades or more molecular anthropologists have also re-examined hypotheses about the colonization of the Pacific with different pliable approaches to understand population histories in the context of the 'Austronesian dispersal' across the Pacific.

In this present era how molecular clocks are refining human evolution's timeline while examining morphological and genetic connections between modern humans and other primates gets constantly updated with current research in this field. As put forth by Evolutionary Anthropologist Mark Stoneking in his book entitled *Introduction to Molecular Anthropology* 2017 while stressing the fact that we have come a long way when most people think of Anthropology in this 21st century. Molecular Anthropology which have been defined as the use of molecular genetic methods to address questions and issues of anthropological interest, more specifically genetic evidences to obtain insights into human origins, migrations and population history as well as the role of natural selection during human evolution, and the impact of particular cultural practices on patterns of human genetic variation can be extended addressing population specific interests and issues related to health, disease and adaptation. All these and much more will provide key contributions on the use of such information as a vital source for comparative inferential evidence besides biomolecules on human migrations the world over.

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During the last 2 decades, her research interests extended from anthropological genetics to molecular anthropology including behavioural psycho-genetic studies on impulsivity, aggression and addictive traits. As of now, her research interests is on human behavioural ecology, biocultural researches on nutritional anthropometry, demography, health studies on children, elderly, hearing impaired, maternal/women's health, including dental anthropology.

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The port of 'Samandar' in the Northern Bay of Bengal and its maritime and coastal linkages (c. 800CE-1500CE)

Suchandra Ghosh

Abstract

Contacts across the Bay of Bengal were based on the movement across sea, of objects, people, and of knowledge systems. In this context, the maritime route in particular gained primacy, as the Bay of Bengal holds the centre stage between the two regions. The Bay of Bengal network encapsulated the Myanmarese, Cambodian, and Thai mainland polities, and the different kingdoms on the upper Malay Peninsula, and the northern and western coasts of Sumatra along with India's eastern seaboard, and Sri Lanka. Along with trade, it was religion as well, which also acted as one of the conduits that facilitated civilizational dialogue across the Bay. It looms large in Arabic and Persian travel accounts from the mid ninth century CE., being designated as Bahr-i-Harkand in the Silsilatal-Tawa?rikh by SulaymanTajir in 851 c.e.-the earliest known source referencing the Bay of Bengal as Bahr-i- Harkand. The Moroccan traveller al Idrisi, in 'The delight of those who seek to wander through the regions of the world' (Nuzhatu-l Mushtak) of the mid-12th century c.e., writes, "Samandar is a large town, commercial and rich, and where there are good profits to be made…it stands upon a river which comes from the country of Kashmir. Rice and various grains, especially excellent wheat are to be obtained here…Aloe wood is brought here from the country of Karmut (Kāmarūpa) 15 days distance by a river of which the waters are sweet……..one days sail from this city, there is a large island well peopled and frequented by merchants of all countries….." The descriptions point to the fact that Samandar was a premier port of southeastern Bengal at that time. Thus it can be surmised that by the mid-ninth century C.E., both the sea and its port attracted the attention of Arabic and Persian writers and became a part and parcel of the Arab geographical world. That a sea was named after a particular unit-Harikela-speaks for the region's importance and also its popularity among the seafarers of the time. This was the moment when the people of Chittagong, then Harikela, encountered a group of people, the Arab travelers, practicing a new religion called Islam. Till then they had experienced Buddhism and Brahmanical religion, Buddhism being the dominant one. However coastal networks often offer interesting insights for understanding connected histories. In this presentation I would focus on the coastal network between Southeastern Bengal to western and South-western Myanmar. Western Myanmar encompasses the Arakan region (present Rakhine) which was closely linked with

Harikela both by land and sea and in South-western Myanmar I shall privilege Martaban to other ports like Dawei. We have numismatics, art historical and textual sources to understand their connected history. This geographical continuum led to frequent movements of people between the two areas and some common cultural practices enmeshed within various direct and braided networks. The coinage tradition of Harikela was borrowed from the silver coins of the Chandra rulers of Arakan. Along with Arakan, Martaban in South-west Myanmar was perhaps linked with Harikela. We have textual support of more or less from the same period for this. Through this essay I would argue in a pronounced manner that connectivity between the regions of maritime Southeast Asia with present Bengal and Bihar post 8th century CE was possible only through the port of Samandar in present Chittagong as by then the port of Tamralipta was not in use and this deserves the attention of scholars. There was a unity of land route and sea route in this case. The sea-routes did play important role in shaping up inter-Asian connectivity.

Key words: *Samundar, Harikela, trade, sea routes*.

Introduction

"The river meets the ocean in a blaze of blue and green. No wonder people have made this spot their home for millennia: the fishing is good, the soil is fertile, and flood-free hillocks make it a safe home-site. But its greatest boon is a natural harbor, excellent for deep-water anchorage. Maritime trade goods have flowed through this location from the earliest recorded time." [i](van Schendel 2015: 98). This was the description for Chittagong by Willem van Schendel in the early seventeenth century. In this essay, I would take it backwards by several centuries and apply this for the port of Samandar which was in all possible ways predecessor to the grand port of Chittagong also known as Sudkawan by Ibn Battuta and Porto Grande by the Portuguese.

The Northern Bay of Bengal is a significant maritime space connecting South and Southeast Asia[ii](Mukherjee 2011). It looms large in Arabic and Persian travel accounts from the mid ninth century CE, being designated as Bahr-i-Harkand in the Silsilat al-Tawa?rikh by Sulayman Tajir in 851 CE-the earliest known source referencing the Bay of Bengal as Bahr-i- Harkand (Reinaud, 1845).[iii] Harkand was obviously derived from Harikela, a sub-division of Bengal identified with the present Chittagong area[iv](Mukherjee 1975:115-119). Again, the Bay of Bengal was clearly defined as bahr Harkal or the sea of Harikela by the anonymous author of the Hudud al-A'lam (c. 982 CE)[v] (Minorsky 1937:87). This refers to H.rk.nd (taken to be the same as Harikela) as a place on the sea coast together with N. Myas, Urshin, S.M.ND.R and Andras. The reference to H.rk.nd along with Samandar as places on the seacoast is significant, being either a misinterpretation on the part of the author as the port of Samandar lay within the Harikela country or by the fact that Harikela was the name of a

kingdom as well as the name of a place identifiable with present day Chittagong. Associated with Harkand or Harkal we come across a port town called Samandar located in the same area[vi] (Chakravarti 2002:160-183).

The Moroccan traveller al Idrisi, in 'The delight of those who seek to wander through the regions of the world' (Nuzhatu-l Mushtak) of the mid-12th century CE, writes, "Samandar is a large town, commercial and rich, and where there are good profits to be made…it stands upon a river which comes from the country of Kashmir. Rice and various grains, especially excellent wheat are to be obtained here…Aloe wood is brought here from the country of Karmut (Kāmarūpa) 15 days distance by a river of which the waters are sweet……..one days sail from this city, there is a large island well peopled and frequented by merchants of all countries….." (Here talk about Sandwip as a clinching evidence for identifying Samandar)[vii] (Elliot and Dowson 1970: 90). He based a large portion of his work on the Kitabu-l Masalik Wa-l Mamali Mamalik (Book of Roads and Kingdoms) written by Ibn Khurdadba in the late 9th century CE who also wrote about Samandar[viii] (Elliot and Dowson 1964 :5). The descriptions point to the fact that Samandar was a premier port of southeastern Bengal at that time. Thus, it can be surmised that by the mid-ninth century CE, both the sea and its port attracted the attention of Arabic and Persian writers and became a part and parcel of the Arab geographical world. That a sea was named after a particular unit-Harikela-speaks for the region's importance and also its popularity among the seafarers of the time. This was the moment when the people of Chittagong, then Harikela, encountered a group of people, the Arab travelers, practicing a new religion called Islam[ix]. (Ghosh 2023:296-308). Till then they had experienced Buddhism and Brahmanical religion, Buddhism being the dominant one.

Harikela was an important sub region of early Bengal and was linked to the regional maritime and Buddhist cultural network. The port of Samandar in Harikela, being the only port in the vicinity had a vast hinterland in the Ganga valley and Brahmaputra valley. People from South-east Asia visiting these areas or vice versa had the only option to use the port of Samandar for their journey across Bay of Bengal as after eighth century we have no reference to the port of Tamralipta which was once the premier port, much evidenced by the writings of Chinese Buddhist monks, from which one could embark on a journey to Southeast Asia. In the first half of the ninth century Srivijaya sent a mission to the Pāla court in Bengal in a move to expand the Srivijayan network. The friendly relation between the Pālas and Śailendras is evident from the content of the Nalanda copper-plate of Devapāladeva. The inscription talks about a grant of five villages by the Pāla king Devapāla in his 39th regnal year, at the request of Mahārāja Bālaputradeva, the Śailendra ruler of Suvaradvṇpa/Yavabhīūmi in favour of a monastery built by the latter at Nalanda[x] (Majumdar 1926, 17-31). The inscription can be placed in the 9th century and the Śailendra dynasty was based in central Java. The income from the five

villages was to provide for the various needs of the bhikṣus living there, for the writing of the dharmaratnas and for the maintenance of the monastery. In the opinion of Upinder Singh, the grant fits in with the strong Buddhist element in the personal religious orientation and the patronage policy of the Pālas and the Śailendras[xi] (Singh 2014, 47) The gift is described as the pious meritorious act (dharmmādhikāra) and kīrtti. Merit was naturally the main contention of both the rulers. It is perhaps the earliest endowment of a Southeast Asian ruler in South Asia. Western Bengal did not have any port at that time so it must have been the port of Samandar through which the network was to connect[xii] (Ghosh 2023: 23-34). This was the only route through which the Ganga valley could connect to the sea after 8th century CE (map.1) Dudhpani inscription (8th century CE) is the last epigraphic record which mentions Tāmralipta as a port.[xiii] (Kielhorn 1884, 345) Prior to that, undoubtedly the port of Tāmralipta was the most active port in the Bengal delta.

Coastal Networks: Southeastern Bengal to western and South-western Myanmar

While thinking of the larger maritime network we often lose sight of the coasts which also connects in a linear fashion. However coastal networks often offer interesting insights for understanding connected histories. In this presentation I would focus on the coastal network between Southeastern Bengal to western and South-western Myanmar. Western Myanmar encompasses the Arakan region (present Rakhine) which was closely linked with Harikela both by land and sea and in South-western Myanmar I shall privilege Martaban to other ports like Dawei. We have numismatics, art historical and textual sources to understand their connected history.

The earliest cities in Arakan were located on the banks of the Kaladan valley and were thus, open to interactions with India in general and in the Southeastern Bengal (Comilla and Chittagong) in particular. The two formed an environmental continuum with a climate and geography fundamentally different from the Ganga and the Irrawaddy plains on the northwest and southeast, respectively. Communication was provided by intersecting rivers facilitating coastal journeys and trade, overland travel with other areas of Myanmar being difficult as the rugged Arakan Yoma closes the Arakan from Burma proper. On the side of Chittagong, the hill tracts act as a deterrent in smooth communication. This is precisely the reason no coins have been found in the area of the Chittagong Hill Tracts and thus interactions mainly happened through coastal voyages, perhaps from Samandar to ancient Dhanyawadi (present Sittwe). The central zone of Arakan with the riverine plains of the Mayu, the Kaladan and the Lemro rivers - known as Dhānyawati its classical name - was linked to Harikela.[xiv] (van Galen 2008: 1-32; Ghosh 2019:77-108)

This geographical continuum led to frequent movements of people between the two areas and some common cultural practices enmeshed within various direct and braided networks. The coinage

tradition of Harikela was borrowed from the silver coins of the Chandra rulers of Arakan. These coins are the only coins among the coins found in Myanmar that bear the names of kings. The earliest Chandra dynasty coin showing a recumbent bull on the obverse and a tripartite symbol on the reverse was struck by Devachandra in Dhanyawadi in about the first half of the fifth century CE (?). Again, the trident motif of the Chandra coinage resembles the *Srivatsa*, already seen on the Pyu coins. Thus, it seems to be a Pyu, Chandras of Arakan and Harikela continuity[xv] (Mukherjee 2003:199-212).

A further observation regarding the shared coinage tradition between Harikela and Arakan relates to coin terminology: the term taṇḍaka, designating a coin in the inscribed metal vase issued by Devatideva (c. 715 CE) in Chittagong[xvi] (Bhattacharya 1992:323-338). This vase records that the transaction of one pātaka and three *droṇāvāpas* of land with 58 taṇḍaka (taṇḍakaih su ḳritah?) and the price of 60 droṇavpas of land was 120 taṇḍakas. The context of land sales also suggested that large amount of land was bought through this coin called tandaka. The inscription recorded several transactions by taṇḍaka, implying that it was a coin or some such thing with an exchange value.

Arlo Griffiths drew my attention to the presence of this term in the *Ānandachandra praśasti* where we have the expression *prati taṇḍakān*.[xvii] (Johnston 1944: 377-388)

(upajāti of indravaṁ śa/vaṁ śastha)
dadau praṛṣṭaḥ suvisuddhacetasā?
*saddharmapūjām prati taṇḍakān vahūn**
narādhipo dharmakathānurāgataḥ? ||

A tentative translation by Griffiths is: 'In joy and with perfectly pure thought the king, from his attachment to Dharma-narrations, gave many *taṇḍakas*, with the approval of good people, for the purpose of worshiping the true Dharma on a daily basis." Since both the Ānandachandra praśasti and Devātideva's inscription belong to almost the same period (early eighth century CE), we can suggest that *taṇḍaka* as a coin name was prevalent in both Harikela and Arakan. The inscription of Ānandachandra found near Akyab, now called the Shittaung inscription was written in the *Siddhamatrikā script* of eastern India and this was due to the close proximity of Arakan to Southeastern Bengal.

Along with Arakan, Martaban in South-west Myanmar was perhaps linked with Harikela. We have textual support of more or less from the same period for this. The *Mañjuśriyamūlakalpa* datable to around the eighth century CE, in at least two slokas refer to Harikela, Karmaranga and Kalasapura together , e.g.[xviii] (verse 20)' If there is a terrifying sound in the intermediate directions, upward, northward, the lord of Kūmarāpa will inevitably be killed by the overlord of Gauḍa; [so also] the lord of the people and dependents (jīvin =upajīvin?) beyond the Lauhitya (Brahmaputra), the ones called

Kalaśa, those of Karmaraṇga, of Samataṭa and of Vaṅga; (Verse 31) (Vaidya 1964:508; Griffiths 2015: 281-340).

A reading of these slokas bring home clearly that Kamarupa, Samatata, Vanga, Harikela, Karmaraṇga and Kalasa are connected. Kamarupa is ancient Assam. Samatata is the Comilla area of Bangladesh. Vaṅga primarily refers to Dhaka. Harikela has been identified with Chittagong and Kalasapura with Martaban. One may note that Martaban is famous for its ceramic tradition, particularly the jars known as kalasa in Sanskrit. There is confusion regarding the identification of Karmaranga. Sircar places it in lower Myanmar along with Kalaśapura (Martaban) as its capital (Sircar 1976: 211-213)[xix] . Recently Griffiths has suggested identification of Karmaraṅga with Arakan[xx] (Griffiths 2015:301-308). In view of Karmaraṅga's close association with Harikela and with Samataṭa, the identification seems plausible.

Linkage with Martaban

The importance of Martaban in the network of Samandar should be foregrounded. Martaban as an important port developed and the nature of the ceramics produced in the area gave the Martaban jar its name. Another site close to Muttama/Martaban was Sampanago. According to Elizabeth Moore and San Win, artefacts from ground survey in the Muttama-Sampanago area, supports a sixth to ninth century culture which include coins, beads and finger marked bricks, paralleling finds from Khu Bua, U Thong and other early sites in Kanchanaburi, Thailand[xxi] (Moore and Win 2014:217-237)

Martaban was nominally under Sukhothai hegemony from CE 1281 to 1314. The area from Martaban to Tenasserim was under Ayudhyan control from the mid-fourteenth to soon after the mid fifteenth centuries. It is possible that the terms *Martaban or Maritanao* were used, during this period at least, to describe the coastal region from the Salween River to the Isthmus of Kra. It has been suggested that ports along this coastline-notably Martaban and Mergui-were important links in the China-India porcelain trade as early as the Sung dynasty[xxii] (Ghosh 2022:11-32). Interesting to note that the place name Martaban where the pots were made finally came denoted the pots themselves. Thus in 1350 CE Ibn Battuta mentioned that a princess of Kaylukari (in Southeast Asia, not identified) gave him four "Martabans or huge jars, filled with ginger, pepper, lemons and mangoes, all of them salted, prepared for sea voyages"[xxiii] (Gibbs 1997:280). This is narrated in the section where Ibn Batuta describes his travels from India to Sumatra and Java. Thus, the geographical setting is Southeast Asia. This evidence clearly indicates the utility of these jars for long distance trade network. If one takes into account the travels of Ibn Battuta (1340 CE) in Bengal, one notes that he undertook a long journey from Sudkawan or the port of Chittagong to Habang or Habiganj in Sylhet via Kāmarūpa. He writes that the first city in Bengal that he entered was Sudkawan, a large town on the coast of the

great sea, obviously the Bay of Bengal. Ibn Battuta then recalls that he set out from Sudkawan for the mountains of Kamaru (Kāmarūpa) which was a month's journey from the Chittagong area. He then journeyed to Habanq, identified with present Habiganj area of Sylhet, which is traversed by the Blue river, likely to be Meghna. It should be mentioned here that Ibn Battuta reached Sudkawan from Maldives by spending forty-three nights at sea[xxiv] (Gibbs 1997:267-271). Thus the travel tale of Ibn Battuta also suggests that southeastern Bengal was connected to regions of Southeast Asia through the Bay of Bengal. It would be in order here to bring in the navigational manual of Ibn Majid, a literate navigator (muallim). Ibn Majid described the port of Martaban along with Bassein and Syriam. This is an indicator of the importance of the port of Martaban[xxv] From the port of Martaban, the ship perhaps proceeded northwards and reached the famous port of Samandar (in present Chittagong), mentioned by the Arab geographers as well as merchants. From the port of Samandar the cargo had to be carried through a land route to the sub-region of Puṇḍravardhana (north Bengal) via Samataṭa (present Kumilla, Bangladesh) which was linked to both Nalanda and Bodhgaya. That Kalaśapura (Martaban) and Harikela (Chittagong) were linked has been discussed above. I will cite one more verse here where it is said that the goddess Tārā is venerated in Harikela (Chittagong) Karmaraṅga (Arakan), Kāmarūpa (present Assam) and [the city] called Kalaśa (Martaban) (*sidhyate catadā tārā yakṣarāṭ caiva mahābalah/harikele karmaraṇge ca kāmarūpe kalaśāhvaye* // Mmk_53.833 //) (Vaidya 1964, 508). The linkage of these regions is visible in this verse[xxvi] (Griffiths 2015, 281-340).

Arab presence in Samandar

We have seen that the sources that reference Samandar are from either Arab geographers or travelers. None of the texts or inscriptions from India mentions the port of Samandar though they are quite vocal about Harikela from 7th century onwards. Our records suggest that the predominant religion in Harikela was Buddhism though Brahmanism was also in practice. With the arrival of the Arabs, who frequented the port of Samandar /Sudkawan, the region was also introduced to Islam. Being a port it was open to people from different regions, Arab sailors in particular, who professed Islam and were very active here from around 10th century CE. One of the authentications of the Arab traders' presence in the region was the writings of Arab geographers. Their evidence suggests that the Arab traders had arrived along the Bengal coast long before the Turkish conquest. The Arab writers also knew about the kingdoms of Kāmarūpa and Ruhmi, the latter being identified with Dharmapāla of the Pāla kingdom. Ibn Khurdadbeh (death 912 CE) refers to the Arab, Yemeni and Abyssinian merchants' presence in Samandar[xxvii] (Ahmed 1989:6). Al-idrisi (death 1164) is another geographer who talks about the importance of Samandar in the mercantile network of Arab merchants. Paddy was an important item of trade along with aloes wood which was brought from Kāmarupa and sent through Samandar.[xxviii]

Yak tail could be another item as it also had ritualistic significance. Sometimes the Sufi saints also accompanied the merchants in their ship. D.C.Sen mentions the transport of Arabian dervishes and pirs on board Chittagong vessels, evoking significant shipbuilding activity amid bustling trade before Portuguese arrival[xxix]. As a result small settlements of Muslims grew up in and around Chattagram even before actual political control by Muslim rulers. The port of Samandar/later on Chittagong port was also used as a transit trade zone for connections between countries across the Bay of Bengal. Thus when in an account of Bengal given by Marvazi (1120CE) it is stated that 'in a town called H.DKIRA (identified with Harikela) business is carried on by means of gold (coins) and cowrie shells' but the latter are more in use-' we know that these shells reached Harikela from Maldives and was naturally transferred to the hinterlands in the Pāla-Sena domain where cowry was much used as a parallel currency.[xxx] (Minorsky 1942 :147-148). It is important to note that in Harikela there was a continuous presence of coins which was not the case with other sub regions of Bengal and it is almost certain that the early Harikela coins were struck in Harikela (Chittagong) itself. In the literature of the ballads there are good many references to country boats and ships on board of which the enterprising people of the district of Chittagong make sea-voyages for trading purposes. There is an admixture of Arabic words, idioms, and phrases in the local dialects of the Chittagong and Noakhali districts, a result of the close contacts between Arabs and the local population through the ages. While contacts with Muslims in other parts of Bengal were overland and mainly Turko-Persian, the coastal areas were influenced more by Arab contacts. That the Arab merchants settled here and found a new home is evident from the fact that the genealogical tables of some Muslim families of Chittagong said to be the descendants of Arab immigrants furnish another valuable evidence of the coming of the Arabs as settlers in Chittagong. The Arakanese Chronicles trace the Muslim contact with this region back to as early as the eighth century CE. lt states : "ln his (king Maha-taing Tsan-daya, 788-810 A D) time it is stated that Several Ku-la or foreign ships, were wrecked upon the island of Ranbyi, and the people in them, said to be Musulmans were sent to Arakan proper where they were settled in villages"[xxxi] (Qanungo 1988:111). The Arab mariners often suffered shipwreck off the coast of this region and took shelter in neighbouring countries, where they established themselves to live in intimate relations with the native people. There are some places known as *'Dinga bhangar bill', 'Dinga bhangar char'* lying scattered in the district and these, according to local tradition, commemorate the unfortunate incidents that happened to the Arab sailors. It appears from the above discussions that Islam penetrated into Harikela through the agency of the Arab merchants who ascended in the port of Samandar. The mercantile network was responsible in introducing Islam as a religion in a practically Buddhist terrain[xxxii] (Ghosh 2023:296-308).

Conclusion

From the foregoing it may be said that prior to the grandeur of the port of Chittagong, a port in the area must have been in the making. This can be further inferred from two indirect references. First, we know that Yi jing recorded that Wu-hing sailed from *Simhala* for the northeast and "came to *Harikela*, which was the eastern limit of Eastern India [Tung T'ien (-chu)] and of *Jambudvipa*" [xxxiii] (Takakusu 1896: 44). At that time, in the 7th century CE, Tamralipta was active as port but Wu hing sailed to Harikela-natural perhaps since he was using the sea route from Sri Lanka. Second, when Xuan Zang mentioned Samatata's relations with Southeast Asian polities, movement obviously took place through a port in contiguous Harikela. Samandar was the most prominent northern port in a multiple networked realm that linked coastal towns in Sri Lanka, Thailand, Burma/ Myanmar and Bangladesh and India. Like other coastal ports, it played host to a plurality of trade groups and sojourners from across the region. Here communication routes focused on the region's many rivers, although in the mountainous areas land routes were also important. The river brought down cotton, timber, and other forest products from the Chittagong hills. But the giant Brahmaputra was much more important as we have seen in case of aloes wood.

Our limited sources do not allow us to discuss in details the nature of the port of Samandar. But from a holistic study of the direct and indirect evidences, some points may be recapitulated.

Samandar was the only port in the early medieval period for land locked Ganga valley and Kamarupa for interactions with Southeast Asia and perhaps west Asia. We cannot prepare an inventory of trading articles but from the accounts of the travellers we learn that rice, various grains, aloes wood, yak tails were important items of export. Aloes wood also known as agaru/gharu wood and eagle wood was one of the most famous of the forest products and played an important role in the economy of the region where it grew. It was a prized item as it was used in the manufacture of perfume and medicine and also as incense burnt during religious and courtly ceremonies. *Agaru* is a common aromatic in Buddhist, Brahmanical and Islamic rituals. Its medicinal value and usage as incense is well recorded. It was an important forest product which circulated across southeast Asia and reached China. Zhao-rugua in his Zhu Fan Zhi[xxxiv] takes great pain in mentioning the minute details regarding this product (Hirth and Rockhill, 1912; Ghosh 2014). Zhao speaks of the *gharu* woods imported from countries of South-East Asia and he gives an interesting classification of the best *gharu* wood based on the quality of the product. According to him the best *gharu* wood came from Cambodia. However, in one of the notices regarding this, Zhao refers to the black aloes wood and maintains that it was costlier, though the origin of the product is not mentioned. I would like to suggest that this could be the aloes wood produced in ancient Kāmarūpa, present Assam in India. It may be mentioned here that contemporary Arab sources refer to the aloes wood of Qamarun or

Kāmarūpa and rates it second to the wood of Multan. Abu'l-Fida mentions the mountains of Kamrun, a barrier between India and China, where aloes grow. Abu Dulaf Misa'r Ibn Muhalhil Yanbu'i in 331 /943 CE made his land journey through Turkistan to China. He mentions the town of Qamrun on his voyage back to India[xxxv]. (Reinaud 1994:262-265) According to him this place produced aloes wood known as *Qmari*. Description of forests abounding with black aloes tree in Kāmarūpa, also finds mention in an inscription of a Chandra ruler of south-eastern Bengal. The Paschimbhag copperplate records that Srichandra's forces in the course of their conquest of the Kāmarūpa country entered the woodlands near the Lohitya, i.e. the Brahmaputra where among other things they saw numerous black aloe trees which made the woodland dark (kāl-aguru-śyāmalah)[xxxvi]. (Sircar, 1967-68 :289-304). In Al Idrisi's (1162 CE) opinion, perhaps the river Brahmaputra was used for transporting the aloes wood from Kamarupa to the port of Samandar[xxxvii] (Chakravarti, 2002, 165-167). From Samandar it was shipped to China traversing through ports of Southeast Asia. Arabic work Al-Masalik wa'l Mamalik[xxxviii] (Reinaud1994: 262-265) records the trade between the kingdom of Kāmarūpa and south western China through Myanmar. So, one might postulate that the black aloes mentioned by Zhao could also be a product of north-east India. The long circuitous route naturally added to the price of the product. The importance of the port of Samandar has been discussed in the context of other networks. It was in great demand as a ritual item and its fragrance was much appreciated throughout the world right from Persia to China, at Rome and later at the Abbasid court at Damascus. The aloes wood network perhaps operated within the larger horse and silk networks[xxxix]. (Mukherjee 2011, 27).

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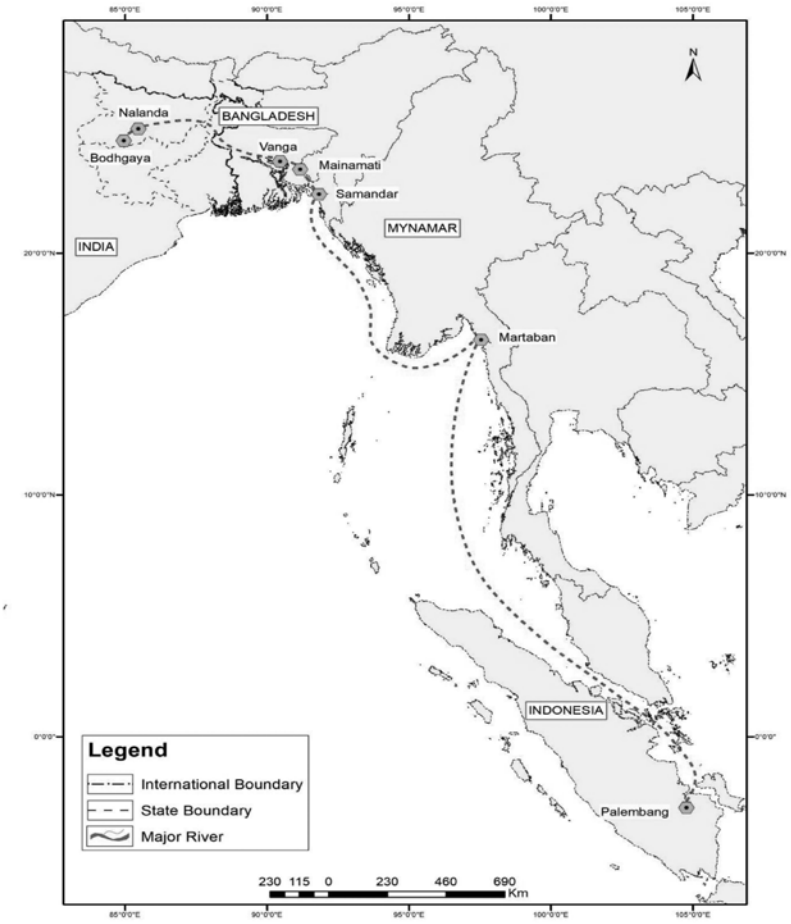
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Map 1. The coastal route. Source author

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Indian Saltpetre and the Political Economy of Bay of Bengal

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Abstract

The dominant course of historical research associated with European intervention in the Bay of Bengal as a catalyst of change. To the Imperialist point of view the coming of European Traders in the shores of the Bay of Bengal denoted drastic changes for the indigenous commodities and communities of the Eastern region of the Indian Subcontinent. With the establishment of the European commerce, the regional commodities became exposed to a larger European market that transformed their economic and commercial prospect. In contrast to this Eurocentric argument, scholars have highlighted the significance of the commodities of the Eastern region that in the first instance lured the European Companies to begin trade in the region. As explored off late, historians trace the transformation of the material entity of commodities produced in the region through their diverse usages in the distant European cities. The development of the material-based enquiry, in recent years made significant impact that furthered the understanding of the historical influence of the trade network associated to the region of Bay of Bengal. Nevertheless, to this robust field of historical pursuit, this study seeks to add the dimension of the impact of the region over the European warfare since the late half of the seventeenth century. Due to the production of saltpeter in the eastern parts of the Subcontinent, the latter half of the seventeenth century witnessed significant increase in European trading establishment in the Bay of Bengal region. As this paper seeks to locate, trade in saltpeter was crucial to both European military development, and the Bay of Bengal trade nexus.

Key word: *Bay of Bengal, regional commodities, material, material-based enquiry, saltpeter, military*

Historical studies devoted to Bay of Bengal for a long period, found its importance as in the commercial sphere of Indian Ocean following the Portuguese "unofficial empire". As the Portuguese traders settled in the eastern peripheries by sixteenth century, it was believed to usher a substantial phase of commerce for the region. To this Eurocentric trajectory, Portuguese empire followed by other European trading companies in the Bay was responsible in the transformation of the region of significant commercial activity within the Indian Ocean trading network. However, little but crucial intervention into this discourse occurred in recent times situating the northern part of Bay of Bengal as a fulcrum of change for the socio-economic, political structures of the region. With a *longee duree* approach, these historical enquiries unpacked substantive evidences that explore Northern Bay of

Bengal as an active zone of commerce since ninth century Ad till twentieth century. Within the territories of the Bay of Bengal, specifically highlighting the Northern Bay regions, which have been systematically neglected till now. Within this prevailing structure of discourse the significance of Bay of Bengal, the northern part the remains as sphere of influence for the east and the South eastern region. However as this paper, contends that significance of this region was much beyond its geographical boundaries of Eastern part of hemisphere. Going beyond region of Bay of Bengal and South China Sea, this paper sees the Bay to be the fulcrum of military revolution for the western European nation since the early modern period.

Bay of Bengal first made its appearance in western imagination through the works of Ptolemy. Bay where Ganges jutted into the sea marked the final boundaries of India in the east. "Gangeticus Bay as termed by Ptolemy reckoned to be an integral part of Indian Territory beyond which the eastern land situated. These Ptolemaic ideas of the northern Bay region ebbed out gradually with the growth of Roman trade with India. In India the coastal plains of the Southern Bay of Bengal region emerged as chief centres Roman commerce. This trade linkages fostered imagination of the southern part of the Bay of Bengal as they appear frequently in Roman texts from this era. Contemporary Chinese texts reveal similar trends of description of the littoral plane of southern Bay of Bengal. Contemporary Roman and Chinese sources' depiction of the southern Bay of Bengal are in contrast to the conspicuous absence of the northern Bay of Bengal around the Bengal coast. This depiction was the material outcome of the commercial traffic, that involved Rome, India, China in Indian Ocean network throughout fifth century AD (Rennell, 1781). From ninth century AD, Arab texts located Bay of Bengal in their writings giving a glimpse of the contemporary commercial scenario. They reflect similar narrative as their Chinese counterparts, who were involved in similar trade routes. As their treaded path involved around Indian Ocean and the southern region of the Bay of Bengal, where Sri Lanka emerged as interface of the western and eastern commerce, the northern Bay of Bengal region remained largely ignored in the body narrative. Only in the texts of the famous Venetian traveller Marco Polo from fourteenth century, a reference of Bay region and its littoral are available. To this traveller lay the credit of delineating the trade network that crisscrossed the Bay of Bengal and connected China, the Far East with the Eastern parts of India, and its extensive hinterland till the Central Asia. Nevertheless, the significance of the northern Bay region remains obscured from the popular imagination. However, in contrast to the southern part of the Bay of Bengal the Northern Bay region subjected to less historical attention its less economic activity. Historians argue, lack of historical consciousness towards northern Bay region was the dominated due to shift in the commercial transaction which focussed more on the Indian ocean region, and the Southern Bay region due to its role as interface to the Roman Arab and Chinese trade network (Mukherjee, 2017,). By ninth century Sri

Lanka emerged as the nodal point of the Indian Ocean and Bay of Bengal trade route where both Arabs and Chinese traders coincided. This epistemological similarity of modern historiography to early medieval and medieval texts of Roman and Chinese, Arab world available since ninth century AD this paucity of historical literature, identified by scholars as the result of geographical mutilation. William Van Schendel, sees the laxity as general trend, emerged in the recent epistemology incorporates the area study. Schendel sees it as the geographies of ignorance and been the subject of the mutilation of cartography. He writes;

"anyone interested in finding fairly detailed modern maps showing the region covering Burma, Northeast India, Bangladesh, and neighbouring parts of China knows that these do not exist. This is a region that is always a victim of cartographic surgery. Maps of Southeast Asia may not even include the northern and western parts of Burma, let alone the neighbouring areas of India and Bangladesh. (10) And maps of South Asia not infrequently present Northeast India (and sometimes Bangladesh) as an inconvenient outlier that is relegated to an inset. Odd bits of Tibet and Yunnan may show up in far corners merely because of the need to fill up the rectangular shape of the map" (Schendel, 2002).

Schendel (2002) adds that the four geographical zones such as East Asia, South East Asia, South Asia and Central Asia termed as irrelevant dictated by arbitrary decisions undertaken within conference rooms. In effect, absence in maps translated into in lack of academic pursuit regarding this region. Rila Mukherje (Mukherjee, 2011), sees the lack of systematic enquiry about northern Bay of Bengal region, and its littoral an outcome of academic and cartographic mutilation. In an insightful volume deriving the issue from the Schendel's viewpoint she argues" the neglect" to echo in academic circle as the result of the antagonistic relationship shared by states with the countries adjacent to the northern Bay of Bengal region and its littoral. Mukherjee by referring Willem Van Schendel , finds the region's shared, language affinities, religious and cultural similarities as an outcome of the ancient trade networks and ecological conditions presently been relegated to the margins of the ten valleys (China , Vietnam, Laos, Cambodia ,Thailand ,Burma , India, Bangladesh , Bhutan , Nepal) a result of political antagonism.

But she furthers this argument by arguing that this trend echoed in academic studies too: "This neglect is also echoed in academic studies of states along the northern Bay of Bengal. While these countries literally fall of the map, due to the frontierization of nation-states, we may see them also as a cross-road" (Mukherjee, 2011).

By reading into the documentation of the trade networks, across the Bay of Bengal from the earliest times with a *longee duree* approach, Mukherjee argues the balance could be redressed. In a recent insightful volume, Mukherjee designated the significance and the necessity of the study of the Northern Bay of Bengal region. The locus of the study extreme eastern , South Asia , that is Bengal and the lands to its north-east that juts into Burma and China identifies to be the most ignored, although,

as argued has been historically influential in determining its distinctive economic, cultural and political identity. These affinities were primarily dictated by the commercial links and the trade networks which crisscrossed the Northern Bay region and its littoral. The significance of the Northern Bay of Bengal was that it connected the extended hinterland in the west from Central Asia with China and South East Asia in the east for centuries .The bay with its waterscape mediated the transition of Central Asian goods in to the markets of China and South East Asia and vice versa. These commercial practices, pointed out to generate a shared identity within the region itself. Furthermore the shared climate of the region, reflected in commercial connections, enabled it to engage in a similar trading practice, with agricultural surpluses and higher population density became conducive to the state formation. Nevertheless the fulcrum of the historical changes as identified by Mukherjee, were the commercial networks of the region that marked a continuum of evolution and not a break (Mukherjee, 2011). The importance of the Northern Bay of Bengal as an interface of historical change with recent historical enquiry enlarged the boundary of historical episteme towards the region. Nevertheless, because of its focus on the region and its centrality in shaping the socio-cultural and political structures of the immediate region, with commerce as the catalyst of change, these studies, remains limited in the scope of enquiry. Since, sixteenth century with the consolidation of the Mughal authority over the North Indian region and later over Bengal by seventeenth century, the latter region became a part of the north Indian hinterland which corresponded with its dissociation with the Bay littoral. The rise of Mughal administration over Bengal identified to be significant in effect to its political integration under the Mughal order, as narrative towards the region grew to perceive it from the North Indian focal point. Thus the extreme eastern lands that comprised the deltaic Bengal with its Bay littoral, in official trajectory viewed in its different regional specificities. This imagination was further triggered by the failure of the Mughal navy's inability to manoeuvre into intricate water passages and the deltaic soil which proved unsupportive of the Mughal cavalry. Thus the deltaic south became part of the distinctive region to be termed as land of unmanageable recalcitrant subjects, as against northern and central Bengal which grew to be associated more with the north Indian Gangetic plain and less as a part of the Gangetic delta plain where it jutted into the sea. Scholars argue the historical role of Bay of Bengal in connecting China to South Asia through innumerable Southeast Asian waterscapes have largely been ignored since Mughal reign over the province (Mukherjee, 2017,). The ascendancy of Mughal order made it a part of mainland north Indian plain by systematically dissociating the imagination from its Bay littoral. Bengal and its littoral due to this administrative change were therefore understood as a distinctive zone dissociated from the its extensive Northern Bay of Bengal region. A perspective as argued dominated even the British administrative narrative. Due to this body of narrative recent studies highlighted the centrality of Bengal and northern Bay of Bengal over the region of East

and Southeast Asia. Furthermore, it also addresses the significant role of Northern Bay region in the Indian Ocean commercial circle. However as, this paper offers a shift from this trajectory, by arguing how Bengal and Bay as a region continued to remain the focus of British mercantile and colonial imagination. As Bengal littoral and the northern Bay region was the only passage to British military resource and the gunpowder artillery empire, the region emerged as central to British imagination from the second half of the seventeenth century and prevailed throughout the colonial period. To English East India Company and Britain Bihar, Bengal and its estuary, and the northern Bay of Bengal region was crucial interface on which depended the fate of the British artillery empire. The gunpowder central to the eighteenth century British military strategy drew it entire resource of saltpetre, from Bihar Bengal region, Bihar was the primary grounds of saltpetre production, from where due to its heavy weightage, the saltpetre were transported through the river passages towards south in the Murshidabad of Bengal. From thence the Saltpetre through their specific boats came down to Calcutta, and was shipped to the England bound vessels. In a series of insightful studies on the Indian saltpetre, scholars have pointed out the centrality of the Bihar and Bengal to British military might (Frey, 2009; Cressy, 2013). Due to this fact, the Bay region stood crucial to English commercial and military strategy (Buchanan, 2016). The English establishment at the mouth of the estuary was designated to control the mouth of Ganges. The martial propensity dictated British to gather knowledge about the Bay and the Gangetic delta, since the navigability of its vessels were largely affected by the dangerous cyclones that frequented the region.

One of the earliest English accounts of Bengal and its Bay comes from the travel accounts of Edward Terry. Although his accounts critiqued for its generalisation, yet his delineation of Bengal, and its gulf (Bay of Bengal,) was perceived in the context of the eastern countries adjacent to the Northern Bay region, till China. In contrast to the contemporary European imagination, that located Bengal and China adjacent, territories, he saw the region as part of the Gulf, adjacent to which was Bengal, and various other eastern countries, and China. Describing the region of Bengal and the east, Terry wrote:

"Gor: the chief city so called. It is full of mountaynes. The persilis (Saraswati) which dischargeth it selfe in Ganges, beginnes in is. Pitan; the chiefe city so called. The river Kanda watert it, and falls into Ganges in the confines thereof. Kanduana: the chiefe is called Karkatenka. The river Sersily parts it from Pitan. That and Gor are the north east bounds of this great monarchie. Patna (Bihar) the chiefe city so called. The river Ganges bounds it on the west, Sersily on the east. It is very fertile province. Jesual the chiefe citie called Rajapore. It lyeth east of Patna….Udessa the chiefe citie called Jokanat. It is the most remote part east of all this kingdome. Bengala; a most spacious and fruitful kingdome ,limited by the gulfe of the same name, wherein the river Ganges, divided in foure great

currents, loseth it selfe".

Terry's account remains insightful as it sees the commercial network that connected Central Asia, North India, to the extreme south East Asia, and China in totality, and locates the active participation of Indian merchants in long distance trade both overland and sea.

"And here a great errour in our geographers must not escape mee. Who in their globes , and maps make India and China neighbours, when large countries are interposed betwixt them; which great distance will appeare by the long travel of the Indian merchants ,who are usually in their journey and returne more than two years from Agra to the walls of China. The length of those forenamed provinces is, North West to south-east, at the least one thousand courses, every Indian course being two English miles. North and South, the extent thereof is about fouteene hundred miles; the southern most part lying in twentie degrees, and the northernmost in fortie three of north latitude. The breadth of this empire is, north-east and to south-west, about fifteen hundred miles."

The imagination of Bengal along with the Bay region gives a glimpse of the earliest of the English accounts about region. By the latter half of the seventeenth century, Thomas Bowrey, an interloper who later joined the English East India Company services, by travelling through the sea route gathered information about the existing trading networks within the Bay. His accounts which later published under the name of the "A geographical Account of the Countries Round the Bay of Bengal" was significant in unveiling the variegated commercial transactions criss crossed the northern Bay region. From the coast of Coromandel moved northward towards the Gangetic deltaic coast. A detail description of the extensive littoral addressed the various commercial practices, and involvement of the indigenous merchants along with the European establishment and other specifications that distinguished every segment of the Bay from the other. The segments of his accounts, divided broadly in context to the coasts that surround the Bay of Bengal from south to North towards Bengal and extended till todays entire the Chinese coast of Achin. Beginning with the Coromandel Coast, the following chapters focused on the coast of Gingalee (Golconda), Orissa, Bengala, Arakan and ends with the Coast of Achin. To Bowrey the Bay of Bengal region extended from the coast of Coromandel to the Coast of Achin represented as singular unit of commercial sphere. However, this commercial unit was intercepted with variegated practices, that distinguished each region, and its trade practices from the other. The importance of this enquiry as Bowrey himself noted was the significance of the Bay of Bengal region to the English Nation. The account gives an insightful glimpse into the contemporary seventeenth century English East India Company establishments at different centres along the Bay region. Furthermore a detailed account of the Bengal underlined the significance of the region to English commerce. Accounts of the region of Bengal coast comprised of an extensive hinterland, that included Dacca, Cuttack, Ganges and Hoogly Rivers, Hoogly town Cossimbazar, and

Pattana. All these centres grew more significant in the following centuries. To Bowrey, mapping of the Northern Bay region therefore perceived the Coastal Bengal, deltaic Bengal, and Northern and central Bengal till the Gangetic Bihar to be a part of the Bay littoral in contrast to the Mughal imagination (Bowrey, 1997). Furthermore Bowrey's account of the Bengala with its variegated littoral and of its difficulties of the navigability in the northern Bay region near the estuary was primarily determined the manoeuvre OD the saltpetre boats. The detailed account of the various types of boats used to transport salt petre from Patna to Bengal and later to Calcutta for the London bound vessels comprised a significant proportion in his account. Bowrey writes:

"(Bengala) it is one of the largest and most Potent Kingdoms of Hindostan, Containing a Circuit np less than English miles, blessed with many fine Rivers that Issue out into the Sea or Gulph of Bengala (the term Bay came into vogue latter, as the term Gulph was sopreesed and replaced by the English connotation of the region as Bay), vizt. Between Point Palmeris (the Exterme thereo) and the Arackan Shore, the whole Extent of the bay beinge about 300 English miles Over, Some of which are navigable both for great and Small Ships, together with many Other conveniences, this Kingdome is now become most famous and Flourishinge. First for the great River of Ganges, and the many large and faire arms thereof, Upon the banks of which are seated many faire villages, delicate Groves and Fruitful lands , affordinge great plenty of sugars, Cottons, Lacca, honey, beeswax, butter, Oyles, Rice, Gramme, with many Other beneficiall Commodities to satisfye this and many Other Kingdoms. Many both great and small ships, both English, Dutch and Portugalls doe annually resort to lade and transport Sundry Commodities hence, and great Commerce goeth on into most parts of accompt in India, Persia, Arabia, China and South Seas" (Bowrey, 1997)

Bengal, as summed up by Bowrey, was the land crisscrossed by the Ganges and several other rivers. It comprised of an extended zone, in which were Orissa, Patna, and the eastern lands of Dacca and the coast and its proximity to the sea.

"Some 20 leags from the Sea, and Soe upwards this country is blessed with many faire Villages and Market towns, fine green banks, and delicate groves, with store of brave fish ponds, good store of Venison and wilde fowle" (Bowrey, 1997).

To Bowrey, the imagination of Bengal with its vast hinterland was dictated by the commercial output of the region and its proximity to the sea, which made Europe-bound ships navigable throughout the year. Furthermore, the fluvial passages described in detail by Bowrey was to justify the variegated littoral plain of Bihar and Bengal utilised by the English Company and other European companies, left a detailed account of the various types of boats used to transport saltpetre to the coast of Bengal. Salt petre by the second half of the seventeenth century grew to be chief commodity for English trade along with the Calicoes and silk from the coast of Bengal. Patna was the centre of saltpetre procurement,

from which it was loaded on boats for Cossimbazar and from thence to Calcutta. Due to its weight, salt petre was necessarily transported through the river and not overland due to which the knowledge about the navigability of the Bihar and Bengal riverine network was essential to the East India Company. The description of Patna as part of Bengal coast therefore in Bowrey's imagination was dominated by the various river ways that made salt petre navigable and procurable by the English Company. Furthermore, the use of various boats in respect to the saltpetre transit through riverways essentially dictated the trail that contextualised the Geographical narrative of the Bay. The material world of the northern Bay region associated to the English commerce at one point become essentially dictated by the description of the transportation of salt petre through Bengal.

"The English East India Company have a factory in Pattana, adjoining to the cite, whence we have all (or the most part) of the Saltpetre Sent yearly for England…The Dutch have a Factory here also, for procuring of Saltpeeter, but lived with little freedom or Enjoyment of any worldly pleasures here dareing not to presume to enter any of the Gates of the Citee without leave from Some of the great Officers. All the Saltpeeter is Sent hence to Hugly in great flatt bottomed Vessels, of an excidinge strength, which are called *Patellas.;*each of them will bringe downe four, five, six thousands Bengalla mounds (the saltpetre mounds)" (Bowrey, 1997).

Several other kind of country boats that operated within these eastern littoral were further mentioned by Bowrey like the *Purgoo* which the English and the Dutch used to carry goods into the roads on board English and Dutch Ships. The Boora, a very floaty light boat was used carry saltpetre and other goods from Hooghly downwards. Bowrey described the Patella as very flat and burdensome that came down from with saltpetre and other goods (Bowrey, 1997). The observations might be considered an effective understanding of the riverine significance in saltpetre trading which is also an extension of Bernier's observation.

"Bengalle is also the principal emporium of saltpetre a prodigious quantity is importaed from Patna. It is carried down the Ganges with great facility, and the Dutch and the English send large cargoes to many part of the Indies, and to Europe"

Thomas Bowrey found that the only commodities of the kingdom that were yearly sent for England was saltpetre, of which great quantities were sent to England and Holland. The official English Company records echo similar trajectory in saltpetre interlinkages with the riverine ecosystem of northern Bay of Bengal. The "Bay" as an English establishment was constituted of the entire northern Bay of Bengal, with its extensive hinterland of Bengal, Bihar and Orissa. The region's immense significance to English commerce can be understood from the Company correspondences dating back to the latter half of seventeenth century that stated about its substantial involvement in salt petre trade with other investments. Large vessels specifically designed for the "Bay and its coast"

were sent from England that were able to navigate and transit these Bengal commodities readily to England. In a letter dated (5th January 1680) to the Chief Factor of the Bay Job Charnock, the superiors in England directed him to prepare to send salt petre and other commodities as soon as the ships arrive in the Bay.

"This we have ordered to be sent to you by Express as as our ships shall arrive in your Bay and to desire you forthwith if this find you at Pattana to latter order with those you shall succeed as Chief and your Councill to provide and send down to Hughly in due time the quantity of Petre which we have ordered for this years shipping (which is a 1000 tons) as wee suppose hath been already ordered to you from August and Councill at the Fort into whom we gave our orders for this purpose some months past overland which wee hope came to this hands" (Miscelleanoeus Branch, Letter from Court, 1680-1681, National Archives India, 5 Jan 1680)

This letter also revealed that in order to navigate and ease the process of shipment in the Bay, specially designed three deck ships were sent by the English Company .

"But in regard wee do send two of our five three deck ships designed for your coast and Bay this yeare directly for the Bay …" (Miscelleanoeus Branch, Letter from Court, 1680-1681, National Archives India , 5 Jan 1680)

A century later, the English correspondence, showed concern over establishment of harbour in the Bay to enhance the control and secure the newly established British state and commerce over the region. Scholars like G. J. Byrant, in an insightful work, outlined a systematic military strategy of the English East India Company to emerge in the latter half of the eighteenth century primarily concerned about the security of its commercial investments and the territories acquired in the vast regions of Bengal and Bihar. To this, as Bryant has underlined, the security and control of the Bay was of primary significance. A contemporary English East India Company correspondence emphasised Bryant's thesis of the centrality of northern Bay region to English military strategy post 1757. The navigability of the Bay for English ships especially in time of war was the chief criterion that dictated British strategy throughout the latter half of the eighteenth century. The salt petre laden ships were of primary concern in times of war that to be secured from the hostile forces, which in this case was the French, who too operated in this region and procured saltpetre (Jha, 2013). Even after 1758, as the English acquired rights of monopoly over Bihar saltpetre, the security of saltpetre laden ships dictated military concerns of the English Company in the Bay. The enhancement of warships to secure the Bay was central to the British strategy during this period. As in a series of letters exchanged between the Governor General of Bengal in 1785 and his factors explicitly mentioned, the formation of a new harbour was mandatory to secure British state, and commerce in the Bay region. In a letter written to Benjamin Lacan, who conceived the idea of a new harbour in order to control the passage of Ganges

estuary to strengthen security of English state in the Bay, The Major General Archibold Campbell wrote:

Sir,

I am much obliged to you for the Papers and Plans for establishing a New Harbour in the Bay of Bengal, which I have pursued with great Satisfaction.

The more I consider the general state of Public Affairs at home and at abroad, and the Advantages which the nation will derive from a Harbour , so well situated for docking and refitting the King's Ships , as well as those of the East India Company, the more I am convinced of the utility of such a Plan at this juncture; as by that means ,the very serious difficulties experienced during the course of the last War, in affording early Protection to the Company's Possessions on the side of the Peninsula on that side of the Peninsula , will be completely and happily removed.

The great Labour and Expence you have so long zealously undertaken, for purpose of collecting every necessary information, which could tend to promote a Work of National Importance, does you infinite honour; and gives you, in my opinion, the highest claim to particular Encouragement and Support.

I am, with great regard,

SIR,

Your most obedient, and most humble servant

(signed) ARCH^{D} CAMPBELL

Major General

By the end of nineteenth century, a series of manuals about the Cyclonic prone climate of the northern Bay of Bengal region underscored the dominating prevalence of the Bay, deltaic Bengal and its littoral to the Colonial state. These manuals were directives published by the British authority to enlighten the British shipmen about the ecology of the northern Bay region and about its dangerous cyclone prone climate. By then with a systematic enquiry about the region, an epistemology of information was constructed that enabled the British administration to control and secure the Bay. The centrality of the northern Bay of Bengal, Bengal with its extensive hinterland, as this paper has tried to posit, was implicit to the materialisation of state formation. To the English East India Company, and later, to the British state, the northern Bay of Bengal was crucial to their Imperial strategy of state making, upon which stood the entire Eastern provinces of the colonial regime. As the historical development of the British dominance over the Subcontinent enunciates, the accession of British control over the northern Bay region enabled it to control the entire Bay of Bengal littoral. In contrast

to their predecessor, whose inability to manoeuvre in the Bay and the eastern deltaic plane of Bengal, to the British imperial imagination the control over this region was at the core of Imperial state formation. As the procurement of saltpetre was only accessible through these riverine passages, and exported through the Bay, the security of the region was a prime concern. Furthermore, beyond its immediate region, the northern Bay of Bengal remained to be centrally significant to British military revolution. With the acquisition of economic and territorial control since 1760, the British Company state was engaged in regulating and enhancing the means of communication. The impulse to maximize the revenue and to prevent "illegal trade" practices was at the core of the administrative strategy. Gradually by the nineteenth century, the introduction of the steamships that plied over the Ganges, and Railways, administrative concern and opening of the interiors for the global market became possible. This development viewed by scholars, was disguised under the "civilising mission" apparently, posited by the Colonial state as the beginning of the "Modern era" .The passage of commodities like saltpetre became easier with the introduction of the steam ships and the railways that allowed the British state to control further Eastern littoral (Sinha, 2012; Sen, December 1994). According to historian Daniel Headrick, due to steam ships the British military expedition and its consequent control over Burma was succeeded. The control over the northern Bay of Bengal, along with increasing navigability of the Bay littoral enhanced with the introduction of the technologies like, steamships and railways (Headrick, 1981). As the mobility of goods like saltpetre enhanced due to steamships and railways, the control over the Bay became further significant as the nautical manuals of the nineteenth century grew. The consolidation of British power over the northern Bay region, as this paper seeks to argue, was not only crucial but its influence extended the immediate boundaries of the territories. As the steamships and railways enhanced the navigability of the saltpetre boats from Bay to England, it furthered the miliary resource of the British state.

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Irregular Migration and Security Concerns in the Bay of Bengal Region

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Abstracts

The Bay of Bengal region has always remained the center of geo-politics of Asia due to its commercial connectivity and trade bonds that it has developed across the coast. Interaction among civilizations and cultural exchanges across the sea-lane has also enriched the region. For the states located in the maritime zone, maintenance of security in the sea-lane is very crucial. From time and again the Bay of Bengal region has faced security threats, one of most sensitive ones is the problem of irregular maritime migration through the sea-route hampering the security of the nation-states located along the coast. In 2015, the massive exodus of stateless Muslims from the western zones of Myanmar, undergoing risky and hazardous sea voyages had attracted the international attention. The irregular migratory movements of the persecuted ethnic minorities had raised humanitarian concerns. The complex maritime migration has also enhanced the scope of transnational criminal activities through the vital international marine route. As the "Boat Crisis" got intensified, the bilateral relation among the neighbours got strained. States were in dilemma to balance between state security and humanitarian crisis. The situation demanded strong maritime governance, strict international laws and regional cooperation among the stakeholder countries. This paper will mainly focus on the contrasting security questions that have been raised in course of the crisis. Regional cooperation, mutual understanding and strengthening the maritime governance can only handle the situation and can control the complexities emerging out of the uncontrolled maritime migration. So, another area of highlight will be the nature of unfolding of the sea-governance in the Bay of Bengal region.

Keywords: *Maritime security, humanitarian crisis, maritime governance, migration, refugee crisis.*

Introduction

The significance of Bay of Bengal (BoB) has increased over years because of its strategic geo-location. The BoB connects some important sea-lanes facilitating commercial interaction across the region. Protecting the Sea Lines of Communications (SLOC) is of prime priority for the Asian countries located in that maritime zone. The BoB lies in the northern extension of Indian Ocean, connecting some vital sea-routes and two important regional economic blocs- South Asian Association for Regional

Cooperation (SAARC) and Association for South East Asian Nations (ASEAN). It stretches from Sri Lanka and the eastern coast of India in the west, connecting Bangladesh in the north, Myanmar in the north-east and Thailand, Malayasia in the east and extending to south up to the northern coast of Sumatra of Indonesia. It serves as a vital marine highway not only due to the deepening of the commercial exchange across the region but also due to the uncontrolled human migration and the intensifying security concern and geo-politics across the zone. The security threats that have developed over years has attracted global attention.

Among the security threats witnessed in the BoB region, the most significant is the problem of illegal maritime migration which is threatful to the national security of the receiving states creating infiltration of unrecognized non-citizens, creating socio-economic pressure and unprecedented demographic growth. On the other hand, it demands humanitarian responses like providing safe refuge to the distressed people, rehabilitating them, ensuring food and medical supply, providing return assistance etc. Disfranchisement and denial of citizenship rights to the people of Rohingya community in Myanmar has rendered them stateless and forcible persecution by the state authority has left them no option than to go for the hazardous life-risking voyages giving rise to the 'boat crisis'. The waves of irregular maritime exodus across the BoB escaping systematic violence and ethnic cleansing have left the national security of the receiving states in jeopardy. On the other hand, all the nation-states have some commitment to humanity. This paper will explore into the contrasting security question that has come up in course of the crisis.

A Brief Overview of the Crisis

The crisis has traced its origin in the pre-colonial times. Arakan, the coastal region under the confluence of Bay of Bengal is located in southern Myanmar. The independent kingdom of Mrauk-U was comprised of the present-day Chittagong-division of Bangladesh and Rakhine state of Myanmar where people of both Buddhist and Muslim ethnicities coexisted. With the arrival of Arab traders Islamic culture infiltrated into the Arakan culture. In 1784, Burmese king Bodawpaya invaded Rakhine to incorporate it in central Burma which gave rise to the Arakanese resistance movement and finally in 1824, British took over Arakan. (Farzana 2017:43-44). As the Arakanese people were oppressed by the Burmese king, the Burmese monarch lost the loyalties of the Arakan people and they lended their support to the Britishers.

In course of the colonial period, the British rulers followed the 'divide and rule' policy by playing with the loyalties and instigating the ethnic communities. It led to the ethnic animosities and hostilities between the ethnic groups. The imperial rulers also reformed the administration by introducing limited parliamentary home-rule system in few areas. The administrative rearrangement and separation of

Burma as a separate self-governing administrative unit led to intra-regional labour flow from India seeking employment opportunities stimulating the rise of Indian diaspora in Burma. The situation became more complex with the invasion of the Japanese. The Burmese government supported the Japanese to end the British-rule. On the other hand, few ethnic minority groups like Shan, Kachin, Karens, and Rohingyas supported British imperialists leading to ethnic tensions and divided loyalties.

The end of colonial rule in 1948 has led to the redrawing of the ethnic boundaries. Through the Panglong Agreement, different ethnic minority groups participated to represent their interests respectively. But only Rakhines were allowed to represent Arakan, the interest of the minority communities remained unrepresented. The Union Citizenship Act recognized different ethnic groups but Rohingyas and few minority groups were not recognized. Coexistence of different ethnic groups have made the socio-political fabric complex and the nation-making process more critical. The ruling elites were also divided- some wanted to promote Burmese Buddhist identity. On the other hand, other group preferred to make the Burmese society more inclusive with non-discriminatory state laws. After the assassination of General Aung San in 1947, stimulated the process of the forceful unification of the polity and militarization of the society. In the post-independence times, taking advantage of the weakness of the civilian government, the "Tatmadaw" (Burmese army) started becoming powerful and finally in 1962, the militaries took over the power. With the official establishment of the military rule, a tougher approach was adopted towards the ethnic minorities. The Constitutional amendment of 1974 made the citizenship protocols stricter. Many ethnic minority groups including the Rohingyas were denied citizenship and constitutional recognition. The military-controlled nation-making process was intolerant to the diversity and was utterly homogenizing in nature. Co-option of Buddhism as the state religion was the most radical step taken by the military regime to enforce the uniform Burmese identity. The military bases were installed from strict surveillance. The Arakan region was heavily militarized with Tatmadaw bases installed to instil fear among the Rohingyas. In the name of unifying the fragmented nation, the government policies promoted majoritarianism. Buddhism was promoted as a state-religion provoking communal intolerance and inter-regional violence. "Operation Nagamin" was launched in 1977 to persecute the illegal migrants. As the Rohingya community was already denied citizenship and did not possess the state approved identity cards, they automatically became targeted by the operation. Operation Nagamin led to the internal displacement of many Rohingya families and many Rohingya people fled to Bangladesh. The Burma Citizenship Law (1982) promulgated by Ne Win tried to codify the exclusionary citizenship laws. The citizenship law had categorized the citizens with colour-coded identity cards to identify their citizenship status. But the eligibility criteria of each category were framed in such manner that Rohingyas would hardly have any possibility to gain citizenship. When the legitimacy of the military-rule was challenged Ne

Win was replaced by General Saw Maung. Maung wanted to gain the public support by reforming the political system of the country. As a result, in 1988 a new political movement emerged- National league for Democracy (NLD). NLD tried to generate a mass protest against the military rule and to gain public support to establish democracy in Burma. The democracy was established could not penetrate down to the ethnically marginalized communities. The 2008 Constitution was also restrictive to the Rohingyas to gain citizenship. In 2011, the military junta was formally dissolved in Myanmar and military-aligned Union Solidarity and Development Party (USDP) was formed to gain the popular base and thus the militaries gained control in disguise of democracy. In June 2012, on a rape and murder of a Buddhist woman took place. The rape was alleged to be done by three Muslim men and a mass anti-Muslim violence broke out. President Thein Sein called for forceful persecution of the entire Rohingya community from Myanmar. The return of the NLD in power in 2015 election also could not benefit the Rohingyas much.

In the pro-democracy protests the active participation of the Buddhist monks was remarkable. In 2011, the 969-movement spread the extremist rhetoric of Islamophobia. The teachings of Buddhist monks Ashin Wirathu and Ashin Wimala incited deadly religious violence against the minorities. The spread of extremist Buddhist nationalism violence from years 2013-2015 had provoked genocides in the Muslim-majority areas of Arakan like Buthidaung, Maungdaw and Rathedaung. Though a state of emergency was declared but that also could not stop the recurrent violence. The state-sponsored violence against the targeted Rohingya minorities and their forcible migration has compelled them to undertake the precarious sea-journey in search for security.

The Boat Crisis and Concerns for National Security

The boat crisis and uncontrolled irregular migration across the marine zone of BoB has raised major security concerns. The infiltration through the exposed coast-line has raised the navies and coast-guards on alarm. Penetration of non-citizens and unrecognized asylum seekers exhausted after the hazardous voyage has given rise of the security dilemma among the nation-states whether to prioritize the state security or on humanitarian commitment.

Among the countries receiving the flows of migration, Bangladesh was the most significant one.As Bangladesh has a Muslim-friendly environment, and a close linguistic and religious affinity exists between the Rohingya and Chittangong's Muslims, previously had a humane approach to the refugee crisis. In 1990s, as the wave of refugee influx took place, Bangladesh had a 'safe and return' policy led to the repatriation of the refugees back who were accommodated in the make-shift camps and were provided refugee status. In 1992, the Office of Refugee Relief and Repatriation Commissioner (RRRC) were set up in, as a unit of Ministry of Disaster Management to handle the refugee management.

In response to the third wave of the crisis, The Ministry of Foreign Affairs of Bangladesh adopted a refugee policy to identify the undocumented Rohingya refugees, strengthening the Bangladesh-Myanmar border management to control the influx, strengthening bilateral and multilateral engagement with Myanmar to deal with the crisis and to form inter-ministerial committees at regional and national level to handle the matter (Ashraf 2021:8-9). In April, 1992, a Memorandum of Understanding (MoU) was singed between the Government of Bangladesh and Myanmar for repatriation with limited involvement of United Nations High Commissioner for Refugees (UNHCR). Though Myanmar accepted the repatriation proposals, but did not accept the repatriates by providing them permanent citizenship, but they were just allowed as "temporary residents of Arakan." This stood in the way of the permanent solution to the problem (Farzana 2017:69-71). Inspite of sympathetic accommodation in the initial years, Bangladesh government tried to repatriate to end the refugee crisis. The influx in 2017, brought a profound change in the approach to deal with the refugees. The problem arose at a time when Islamic State (IS) was reportedly trying to expand their bases in Southeast and South Asia and thus to take inroads in the continent of Asia complicating the entire situation. Arakan Rohingya Salvation Army (ARSA), a Rohingya insurgent group involved in insurgent activities in northern Rakhine state, was waging ethno-nationalist insurgency in Rakhine, and was alleged to have connection with IS. On September 12, 2017, Al-Qaeda Central released a statement calling for revenge attacks to punish the government of Myanmar for the persecution of the Muslim-minority Rohingya population has raised a security concern in Bangladesh. Bangladeshi militant groups like The Jama'atul Mujahideen Bangladesh (JMB) and Harkat ul Jihad al Islami Bangladesh (HuJI-B) thinks that it is their Islamic duty to protect the Muslims stuck in the troubled zone (Bashar 2017:5-7). The fear that eastern Bangladesh could be used as a launch pad for the terrorists to launch the counter-attack is a great security challenge to the Sheikh Hasina administration. For Bangladesh's humane approach to the refugees, Myanmar government has accused Bangladesh for providing refuge to the insurgent groups. As any type to terrorism activity launched from Bangladesh may hamper the bilateral ties between Bangladesh and Myanmar.

Though Indonesia had a sympathetic approach to the refugees but it never allowed their permanent resettlement in their country. Hospitable treatments were provided to them who landed in the coast of Aech, trying to reach Malayasia. Indonesian government was wary of possible contact between Indonesian extremist groups and ARSA militants which may disrupt the national security. A domestic political pressure was generated on an Indonesian government and the Yudhoyono administration due to the widespread violence in Myanmar against the Rohingyas, and Indonesian government was forced to respond. Indonesia decided to raise the Rohingya issue at the OIC Extraordinary Summit in 2012, and that ultimately resulted in the formation of the OIC Contact Group on the Rohingya Muslim

Minority. Foreign Minister Marty Natalegawa outlined the government's effort to persuade Myanmar to open access for international actors to provide humanitarian support and succeeded in getting the Myanmar authorities to accept an OIC visit to Rakhine. As Indonesia faced a new wave of migration, and Jokowi administration came to power, The Indonesian government did not grant asylum status to the Rohingyas but allowed them to stay temporarily with the assistance of UNHCR and the International Organization for Migration (IOM).The first boat arrived in Aech, northern Indonesia is on May 10, 2015. Around 578 people on board either swam ashore or were assisted by locals and rescued. Though initially they were sheltered in Meunasah, later they were transferred to a converted warehouse near Lhokseumawe. Later the Deputy Governor of Aech, Muzakir Manaf accommodated them in a purpose-built site near Blang Adoe. (Tom 2016:47). With the second set arrived in 15th and 20th May respectively, they were given shelter in a converted warehouse in Langsa harbour and Bayeun. Apart from the four sites, Rohingyas were accommodated in the North Sumatra. On 23 March 2016, Foreign Minister Retno Marsudi, while opening a meeting of the Bali Process urged for the safety of BoB by controlling illegal human trafficking across the region and to ensure victim protection, strict law enforcement and humanitarian response. In response to the breakout of violence in Rakhine in 2016, Indonesia decided to send humanitarian relief through civil society.

Malayasia is not a signatory of 1951 Refugee Convention, so the refugees in Malayasia are considered as illegal migrants and are subjected to detentions. Malaysian government lacked coherent policy and administrative framework to respond to the crisis. The Malaysian government had a dual approach to the issue- on one hand, it was of limited and tacit acceptance, and on the other hand, formal abdication of any responsibility for responding to the needs of the asylum seekers. A major influx of the Rohingyas in Malayasia took place in 2011. They were considered as illegal migrants and were detained in northern Malayasia in Belantik Immigration Detention Centre. The detention centres were characterized by utter mismanagement and detainees were kept in unhygienic living conditions in the overcrowded camps (Togoo & Ismail 2021: 16). Malaysian government has an ad-hoc and reactive policy to the refugee issue which prevents refugees from accessing social services or security like the host population, and undermines efforts to support refugees through long-term programming. The assistance took form of short and medium-term humanitarian intervention (Wake 2016: 5-7).

Thailand government faced the dual challenge of maintaining security of its porous border on one hand and protecting the refugees on the other. Thai government prioritized its national security over humanitarian commitment so in 2009, the Royal Thai Navy was publicly criticised for multiple human rights violations against Rohingya migrants, which includes arbitrary detention and cruel, inhuman treatment prior to pushing them back out to the sea without petrol or food, putting their lives

at risk. In 2013 also the boats fleeing persecution from Myanmar were pushed back. Many who were transiting towards Malayasia were handed over to the brokers to assist them to reach their destination. Approximately 2000 Rohingya were officially allowed entry into the country in 2013, but were detained in immigration detention centres (IDCs) as "illegal immigrants". As the Rohingyas are not recognized, they are unable to seek employment, register births of the children and provide them proper education and healthcare facilities.

Influx of Rohingyas in India mainly took place after the state riot in 2012. As India is not a signatory of 1951 Refugee Convention and the 1967 Protocol relation to status of the refugees, India does not have a proper legal framework to deal with the refugee issues. With refugee influx in the northeastern states of India, resentment started among the local population and the migrants are alleged to steal their jobs, grabbing and occupying land and associated with criminal activities endangering the state security. So Rohingyas are stigmatized in India as "illegal migrants" and "terrorists" who are associated with radical activities and provoking insurgent activities (Verma 2019: 2-3). India, being a multi-ethnic country with the democratic environment attracts refugee population. The rising anti-Muslim sentiment has threatened the existence of the Rohingya refugees and in 2017; the Home Ministry had issued orders to deport all the illegal foreign nationals from the country. As India is not a party the refugee convention, it is not bound by the principles of non-refoulment and hence has not violated the international law. India's National Investigation Agency's suspicion towards Rohingya emerged with a Rohingya boy named Mohammed Khalid was found to be associated with Burdwan blast in West Bengal and was trained by Tehreek-e-Taliban of Pakistan[1]. The controversial Citizenship (Amendment) Act 2019, aimed at identifying the non-national elements stationed in India without formal consent from the government.

Rohingya Refugee Issue and the Human Security Crisis

Maritime migration is not a new phenomenon. It is recurrent crisis engendering the maritime security in any maritime zone especially in the BoB region. Many people without proper navigation aids had undergone the dangerous voyages to have a secure life. In this section the humanitarian crisis the Rohingya community is facing would be focus with reference to the documented narratives collected from different sources.

In Bangladesh, the Rohingyas have mainly settled down in the Ukhiya and Teknaf sub-division in the Cox's Bazar area. Refugee Repatriation and Relief Commissioner is responsible to look after the administration of the camp. The camps are shabby with bamboo sheet walls and plastic covered roofs. Half-bamboo fence or old clothes are often used as divider. As the refugees are a burden for the asylum-providing country, the ration provided are not sufficient and not enough nutritious. Food aids

have been refused due to shortage of funds. Hamida, a female refugee in Cox Bazar camp shares her experience. She said, "I am not getting any fish, meat or salt now. My kids are not getting food to eat. We used to get these things."[2]Prolonged starving leads to mal-nourishment among the refugee children. As the refugees are not allowed to go out of the refugee camp, they could not seek employment to meet their daily needs. The health issues also remain unattended. Worst sufferers are women, they are vulnerable to unsafe deliveries, sexually transmitted diseases, pregnant and breast-feeding women are often found anaemic. Rohingya children are deprived of proper vaccination and medical attention in case of lethal diseases. So, the health security is in precarious condition. The overcrowded camps suffer from lack of clean and safe drinking water and proper sanitation facilities. Sarah, a refugee from Balukhali 2 Camp described her experience, "Living conditions here are really bad. The closest toilets are closed today and there are too many people at the next ones. All the other toilets are too far. Water's far away too."[3] The living conditions were not convenient to lead a healthy life.

On the other hand, in Thailand as well, the Rohingyas were not permitted citizenship rights or minority status. As Thailand is not a signatory of the 1951 Refugee Convention, the displaced Rohingyas were not allowed to get refugee status under United Nations High Commissioner for Refugees (UNHCR). Though in 1970s and 1980s, Thai government was accommodative to the Rohingyas and provided refuge to people evading Myanmar's military operations, but with the intensification of conflict, the Rohingyas were pushed back from the Thai shores. Thai policies towards Rohingyas shifted from indifference to that of non-acceptance. Rohingyas feeling to Thailand had to undergo hazardous voyages. Amlha Areecha, Rohingya woman from Sittwe village who had undergone the voyage after her two sons were shot dead said "There was no water on the boat and we were desperate. Some people passed out; others vomited". She wanted to there as she no family left in Sittwe, they have all been killed. Thailand has been found to be a hub of human trafficking networks. Taking the advantage of the helplessness of the persecuted Rohingyas, they were trafficked from Bangladesh and Myanmar with the false assurance to providing employment and a secure life. Often, they were illegally transported to Malayasia and other countries. Since 2017, the Thai Navy has adopted a three-step action plan. The Thai Navy can intercept Rohingya boats nearing the coast and only after ensuring the occupants will travel further to any other state, provide essential supplies like fuel, food, water, etc. (Banerjee 2021).

As the camps on Bangladesh are becoming overcrowded, people are trying to move to some better place. Many had undergone voyages to Aech in Indonesia. For days they had to sail without food and medical treatment. Those who could not survive the journey, their dead bodies were put in sack and thrown into sea water. Thirteen years old young Rohingya girl shared her journey, "Sometimes they say that the boat will merge, we feel that we are drowning…. I miss my parents. I feel like crying

for them." Another young nineteen years old young Rohingya woman after completing 40 days voyage to escape persecution, while sharing her experience says, "After few days, people started jumping from the boat into the sea. Some five men wanted to find boats around, we don't know where they went. Then after a few days five men jumped because they couldn't handle the hunger. After 12 days water started coming into the boat and more people jumped as they felt that the boat would sink into the ocean. There were bodies floating into the water." Like her, many more Rohingya children have undergone the precarious journey. But they are often targeted by the human trafficking rackets. Lilianne Fan of Geutanyoe Foundation[4], said, "They are people who potentially prey on these children. I mean use them, exploit them in this way, try to move them voluntarily or not across borders." The criminal rackets always search for these vulnerable situations where the helpless people can be targeted. Arrival of the refugees has provided a grand opportunity for the traffickers to victimize them. International Organization for Migration's (IOM) head of protection on Cox's Bazar camp has said, "A lot of abuse occurs under cover of darkness, when the presence of agencies and authorities in communities and camps is limited." Thus Rohingyas are becoming victim of trans-national criminal activities across the international water. Unknowingly they are falling into the traps of the rackets which is hampering their security.

Young Rohingya girls are often trafficked into prostitution. A fourteen years old Rohingya girl shared her experience, said, "Women came with a van, they asked me if I go with them. Not long after that in a building in Cox's Bazar they brought two boys to me. They showed me a knife and punched me in my tummy because I was not cooperating. Then the boys raped me. I was not willing to have sex with but they kept going." In many cases the family members out of desperation allow the young girls to go for prostitution to escape extreme hunger and poverty. A girl of thirteen year said, "She came to our home, we know her. She said you are not being fed properly. Come with me to Cox's Bazar, I will give you job. When we got there, she put me in a hotel in the morning. By the afternoon a boy was put in my room. He beat me and raped me. I asked the woman why I should do these? She told me if you don't do this, I will kill you." Taking advantage of the conditions of the Rohingyas, the traffickers have formed an established network to run their sex trade. Pimps are planted inside the camps to take the girls to the city for business. Camp brothels are hard to spot and looks similar like other shabby huts. A Rohingya women from Kutupalong camp having two children and abandoned by abusive her husband, explained the situation that made her go into this business. She said, "The food handout is not enough. When my kids cry for rice, from where will I get it from? I am only doing this support my family. I feel bad doing it but I have to survive somehow."[5] Women were often sexually abused and dumped into the ocean. A 15years old Rohingya girl sharing her horrifying experience said, "The Myanmar soldiers got hold of me, they beat me, tied my hands and feet and hung me from a tree. Next

to me there was another woman. The soldiers cut her belly and vagina. They cut off her breasts and put them in a plastic bag. I started screaming and a soldier bit a piece of cheek off. Then they pull me down and gang-raped me. After that, they stabbed me and dumped by body into the river thinking I was dead." The girl somehow survived and managed to swim to Bangladesh. Thus the maritime lanes are insecure. International waters are used to traffic children and young girls forcefully. A Rohingya girls fallen prey of human trafficking racket said, "They put us in fish refrigerators, the coast guards later took us out of it. I don't know exactly how many people were there on the boat… something like 10 women and 15 children I suppose. They only kept women in fish refrigerator." Trafficked victims also face brutal tortures and women face sexual violence.

Trafficked Rohingya women often were forcefully married. A helpless Rohingya woman trafficked to India shares her experience. She said, "They drew my mother out of the room and took advantage of me inside my own house. They beat me, they drag me by my hair, and finally they force me to get married." Women are also sold as brides. Another Rohingya girl named Rubel Hasina made perilous boat journey to Malayasia alone to unite with her family but had fallen prey to a marriage broker and was forcefully married in exchange of money. Now she is suffering in the abusive marriage. She said, "He used to use abusive words about my family and kept abusing me. During an argument I told him that I would leave him for my parents. And he threatened to chop me and throw me away to the sea."

These experiences are horrifying and prove how the human rights of the Rohingyas are getting violated and their human security is in precarious state.

International Laws and Responses to the Crisis

Rohingya crisis became a matter of concern seeking international response. Strengthening of the legal framework to deal with the irregular maritime migration and proper implementation of the laws with the willing consent of the stake-holders and the impacted states can only contain the crisis. The UN Refugee Agency, UNHCR tried to trace the people undergoing the hazardous plight via the marine-way. Many have died in course of the journey; many are missing and the accounts of the survivors were horrifying. UNHCR has made appeal to the coastal authorities to take urgent action to prevent further casualties. The 1951 Refugee convention and 1967 Protocol are the main instruments to deal with refugee issue. But in case of the maritime migration, Article 98 (1) of the United Nations Convention on the Law of the Sea (UNCLOS) mentions about providing assistance to any person found to be stuck at sea who in the danger of being lost. It urges the states for speedy rescue operation to help the distressed sea-stuck people who are in need of assistance. Article 98 (2) mentions about prompt assistance should be given and the coastal states must establish, operate as well as maintain an effective search and rescue service and be protective regarding safety on and over the sea and, where

circumstances requires, by mutual regional arrangements cooperate with neighbouring states for this purpose. Article 12 of the 1958 Convention on the High Seas reinforces the same matter. But the drawback of the UNCLOS lies in the fact that it does not have any explicit reference to the protection of human rights at sea. The human rights of the boat people are often being violated. The International Tribunal for the Law of the Sea (ITLOS) has appreciated the application of humanity in case of the law of the sea. But the human right violations of the migrants in the sea remains unreported, Rohingyas are illegally trafficked though the BoB region. Article 6 of the Smuggling of Migrants protocol has criminalized human trafficking through sea. Article 8 has empowered states to take action against the suspected vessels and to rescue the victims. Though ASEAN's initial response was that of non-interference, later it held a series of meetings to address the crisis as the majority of the impacted states are its member. International organizations like UNHCR, IOM and United Nations Office on Drugs and Crime (UNODC) are working hard to stop the criminal activities along the marine zone. In 2020, they have issued a joint statement that the situation like 2015 may return and the countries in that zone must be committed to the 2016 Bali Process on People Smuggling, Trafficking in Persons and Related Transnational Crime, which sought to promote multilateral dialogue, awareness, information sharing, and cooperation on human trafficking, smuggling, and related crimes (Lean2023: 71). Affected states through bilateral and multilateral interactions are trying to control the crisis but the states are also in dilemma where to prioritize their state security or to remain committed to their humanitarian needs.

Conclusion

This paper has mainly focused on the boat crisis and the contrasting security questions that has arose in course of years. The boat crisis has endangered the national security of the states located along the coastline receiving the wave of refugees seeking asylum. But at the same time, the states cannot deny their humanitarian commitment. The human rights violation of the Rohingya refugees has attracted global media attention and criticism from the international community for the drawbacks in the maritime governance. As the BoB region is the most vulnerable maritime zone facing the irregular wave of migration, controlling the trans-border criminal activities centering the migration issue is a serious challenge for the stake-holder countries. Through bilateral and multilateral mechanisms, the states are trying to control the crisis but reaching a permanent solution to the problem is very hard to achieve.

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The Shy Coconut Palm: A Cross-Cultural Understanding of its Imprint on the Ecocultural Landscapes of Bengal and Southeast Asia

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Abstract

Cocos nucifera L. (Arecaceae), the coconut palm, is a cultural icon of the moist tropics where these trees epitomize the coastal vegetation. Although the fruit is naturally adapted for dispersal by sea currents, its pantropical dissemination and inland colonization was achieved only with human help. Today, about 11 million farmers in almost 90 countries depend on this plantation crop for their livelihoods. With significant economic value, practically every part of this palm is useful to humans, and this has sustained numerous traditional communities for millennia. In addition to this practical significance, the coconut has also penetrated into the lingual, cultural, social, and spiritual matrix of traditional communities across the globe. Strategically poised in the extreme east of the Indian subcontinent, the Bengal region has had ancient land connections with Southeast Asia through the northeast, as well as early sea links across the Bay of Bengal which still remains even today a *mare incognitum*. Bengal not only acted as an intermediary in trade and commerce, but also played an important role in the cultural exchanges with Southeast Asia. This humble fruit is a source of sustenance, as well as a symbol of identity, holding a special place in the cultures of both Bengal and Southeast Asia. This study endeavours to trace the mark left by the coconut palm on the ecocultural landscapes around the Bay of Bengal through the biocultural approach, and explore its cross-cultural significance by encompassing the historical, social, and scientific dimensions.

Kew Words: *Bengal, Biocultural Heritage, Ecocultural Landscapes, Coconut, Southeast Asia.*

Introduction

In the timelessness of plant-human relationship, the presence of a plant as a tangible natural being can often eclipse its existence as an intangible social construct. In biomes where the coconut is a cultural icon, thick strands of this elegant palm embody the exotic vistas of seashore vegetation that endlessly stretch along the moist tropical coastlines. *The tree's* gift of copious bunches of quaint fruits, each

with a nut—the coconut *per se*, is portrayed by Robin Laurance in his acclaimed botanical work as down-to-earth, albeit no non-human species can claim to play so many and so diverse roles in the story of humans (Laurance, 2019: 1). The coir-cushioned fruits are naturally designed to survive the perilous fall to the ground, remain afloat and can drift with sea currents (Beveridge *et al*., 2022: 6). However, human espousal allowed the coconut to spread beyond coral atolls to establish its pantropical presence in the humid tropical belt 23° north and 23° south of the equator, extending from the seashores to the lower mountains (600 m) (Harries and Clement, 2014: 565). Today, it is one of the most widespread fruit-yielding crops on Earth (Ward and Brookfield, 1992: 467). This long-drawn interaction between humans and coconuts stretches back to time immemorial, and has strongly moulded the geographical and genetic range of this species. Furthermore, these amphibious invaders can colonize inland habitats only with anthropogenic aid, and have adapted themselves to diverse terrains that range from beaches to foothills (Adkins *et al*., 2011: 8). The extent of natural diffusion and centre of origin of this crop is still a matter of fierce debates (Maloney, 1993: 355). From the palaeotropics, the crop had initially spread east, and then west, reaching the neotropics during pre-Columbian and post-Columbian periods respectively (Gunn *et al*., 2014: 1). From its home in Island Southeast Asia, cultivated coconuts travelled far across the globe during the Neolithic with seafaring Austronesians, in the east across the Pacific Ocean, and in the west across the Indian Ocean, with the fruit playing a critical role in these prehistoric migrations as a portable source of food and drink during long sea voyages at least 4,500 years-ago (Baudouin and Lebrun, 2009: 467). Later, a distinct population of domesticated coconut developed in South India and this reached Africa ca. 3,000 years-ago, and finally Europeans colonists introduced them to the Americas ca. 500 years ago (Sauer, 1971: 309). Today, nearly 12 million farmers in nearly 90 countries depend on this pantropical crop for their livelihoods (Samosir *et al*., 2006: 36). Practically every part of this tree is useful, with both culinary and non-culinary practices sustaining traditional communities for millennia, and also with future prospects of immense economic value (Henrietta *et al.*, 2022: 258). However, the coconut has also penetrated into the lingual, cultural, social, and spiritual matrix of local people, and quite pertinently exemplify the their traditional concepts of sustainability (Ahuja *et al.*, 2014: 237). Strategically poised in the extreme east of the Indian subcontinent, undivided Bengal had not only ancient land connections with Southeast Asia through the northeast, but also had early sea links across the Bay of Bengal which still remains a *mare incognitum* (Gupta, 2005: 22). Bengal, as an intermediary in trade and commerce, played a key role in cultural exchanges with Southeast Asia. This humble fruit as a source

of sustenance and a symbol of identity holds a special place in the cultures of both Bengal and Southeast Asia. The objective of this paper is to explore the indelible imprint of the coconut on the ecocultural landscapes of Bengal and Southeast Asia through the biocultural approach, and explore its multilayered cross-cultural significance in this region with the historical, social, and scientific facets to delve into the hitherto unexplored role of this more-than-human actor in our everyday existence.

The Coconut Tree: Cocos nucifera L. (Arecaceae)

Botanically known as *Cocos nucifera* L. and belonging to the palm family (Arecaceae), the coconut tree was named by Carl Linnaeus in 1753 in his *Species Plantrum* ('The Species of Plants' in Latin), the iconic book that enlisted every plant species known to Europeans at that time (Linnaeus, 1753: 1188). The generic name (and the prefix of its English name) is the Latinized sixteen century Portuguese word *coco* ('head' or 'skull'), as Spanish and Portuguese explorers first encountering Pacific islanders in 1521, and their coconut shells with face-like triple indents reminiscent of a malevolent character in Iberian folklore called Coco or Coca. The specific epithet is derived from two Latin words: *nux* ('nut') and *fera* ('bearing'). This term 'coconut' can refer to the tree, or its fruit or seed. The tall habit is up to 30 m high, with unbranched, slender stem forming a column-like trunk ending in a crown of large, feather-like compound leaves. A mass of fibrous roots anchor the trunk to the sandy soil. Minute male and female flowers are borne on branched spikes covered by a large boat-like spathe. The one-seeded fibrous fruit is technically a fibrous drupe, not a nut (Beveridge *et al*., 2022: 5). The epicarp is a glossy skin, green to brown in colour. The mesocarp is a fibrous coir forming the husk along with the exocarp. The endocarp is a hard shell with three pores, two plugged (the 'eyes'), and one functional. Immature fruits are the green coconuts, mature ones are the brown coconuts. The single seed inside has a thin seed coat enclosing a liquid endosperm (coconut 'water') that eventually turns into a solid endosperm (coconut 'meat'), and a small embryo under the pore. The extracted fibre is called coir. The dried flesh is called copra. This tall, slender palm with crown of leaves bearing bunches of fruits, is not only a beautiful but also an useful tree. The coconut tree perhaps yields more useful products for humans than any other tree as the source of food, fodder, beverage, medicine, cosmetics, fibre, fuel, timber, and raw material for making a surfeit of goods in autochthonous material culture (Ahuja *et al.*, 2014: 229). This plantation crop provides food security, supports traditional livelihoods, and contributes to the gross domestic product (GDP) of several Asia-Pacific countries as an important source of both edible and non-edible products (Henrietta *et al.*, 2022: 259). The copra is dried, ground

and pressed for edible oil. The coir is spun into cordage, or used for packaging, bedding and flooring. Although the coconut finds its greatest visibility in its commercial applications in the industrialized West, however in its native range across the ecocultural landscapes of the Asia-Pacific region it remains profoundly entrenched in the autochothonous cultures and invisible to the world outside. Therefore, it is no wonder that this reticent palm tree which is revered by the locals, has earned eloquent sobriquets such as the 'Consols of the East', 'Tree of Life', 'Tree of Abundance', 'Tree of Heaven', 'Tree of Plenty', to name only a few. "If you could count the stars, then you could count all the ways the coconut tree serves us" is a familiar proverb from the Philippines. Indonesians claim that coconuts have as many uses as there are days on the calendar. In India, it has been, among many things, imagined as the *Kalpavriksha* ('The Wish-fulfilling Tree' in Sanskrit) of classical mythology. India, Indonesia, and the Philippines are the world leader in coconut production (Parmar *et al*., 2021: 164). World Coconut Day is celebrated on the second September, since 2009, by the stakeholders in the coconut farming business to mark the formation of Asian-Pacific Coconut Community (APCC), with the objective of raising awareness about the importance of these shy fruits and recognize their multifarious contributions to the richness of human life.

Bengal and the India-Southeast Asia Trade and Cultural Contacts

Due to its vantage point at the extreme east of the subcontinent, the Bengal region has been a transit point between South and Southeast Asia with fertile Gangetic delta poised between the remote Tibetan plateau and the turbulent Indian Ocean, functioning as a land bridge and a port of call in the ancient socioeconomic exchange between the Indic world and Indosphere (Akhtar and Khondaker, 2021: 21). Thus, unlike other regions of India's eastern coast, the Bengal-Southeast Asia contacts of remote antiquity involved both land connections through India's Northeast, and sea links across the Bay of Bengal (Bellina 2002: 329). The maritime past was part of the network of pan-Indian and pan-Asian contacts centred around the Bay of Bengal is Interaction Sphere (BBIS)—the littoral zones and hinterlands in South Asia, viz. Bangladesh, India (Tamil Nadu, Andhra Pradesh, Orissa, West Bengal, Assam), Sri Lanka, and Southeast Asia, viz. Myanmar, Thailand, Malaysia, Indonesia (Gupta, 2005: 23). The overland and overseas routes linking South and Southeast Asia were at times complementary and at other times competitive. The ancient littoral polities of Southeast Asia were well-connected to India's eastern seaboard and Sri Lanka through a wide range of maritime trade networks across the Bay of Bengal on account of favourable monsoon winds. In addition to commerce, religious contacts,

particularly Brahminical and Buddhist, inspired a deep cultural dialogue that continues to this day (Dhar, 2023: 13). One of the earliest contacts noted were probably of Buddhist monks sent by Emperor Asoka to Myanmar in the 3rd century BCE. More evidence of connections between India and Southeast Asia were found in later years. The Buddhist *Jataka* tales of yore narrate many sea voyages undertaken to the land of gold, spices and coconuts (Coedeὶs, 1975: 17). Bengal, the headstone of this Bay of Bengal arc, was a mediator in commercial activities, and played a key role in cultural interchange with the littoral trading posts of Southeast Asia. A couple of fifth century votive inscriptions from Malaysia records the gift of the skilled mariner Mahanavika Buddhagupta, who hailed from Bengal (Allen, 1986: 49). The medieval *Mangal Kavya* texts in Bengali mention trading contacts via both land and sea with Southeast Asia (Ghosh, 2023: 23). However, the beginning of the long-distance commodity-exchanges between the coastal polities of this *mare incognitum* is cloaked in mystery (Glover, 1996: 129). It is widely accepted that these contacts spanned a long historical period from the start of the first millennium BCE to the mid first millennium CE, involving multiple theatres on India's east coast (Ray, 1991: 357). However, this timeline can be stretched back further to the Neolithic (Gupta, 2005: 21). This long-drawn continuity of commercial exchange also indicates a fair amount of cultural cross-fertilization (Manguin, 1996: 191). Of the multiple lines of recent evidences, archaeo-botanical records have challenged the dominant Indianization paradigm in Southeast Asia by shedding light on the earliest known Indian Ocean networks of local seafarers and their maritime trade in local plant resources, viz. spices (Gupta, 2005: 28), cereals (Weber, 1998: 267), and vegetables (Blench, 1996: 417) as early as 3,000 years-ago, with Malaya and Sumatra as probable nautical bases for these perilous crossings (Gupta, 2005: 22). The role of seafaring Austronesians in the early eastward diffusion of cultivated coconuts is mentioned above. It is quite likely that these pioneers may have also set their eyes westwards across the Bay of Bengal (Fuller *et al*., 2011: 548). The study of Austronesian contribution to Indian culture is neglected. The infusion of Austroasiatic terms for botanical objects into Sanskrit (Bryant, 2001: 94) are linguistic relics of these spirited passages across the Bay of Bengal. Much like the coconut whose fruit is a symbol of identity and holds a special niche in the cultures of both Bengal and Southeast Asia, one of these aforementioned plants is the sugarcane (*sarkara* in Sanskrit) which was also domesticated by Austronesian people in Island Southeast Asia ca. 10,000 years-ago, and first introduced to the South Pacific during prehistoric times and then to South Asia at the end of the second millennium BCE (Daniels and Daniels, 1993: 4). It is not surprising that the Bengali *narikel* (or *narkel*) in east India (and the Hindi *nariel* in north India) for the coconut

etymologically stems from the Sanskrit *narikela,* which in turn is said to be derived from two aboriginal Southeast Asian words *niyor* ('oil') and *kolai* ('nut') (Achaya, 1998: 86). In fact the prefix of this Sanskrit moniker resembles several Austronesian names of the coconut, viz. *niyog* (Filipino), *nyiur* (Malaysian) and *niu* (Balinese) (Table 1). The following sections deal with are cross-cultural studies of the coconut in Bengal and Southeast Asia, through the dual biocultural lenses of food and stories.

Coconut in the Culinary Legacies of Bengal and Southeast Asia

A society's soul is said to be embedded in its cuisine (Freedman, 2007: 7). Culinary heritage, a marker of cultural identity, refers to wisdom and skills related to the food production, preparation, and consumption practices that are handed down the generations in traditional food systems (Brulotte and Di Giovine, 2014: 2). In the field of cultural studies this often neglected intangible cultural heritage is, both tacitly and evidently, inextricably linked with the underlying historical, cultural, and social dimensions of a community (Tannahill, 1995: 7). Across the foodscapes in the hot and wet climes of Asia centred around the Bay of Bengal, the humble coconut is well-known for the remarkable multiplicity of its useful parts, especially the edible fruits as a portable source of food (meat) and drink (water). The most important among its enormous list of practical uses are five food products: coconut water (liquid endosperm), coconut meat (solid endosperm or kernel), coconut milk or cream (from the fresh kernel), coconut oil (from the dried kernel or copra), and coconut sugar or jaggery (from the stem sap) (Watt, 1889: 559). In global business, the coconut is essentially an oil crop that yields an edible vegetable oil, and the copra and its oil (although commercial palm oil refers to the oil palm i.e. *Elaeis guineensis* native to tropical Africa and now widely cultivated in Southeast Asia) are of immense economic value, but all the edible parts of the coconut are important in local fish-rice staple cuisines along the Bay of Bengal. All, except the coconut sugar (called *neera* in Bengali) obtained from the edible sap from the young inflorescence stalk, are obtained from the edible fruits (generally called *narkel* in Bengali), both the green (specifically called *daab* in Bengali) and the brown coconuts. Therefore, it is not surprising that the coconut palm, with its deep cultural roots spread across the Bay of Bengal, is a revered symbol of abundance that embodies the tropical abundance region's ecocultural terrains as another staple not only in the tedium of daily life but also in the euphoria built around festivities. Encased in the pericarp with successive watertight (outer), buoyant (middle), and tough (inner) layers, the cavity of the immature and mature coconut is filled with the edible endosperm. The hollow space of green coconuts is sometimes used for cooking. The cavities of coconuts, especially the green ones, are filled with the refreshing and nutritious coconut water that is

a refreshing natural drink. This is sometimes used for cooking as well. Coconut water is rich in carbohydrates, proteins, and minerals (Parmar *et al*., 2020: 166). The meat inside the drained nut is scraped off to be eaten either raw or cooked. For its culinary use, the meat is chopped, grated and used fresh or dried, and yields the coconut milk with a creamy texture and unique flavour that is pivotal in shaping the local culinary heritage, especially in Sri Lanka, Thailand, and South India, where it is popularly used in kitchens to thicken sauces, soups, and stews. Coconut meat is also highly nutritious as it is loaded with a plethora of carbohydrates, proteins, lipids, fibres, vitamins and antioxidants (Parmar *et al*., 2020: 170). In South India and Southeast Asia, and since long before the emergence of the abominable palm oil, this original palm oil is also popular as the traditional cooking medium. Etymologically the Sanskrit *narikela* ('oil nut') points to the antiquity of this modern oil crop (Achaya, 1998: 86). Here, coconut sugar is also used as a traditional sweetening agent. Therefore, the coconut is a common ingredient in the cuisines of India and Southeast Asia, and it has been utilized in myriad culinary applications ranging from sweet to savoury dishes, showcasing its versatility as the basic ingredient in creating iconic flavours that define the foodscapes poised across the Bay of Bengal.

The coconut is a common ingredient in Southeast Asian kitchens and is used in a variety of ways (Esterik, 2008: 36). Fresh water from green coconuts is rarely used in cooking. In Malaysia, the fresh meat is roasted, ground, and add to cooked dishes. However, across this region, it is grated, soaked with hot water, and pressed to prepare the ubiquitous coconut milk that is widely employed in beverages, rice dishes, soups, curries, and desserts to enhance traditional recipes, with its ability to impart a creamy richness and a subtle essence. An interesting implement employed in the traditional Southeast Asian kitchens is the coconut grater stool, perhaps a relic of the material culture of the seafaring Austronesians, that became an essential part of coconut-abundant cultures across the Indo-Pacific (Kirch, 2010: 22). Coconut milk is also frequently used in palace dishes of the royal courts of Thailand and Cambodia, especially the coconut-based soups (Esterik, 2008: 36). Coconut milk, an indispensable for the culinary repertoire of Southeast Asian cooks, continues to permeate the gastronomic heritage of the region. In Thailand, the coconut milk is the key ingredient in cooking rich aromatic curries, such as the renowned *massaman*. Its creamy texture and subtle sweetness balance the flavours of a complex blend of spices, herbs, and meat that never fails to tantalize the taste buds. In Indonesia, the coconut milk plays a pivotal role in *rendang*, a celebrated dish that features tender, slow-cooked meat that is flavoured by simmering in a luscious coconut milk and spice mixture. The coconut milk tenderizes the meat, in addition to rendering a rich creaminess to elevate the dish to a culinary masterpiece.

Many traditional dessert recipes combine coconut milk with palm sugar, including coconut sugar that adds a rich creamy flavour that is hard to replicate with cane sugar. In the Philippines, the coconut milk is commonly used in creating desserts like *ginataan*, a sweet stew made with a medley of fruits, underground crops, and glutinous rice or taro flour balls cooked with palm sugar in boiling coconut milk. This indulgent treat showcases the sweet, velvety traits of the coconut milk, harmonizing with the natural sweetness of the other ingredients to create a delightful symphony of flavours and textures. In Cambodia, a traditional sweet made during the Khmer New Year celebrations is *num kom*. This rice cake is essentially sticky rice dumpling filled with freshly grated coconut, toasted sesame seeds and palm sugar, all wrapped in a banana leaf and steamed. This delicacy is a subtle blend of the spongy blandness of rice, sweet texture of coconut, light crunchiness of sesame seeds, and rich creaminess of palm sugar. Its regional variants are the *mont* in Myanmar, and *klepon* in Indonesia.

In South India, the coconut has a prominent presence and is used to impart a distinct flavour to the traditional dishes. Coconut milk is used to stew vegetables, fish or meat used as accompaniments to *appam* (rice pancakes) with a history stretching back to the early-medieval Cholas who had maritime contacts with Southeast Asia (Achaya, 1998: 46). Grated coconut is used in *chutneys* (condiments) for *idli* (steamed rice cake), and this cooking technique may have travelled from the thalassocratic polities of Indonesia (Achaya, 2003: 80). In contrast, the coconut's footprint in the Bengali kitchens is relatively less visible. In Bengal, blessed with extensive rice paddies braided by waterways rich in aquafauna, both rice and fish are staples as in Southeast Asia. An interesting variant of the *bonti* (cleaver stool) in the kitchens of this floor-oriented culture, is the metal blade of the *kuruni* (coconut grating stool) that ends in a round serrated piece (Banerji, 2001: 81). This has an uncanny similarity with its traditional counterparts from Southeast Asia, such as the Malaysian *kukar*, except for its blade rising like a hooded serpent. Mukundaram Chakravarti in his sixteenth century ballad *Chandimangal*, mentions several dishes. One of the traditional sweetmeat he describes is the *pitha,* an omnipresent rice pancake made with rice batter, and generously filled with jaggery-infused roasted sesame and grated coconut, and often consumed with a sweet sauce of date palm molasses. This was a ceremonial food item at that time. The sweet filling of coconut and jaggary is still used during the festival seasons to prepare the Bengal-style *ladoos* (dessert balls) called *narkel naru*. These, and variants in next-door Assamese and Odia cuisines, have an uncanny resemblance to the traditional sweet rice cakes made during festivities in Southeast Asia. In the nineteenth century, the Bengali bourgeoisie detesting animal meat, preferred delicacies such as crab and turtle meat cooked with grated coconut (Majumdar,

1979: 17). A relatively recent culinary innovation is the quintessential Bengali dish called *chingri malaikari* (Chaudhuri, 2002: 275). This name is conventionally conceded to refer to the creamy texture stew of either *bagda* (tiger) or *galda* (king) *chingri* (prawn), infused in a gravy is prepared with coconut milk. The dish could literally mean 'cream curry'. There isn't much basis to this theory other than the assumption the word *malai* denotes coconut cream, instead of the conventional dairy cream. Instead, the prefix *malai* is rooted in the geographical term Malaya (Malaya peninsula), and thus *malaikari* literally means 'Malayan Curry'. The presence of similar dishes in the Malaysian cuisine points to the possibility that this sea food dish was influenced by the people of Malaya. Two dishes, the *chin-malay kari udang* (coconut prawn curry), and *laksa* (coconut prawn soup), appear to be distant cousins of Bengal's adorable prawn stew. Then there is a significant historical record that indicates that traders sailed from Southeast Asia along the spice route to many trading ports in this part of the subcontinent, going as far back as 8th to 12th centuries during the Pala Dynasty (Ghosh, 2023: 28) and Chandra Dynasty (Ghosh, 2023: 28). This continued up to the early modern commerce between South and Southeast Asia. The pattern of trade across these regions was structured, and one trading route in particular was the straits of Malacca in Malaysia. These trade links were accompanied by a wider exchange of languages, cultures, and ideas, and in this case cuisine. Another traditional festive dish originates from the eastern part of Bengal is *daab chingri*, another prawn curry variant that is inventively cooked and served in a green coconut shell along with its thin layer of creamy meat inside. This has a touch of the Portuguese steaming technique, known as *bhapa* in Bengali. Once again, the flavour profile of this dish can also be easily compared to those of Southeast Asian cuisines, especially *laksa*. Thus, even though this seafood preparation is spiced up with the rich local flavours of Bengal, it has been influenced by multiple cuisines from across the seas.

Coconut in the Oral Traditions of Bengal and Southeast Asia

Stories that parents and grandparents tell their young ones, serve the dual purpose of leisure and education (Bruchac, 2010). Oral tradition is an umbrella term for varied systems of human communication wherein memories, ideas, laws, arts, knowledge are recorded, preserved, interpreted by word-of-mouth, and transmitted down the generations (Nogueira, 2003: 164). This verbal-aural form of intangible cultural heritage testifies to the ability of the brain to learn, memorize and repeat complex and sophisticated structures sans any writing system. Oral literature categories include myths, legends, poems, epics, chants, lullaby, proverbs and riddles, among others. South and Southeast Asia

have rich and heterogeneous repertoire of folk literature that have influenced each other through long periods of trade and cultural contacts. In *Valmiki Ramayana* (Book III), verse 13 of chapter-35 describing the sylvan elements mentions the coconut palm (Roy, 2022: 35). This epic tale is popular in folk cultures around the Bay of Bengal. The interaction between the written text and its oral performance is vibrant in South and Southeast Asia, where oral and textual traditions share a interwoven past (Sears and Flueckiger, 1991: 2). Furthermore, in the Ramayana texts, lands beyond the eastern sea (Bay of Bengal) in Southeast Asia are described with names such as *Narikeladvipa*, the 'island of coconuts' (Sagoo, 2020), pointing to a long intertwining with ecological history.

In Southeast Asia (and Oceania), the coconut tree is called *Pokok Seribu Guna* ('Tree of a Thousand Uses' in Malaysian), reflecting its value in every aspect of daily life. There are many myths and legends about this tree across the region that is considered as its cradle (Roosman, 1970: 219). In Tonga, a Samoan origination myth of coconut from an eel recounts the tragic love between moon goddess Sina *and eel god Tuna. Her paramour eventually gets killed, and his buried head* germinates into a coconut tree. Their love-child climbs up the palm tree harvests the first fruit and discovers its usefulness for their people. Each nut bearing the eel's face served as a poignant souvenir (Craig, 2004: 88). This legend portrays the spirit of discovery of the early Austronesian explorers in the untold story of their migration from Island Southeast Asia and the colonization of the South Pacific. Every part of the plant was useful, and the story describes the de-husking of the fruits, weaving of the fronds for thatching and basketry, and use of the trunk as construction material or firewood. In New Guinea, a similar Papuan legend on origin recounts the birth of the first coconut tree from the head of a dead woman, specifically her skull whose anatomical marks were visible on the nut inside (Z'graggen, 1983: 277). In Indonesia, the story of the food deity Hainuwele or 'Coconut Girl' is another creation myth that prominently figures in Wemale and Alune folklore of the Maluku Islands (Campbell, 1959: 174). She was born out of a coconut palm. After providing the people with necessities and luxuries, she is killed and her body cut into several pieces, which are then thrown over the island. From each part of her body a coconut tree grows. A Javanese folklore narrates how fruit-bearing plants originated from the body parts of a dead girl, including the coconut palms from the head (Taryo, 1984: 9). In Tahiti, a couple of popular folksongs are *Niu-ola-hik* ('O life-giving coconut') and *Niuloa-hiki* ('O far-travelling coconut') (Ahuja *et al.*, 2014: 222). In the Philippines, the riddles "*Langit sa itaas/ Daga sa ibabaw/ May tubig sa tahaw*" (Heaven above/ Earth on top/ Water in the middle), and "*Tubig sa rikan dikan/ Dai nauuranan*" (Water in the tank there/ Doesn't get wet by rain), both refer to the

coconut, especially the refreshing coconut water (Maloles and Imran, 1970: 5). In Thailand, the proverb "*Kob nai ka la*" (Frog under the coconut shell) is a metaphor, often used in contemporary political sphere and refers to thinking outside the box (Kasetsiri, 2022: 149).

In India, Kosambi (1972: 243) attributes the historical progress of the littoral polities to the introduction of the coconut that became the foundation of their coastal economies. In the *Indic high culture* this palm was believed to be one among the five *Devavrikshas* ('Trees of the Gods' in Sanskrit) on account of the multiplicity of its uses, especially for the edible fruits. In classical mythology, the origin myth of the palm tree attributes its creation to the sage Vishwamitra (Gupta, 1991: 123). There are botanical references to coconuts in ancient medical treatises such as the *Vrikshayurveda* (ca. 800 CE), *Sushruta Samhita* (c. 400 BCE), and *Charaka Samhita* (ca. 600 BCE) (Ahuja *et al.*, 2014: 227). In the South where coconuts are integral to the local culture, the root for names for coconut in is *ten* ('south'), and *tenaki* ('nut fruit from the south'), pointing to its origin from across the Bay of Bengal (Ahuja *et al.*, 2014: 223). The *Sangam* literature (100 BCE–400 CE) also refers to coconut (Aiyer, 1956: 74). The Tamil riddle "*Iici nulaiyata kinattile orupati tannir*" (Needle cannot enter into the well where a gallon of water is stored) bears a simple clue to the usefulness of coconut water (Santhi, 1993: 139). The Tamil proverb "*Oru kurumabaiyai kollarudhu*, *onpathu thennai nattathirku camam*" (Killing of a *kurumbai* insect that damages coconut flowers is equivalent to planting of nine coconut trees) conveys traditional farming knowledge about the pest management of this crop (Ahuja *et al.*, 2014: 243). With its lush groves, Kerala has adopted the coconut tree as the state tree. In Bengal, from the earliest literary works to the present day, the oral literature is rich in proverbs, rhymes, riddles, songs, that are intertwined with the verdant terrain and its flora and fauna. Here, with coconut plantations spotted across the rice paddies stretching from the sea to the foothills, the vivid folklore in Bengali teems with axioms and conundrums about the coconut tree that embodies a rich intangible cultural heritage about the traditional farming techniques of the crop and the usefulness of its fruits in its ecocultural landscape. In rural Bengal, poems attributed to the fabled eleventh-century astrologer Khana from the Pala period called *Khanar Bachan*, embody traditional wisdom related to farming and food habits that constitutes a traditional manual for farmers and still influences the rhythms of agrarian life. Some of these timeless insightful saying reveal the practical knowhow of coconut farming and the immense subsistence value of this palm. Many of these have been analyzed by Sudeshna Basak (2010). "*Khona bole shune jao/ Narkel mule chita dao/ Gach hoy taja mota/ Taratari dhore gota*". This quatrain recounts traditional nutrient management as a green farming practice. It instructs

to recycle farmyard debris such as cow dung and rice straw by applying them at the base of coconut trees to favour growth and allow early fruit setting. "*Guo narikel nere ro/ Ama tuchure kanthal bho*". This couplet mentions an interesting farming practice. Shaking the base of coconut and betel nut saplings while planting produces healthy and strong palms, but the same practice produces smaller mangoes and unproductive jackfruit trees. "*Goye gobor, banshe mati/ Aphala narikel shikor kati*". This couplet mentions yet another useful farming practice. One should apply manure for betel nut palms, earth-up soil for bamboos, and trim roots for fruitless coconut trees, to increase the yield of all the three plantation crops. Trimming the fibrous roots is considered to cure sterility in coconut (Mohanty *et al*., 2008: 21). "*Datar narikel bakhiler bansh/ Kome na bare baro mash*". This couplet also provides insights about the plantation crops. One must show generosity with coconuts by harvesting them, sparing with bamboos by leaving the wild, this, rather than dwindle, would make them grows well throughout the year. "*Teen naray supauri sona/ Teen naray karkel tana/ Teen naray shreephol bel/ Teen naray gerosto gel*". This quatrain provides more knowhow about plantation crops. Transplanting beetle nut and wood apple saplings is favourable, but doing the same with coconut stunts their growth, just like the harm done by changing the homestead. "*Sonre boli cashar po/ Kola narkel krome ro/ Narkel bar supari aat/ Er ghono tokhone kat*". This quatrain instructs farmers to space coconut saplings 12 feet apart (and betel nut 8 feet apart) while planting for their optimal growth them and to remove old leaves when they touch each other to prevent disease. "*Narkeler gorai mati/ Suparir gora kati*". This couplet is also related to cultural practices. The plantation crop is favoured by putting soil at the base of coconut tree, and clearing betel nut trees by cutting at the base. A related couplet "*Narkel gache nun mati/ Shigro shigro bandhe guti*" is a directive to apply salt to the soil of coconut trees to increase their productivity. This practice is corroborated by the sixteenth century botanical treatise *Vishvavallabha* (c. 1577 AD) which recommends regularly applying of salt to the soil (Sadhale, 2004: 134). These time-tested maxims are not just wise sayings but also vehicles of traditional ecological knowledge and farming skills about cultivating this plantation crop. Sila Basak (2006) published her field survey of riddles collected from different corners of West Bengal and Bangladesh. It is a comprehensive volume on Bengali riddles and their socio-cultural background, with its subject from nature to daily chores, and covers rites and rituals. Language used to express riddles is often redundant, ornamental, or in rhyme form and its meaning is concealed, to be found through clues. "*Age cham pore lom/ Pare had tarpor mansa sese rakta/ Kao ta bostu ta ki bastay kara ba asakta*". This riddle from Barisal (Bangladesh) provides clues about describing the coconut by using comparison with the

human anatomy. It says first skin, then hair, then bone, and then flesh and blood. 'What is it and who are fond of it?' "*Allahr ki kudrat/ Gacher aage sherbet*". This riddle from Sirajganj (Bangladesh) describes the food value of the coconut water: 'What a blessing of the Lord, beverage on a treetop'. "*Nak ache hache na/ Chul ache bandhe na/ Marle kande na*". This riddle from Mymensingh (Bangladesh) hints at the facial features of the coconut: 'Has a nose but does not sneeze, has hair but does not tie, hit him does not cry. What is it?' "*Phaler bhitor anek jol*". This simple riddle from Jalpaiguri (West Bengal) also refers to the coconut water in both green and brown coconuts: 'Plenty of water in the fruit'. "*Jol thake/ Mach nei*". This is another simple riddle from Bankura (West Bengal) also refers to the coconut water: 'Has water but no fish'. These age-old puzzles not only playfully spoke of interest in local natural resources, but also embody folk insights into the socio-economic and even medicinal value of this plant.

Conclusion

In the ecocultural context, the historical and geographical links between Bengal and Southeast Asia are not only profound, but are also largely uncharted in academic terrains. With lush tropical natural and human-modified ecosystems that are rich in biological resources, these environments are indeed reflected in the traditional culture therein and offer valuable insights into how human contacts may have helped to bridge the vast spatial and temporal differences. In the geological past, Southeast Asia was made of continental fragments from ancient landmasses of Gondwanan in the south that make most of India, and Cathaysian in the north that form a major part of China, that were assembled through millions of years ago and have contributed to the uniqueness and richness of the land and its flora and fauna. The long history of human habitation in this region has also molded not only the nature and culture of this region, but also of adjoining and even distant ones. Today, this land of 'Asian tiger economies', encompassing clusters of numerous islands and masses of mainland terrains located between the two ancient civilizations of India and China, Southeast Asia has been at the core of long-distance exodus and trade for centuries, possibly millennia. Thus, Southeast Asia's rich heritage embodies a tapestry of innovative forms that harmoniously weaves together the rich threads of not only the elements of nature and culture, but also the facets of indigenous and exotic, in its unique traditions. Plants, including the shy coconut with its amazing gift of floating fruits that provide a portable source of food and drink—two breads and a glass of water, although rooted in the soil are amazingly mobile and can transcend boundaries, are largely neglected by not only scholars, but also

the general public. In 2024, ASEAN completes 57 years, but the cultural contacts between India and ASEAN go much further back in time to at least two millennia, and earlier Indian Ocean connections that developed before the historical period have also been established. This connected past informs the present through an interplay of memory and history that shapes our understanding of a period when the present political boundaries of nation states did not exist. These rich contexts of past relations that encompass the domains of commerce, culture, and religion, make this relationship unique and distinct in the contemporary world order. It was in the 1990's when both sides started to further renew and strengthen their old ties. One of the key drivers of this was India's 'Look East' Policy (1991) and the 'Act East' Policy (2014). At present, there is a convergence of economic and political interests and the future holds the promise of even greater synergy of bilateral and multilateral ties. As people are continuously rediscovering and working on the past linkages, people-to-people ties will see further intensification as well as greater collaboration between India and Southeast Asia based on a deeper understanding of profound historical connectivity and better appreciation of their shared heritage. What is of essence is that past connectivity between India and Indosphere continues to be reflected in myriad ways in the day-to-day lives of the people of Bengal and Southeast Asia. Because of the ancient trade relations in existence since ancient, perhaps prehistoric times, languages too have occupied a crucial position in the history of these two neighbouring regions. This can be corroborated from the names by which the ancient Indians referred to Southeast Asia, that is, *Suvarnabhoomi* ('Land of Gold' in Sanskrit), referring to the natural riches encountered during overseas trade voyages. In the context of this study another Indian moniker *Narikeladvipa* ('Island of Coconuts' in Sanskrit) for Southeast Asia gives an idea of the immensity of the traditional value conferred to coconuts on both sides of the Bay of Bengal. Metaphorically ingrained in the sacredness of this tree and its fruit as an essential element in traditional rituals and ceremonies, including as a biomorphic motif in rituals art, the coconut presence has transcended cultural borders to embody a spiritual connection with the cosmos that has endured through generations. The uncanny similarities of Bengal and Southeast Asia is in the recipes cooked in traditional kitchens including a ordinary kitchen tool used for grating the soft meat of the cocoanut. At the same time in stories narrated in traditional homes, in everyday life and during ceremonies, about the much familiar coconut are unswerving testimonies to the deep roots of the commonality of human experience and emotion across ecocultural landscapes that are shaped by the timelessness of the incessant movement of plants and humans across the Bay of Bengal.

Acknowledgements

Both authors are grateful to their Principals for constant encouragement. We are also thankful to the Librarian, National Library, Kolkata, as well as the Library-in-Charge, RKM Institute of Culture, Kolkata.

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Table 1: Names of the coconut and coconut tree in the local languages of South and Southeast Asia across the Bay of Bengal.

South Asia			**Southeast Asia**		
Language	**Country**	**Name**	**Language**	**Country**	**Name**
Bengali	Bangladesh	*Narikel*	Balinese	Indonesia	*Niu*
	India		Burmese	Myanmar	*Aonesee*
Hindi	India	*Nariel*	Filipino	Philippines	*Niyog*
Odia	India	*Nardiya*	Javanese	Indonesia	*Kelapa*
Sinhala	Sri Lanka	*Pol*	Khemer	Cambodia	*Daung*
Telugu	India	*Kobbari*	Malay	Malaysia	*Nyiur*
Tamil	India	*Tenkay*	Thai	Thailand	*Maphraw*
	Sri Lanka		Vietnamese	Vietnam	*Dua*

Modified from Gupta, 2005: 225-226.

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A Socio Economic Analysis of Zero Tillage and Mechanical Rice Transplanter on Farm Economy in Punjab and Haryana State of India

Rana Rohit

Abstract

Zero tillage is reducing human efforts. Likewise, machine effort is also reducing cost of cultivation, soil erosion, crop duration and irrigation requirement and weed effect which is better than tillage. Zero Tillage (ZT) is also called as No Tillage or reduced Tillage. The zero-tillage system is practices in the Indo-Gangetic plains of India where rice-wheat cropping is present. Wheat will be planted after rice harvest. Zero tillage proves better for direct-seeded rice, maize, soybean, cotton, pigeon pea, moonbeam, cluster bean, pearl millet during Kharif season and wheat, barley, chickpea, mustard and lentil during Rabi season. A Mechanical rice transplanter is a specialized transplanter made to transplant rice seedlings onto wet paddy fields. The two main types of Mechaqnical rice transplanter are the riding type and walking type. The riding type is power-driven and can usually transplant six lines in one pass; the walking type is manually driven and can usually transplant four lines in one pass. Although rice is grown in Asian Country, rice transplanters are used mainly in East, Southeast, and South Asia. Machine transplanting using rice transplanters requires considerably less time and labour than manual transplanting. The Rice and Wheat cropping system in Punjab and Haryana led to various farm experiments and encouraged the farmers to adopt Resource conserving Technology (RCTs), like Mechanical Rice Transplanter and Zero Tillage methods to be adopted by farmers.

Keywords: *RCT Resource Conserving Technology, ZT Zero Technology, CIMMYT International Maize and Wheat Improvement Center, KVK Krishi Vigyan Kendra,*

Introduction

According to Madhu Kiran Tumma and K S V Poorna Chandrika (2018) Zero tillage is the process where the crop seed and fertilizers will be sown through drillers without prior land preparation and disturbing the soil where previous crop stubbles are present. Zero tillage not only reduces the cost of cultivation, it also reduces the soil erosion, crop duration and irrigation requirement and weed effect which is better than tillage. Zero Tillage (ZT) also called No Tillage or Nil Tillage**.**

Harold M. Schmeck (1987) states that A Mechanical rice transplanter is a specialized transplanter fitted to transplant rice seedlings onto wet paddy fields. The two main types of Mechaqnicaal rice transplanter are the riding type and walking type. The riding type is power-driven and can usually transplant six lines in one pass; the walking type is manually driven and can usually transplant four lines in one pass. Although rice is grown in Asian Country rice transplanters are used mainly in East, Southeast, and South Asia. Machine transplanting using rice transplanters requires considerably less time and labour than manual transplanting.The main objectives is to study Socio Economics of rice and wheat cultivation in Punjab and Haryana.

Research Methodologies

Primary data is collected from two states, Punjab and Hayana. Two districts from each district were selected for data collection. Survey methods were followed with a view to understanding Socio Economics of rice and wheat cultivation. For analyzing various aspects of economics of rice and wheat cultivation (adopter v/s non-adopters), tabular analysis was carried out.

Result

Following tables show the results of the survey. Each table is followed by discussion.

Table 1.0 SAMPLE HOUSEHOLD SIZE IN STUDY AREA

SAMPLE CHARACTERISTICS	HARYANA	PUNJAB	TOTAL
DISTRICTS SURVEYED	02	02	04
BLOCKS SURVEYED	13	10	23
VILLAGES SURVEYED	46	38	84
ADOPTERS SURVEYED	130	130	260
NON ADOPTERS SURVEYED	272	272	544
FARM HOUSE HOLDS SURVEYED	402	402	804

Two states Punjab and Haryana is selected for primary data collection. Because farmers have used both technologies for rice is Mechanical rice transplanter and wheat is zero tillage for cropping pattern in rabbi and kharif season. Two Districts of Haryana and Punjab is selected randomly on the basis of information share by Director Extension Education Punjab Agricultural University Ludhiana and

Chaudhary Charan Singh Haryana Agricultural University Hisar. In Haryana District Karnal and Sonipat selected for primary data collection in consultation with Krishi Vigyan Kendra of Chaudhary Charan Singh Haryana Agricultural University, Hisar. In Punjab District Moga and Ludhiana selected for primary data collection in consultation with Krishi Vigyan Kendra of Punjab Agricultural University, Ludhiana. 13 Blocks and 46 Villages were selected for 130 adopters and 272 Non adopters primary data collections in two districts of Haryana. 10 Blocks and 38 Villages were selected for primary data collection for 130 adopters and 272 Non adopters in two districts of Punjab. All Total 804 farm households Data collection completed from 402 in Haryana and 402 in Punjab.

Table 1.1 SAMPLE HOUSEHOLD SIZE OF ADOPTERS AND NON ADOPTERS IN STUDY AREA

STATES	HARYANA		TOTAL	PUNJAB		TOTAL	ALL TOTAL
DISTRICTS	KARNAL	SONIPAT		LUDHIANA	MOGA		
ADOPTERS	65	65	130	65	65	130	260
NON ADOPTERS	137	135	272	135	137	272	544
FARM HOUSE HOLDS	202	200	402	200	202	402	804

Two Districts were selected Karnal and Sonipat from Haryana and Two Districts were selected Moga and Ludhiana from Punjab for primary data collection. 65 Adopters farmers from Karnal and Sonipat districts Total 130 adopters farmers of Haryana. 65 Adopters farmers from Moga and Ludhiana districts total 130 Adopters farmers of Punjab. For Non Adopters 202 in Karnal and 200 in Sonipat Districts of Haryana and 200 in Ludhiana and 202 in Moga Districts of Punjab. All Total804**.**Farm Household in both districts of 272 in Haryana and 272 in Punjab.

Table 1.2 SAMPLE HOUSEHOLD SIZE OF HARYANA IN A STUDY AREA

STATE	DISTRICTS	BLOCKS	VILLAGES
HARYANA	KARNAL	KARNAL, MUNAK, UNN, ASSANDH, NILOKHERI, GHARAUNDA, CHIRAO, NISSING, INDRI	CHALOPUR, KUNJPURA, RAMBHA, KARNAL, ANCHALA, IRAGANA-FARM, BHARI, SONUKHERAA, NIGADHU, PATANPURI, TARAWADI, NIDANA, GAGSINA, KALVAHERI, SHEKHPURA, GHARAUNDA, UPALI, ALIPUR-VIREN, TARAOARI, SINGARA, BRASS, ALIPURA, GONDAR, ASSANDH ,JAL MANNA,SHEIKUPURA,THARI,SALARPURA,MANMATI, KATLAHERI,MURADHGHAR,RONDHALI, SHAHPURA,TARAWADI
	SONIPAT	SONIPAT, GANAUR, MUNDLANA, KATHURA	HULLAHERI,KILLAHARD,CHITANA,JOLLY,AULHANA, MAWHANA, GORHWAL,CHIDANA,MARDDHANA, DATULI,SHAHPUR TAGA,KHERI TAGA

In Haryana two Districts are Karnal and Sonipat selected for primary Data Collection on the basis of information provided by concerned KVK and CCS Haryana Agricultural University Hisar. In Karnal Districts 9 Blocks are selected were Karnal, Munak Unn, Assandh. Nilokheri, Gharaunda, Chirao, Nissing, Indri and 34 Villages are Chalopur, Kunjpura, Rambha, Karnal, Anchala,Iragana-Farm, Bhari, Sonu-Khera, Nigadhu, patanpuri, Tarawadi, Nidana, Gagsina, Kalvaheri, Shkpura, Gharaunda, Upali, Alipur-Viren, Taraowari, Singara, Brass, Alipura, Gondar, Assandh, Jal-Manna, Sheikpura, Thari, Salarpura, manmati, Katlaheri, Muradghar, Rondhali, Shahpura and Tarawadi etc. In Sonipat District 4 Blocks Sonipat, Ganaur, Mundalana and Kathura 12 Villages Hullaheri, Killahard, Chitana, Jolly, Aulhana, Mawhana, Gorhwal, Chidana, Marddhana, Datuli, Shahpur-Taga, Kheri-Taga etc. All Total 13 Blocks and 46 Villages.

Table 1.3 SAMPLE HOUSEHOLD SIZE OF PUNJAB IN A STUDY AREA

STATE	DISTRICTS	BLOCKS	VILLAGES
PUNJAB	LUDHIANA	LUDHIANA-I, MANGAT, DORAHA, SAMRALA, MACHHIWARA	RAHIMABAD-KHURD, MANNEWALA, PAL-MAJRA, RAJEWALA-RAJPUT, NAISAL-KALAN, BORASLA-KALAN, DIWALA, SANGATHPURA, BARTHALA, POWAT, MAJ, MAJRI, ISSEWAL, JHAMMAT, BIRMI, AALIYA-KALAN, DAKHA, CHAK-KALIYAN, DHANAUR, GARHI-BAT, HARI-OM-KHURD,JOARWAL,GHARKHANA,BONDAL
	MOGA	MOGA-I, NIHAL SINGH WALA, BHAGA PURANA, AJITWALA,KOT-ISSE-KHAN	BHADUWWAL, JINDARA,CHAK-JINDARA, CHAK-KANNIYAN-KALAN,DABURJI,JHANDEWAL,KOKRI-PHULLA-SINGH,CHAK-KHANNIYA,KAMAI—KE,IZZATWALA,TAREWALA,CHARIK-SARKARIPATTI,GAZIANA,BADHNI-KALAN

In Punjab two Districts are Ludhiana and Moga selected for primary Data Collection on the basis of information provided by concerned KVK and Punjab Agricultural University Ludhiana. In Ludhiana District 5 Blocks are Ludhiana I, Mangat, Doraha, Samrala, and Machhiwara and 24 Villages are Rahimabad-khurd, Mannewala, Pal-majra, Rajewala-Rajput, Naisal-Kalan, Borsalan-Kalan, Diwala, Sangathpura, Barthala, Powat, Maj, Majri, Issewal, Jhammat, Birmi, Aaliya-Kalan, Dakha, Chak-Kaliyan, Dhanaur, Garhi-Bat, Hari-Om-Khurd, Joarwal, Gharkhanna, Bondal, etc. In Moga District 5 Blocks are Moga-I, Nihal-Singh-wala, Bhaga-Purana, Ajitwala, Kot-Isse-Khan, etc. 14 villages are Bhadduwal, Jindara, chak-jindara, Chak-jindara, Chak-Kanniya-kalan, Daburji, Jhandewal, Kokri-Phulla-Singh, Chak-kanniya, Kamal-Ke, Izzatwala, Tarewala, Charik-Sarkari-Pati, Gaziana, Badhani-Kalan, etc. A total of 10 Blocks and 38 Villages.

Conclusion

Two Districts were selected Karnal and Sonipat from Haryana and Two Districts were selected Moga and Ludhiana from Punjab for primary data collection. 65 Adopters farmers from Karnal and Sonipat districts Total 130 adopters farmers of Haryana. 65 Adopters farmers from Moga and Ludhiana districts total 130 Adopters farmers of Punjab. For Non Adopters 202 in Karnal and 200 in Sonipat Districts of Haryana and 200 in Ludhiana and 202 in Moga Districts of Punjab. All Total804.Farm Household in both districts of 272 in Haryana and 272 in Punjab. Primary Data collection and compilation in Punjab and Haryana is completed in 2022. The Technology innovations played important role in advancements and upgradation of existing one the way Zero tillage into happy seeder and Super seeder its

transformation to enhancements in Farm productions and livelihood. The Rice and Wheat cropping system in Punjab and Haryana led to various farm experiments encouraged the farmers to adopt Resource conserving Technology (RCTs) like Mechanical Rice Transplanter and Zero Tillage methods to be adopted by farmers. Due to Covid 19 Pandemic in 2020 leads to problems of labour scarcity in Punjab and Haryana for Rice and wheat cropping system. These two technologies are helpful to farmers to handle such situation of Lockdown imposed for two Years in India. Punjab and Haryana Government provides subsidy to farmers for purchasing Zero tillage and their advancement Happy Seeder and Super Seeder and also Mechanical Rice Transplanter to Farmers. It is also encouraging farmers to purchase such Machinery for their wellbeing. CYMMIT India provides these two machineries on custom hiring basis to farmers and also provides on farm trials or demonstrations to farmers to encourage them to do so. Badduwal Village under Kot-Isse-Khan Block in Moga is role model village in Punjab because it is having highest number of Farmers adopting both these technology. Around 646 small and Marginal Farmers adopted these two technologies with total cultivable Land of 2800 Acres. The village has more than 90% area under the Rice-Wheat System. Also farmers are benefited with these two technologies in increasing their farm productions and enhanced livelihood.

Suggestions and Policy Implications.

Zero tillage and Mechanical rice Transplanter is to be given to farmers for custom hiring basis and also subsidy to be provided by all state government to farmers, so that more and more farmers will use these technologies for Rice and Wheat cropping system in other states of India.

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Bengal Watercraft: Unknown Heritage

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Abstract

Watercraft is one of the most important cultural elements in any riverine/maritime community; here the members directly reciprocate their behaviour in ecology. As a result, keen observation is extremely essential to study the designs and the construction patterns of watercraft according to the informal



Ritual performance by the boat builder after completion of the boat building

rules and procedures handed down over the years by the boatmaker. Boat making as a process of livelihood practice is a direct response to the ecological settings, which must be studied contextually - from environmental factors, the shape and size of the watercraft itself, raw materials, and so on.



Noukabaich: Traditional boat race of Sundarbans

Ethnography of riverine/maritime culture documents riverine/maritime knowledge of the past and also establishes the process of change of that knowledge over time and how it connects to present-

day folk knowledge. Maritime ethnography - as a domain of study is diachronic which establishes a temporal dimension of the watercraft-making process chronologically.



Prow of a boat with symbol of sacredness. A boat equipped for racing in the boat race festival of Sundarbans.

Boat is the oldest mode of transport. It was invented much before the invention of the wheel. Wood was the material which early man shaped into a hollowed structure that can sit on the water.



Personification of boat. Boat is here in Bengal treated as living entity. Each boat has oculus.

That was the boat, the dugout, a watertight compartment where penetration of water was prevented. The invention of the boat makes human migration easier. The boat is the tool that gives thrust to explore resources of aquatic food, and resource of distant islands.

Bengal is not landlocked but rather riverine. Numerous water bodies and water resistance were overcome by those people living in this part of the world by innovating various types of watercraft in time immemorial. Not only do they overcome the barrier of almighty rivers but also oceans. The intricate relationship with waterbody and boat manifests the culture called boat culture. In this presentation visual ethnographic account on boats of Bengal is a humble tribute to those boat makers and boatmen.



To the scale wooden boat models and author

Bay of Bengal Interaction Sphere and the Roman Imitaion Coins from Southeast Asia

Susmita Basu Majumdar

This paper addresses the issue of recently discovered Roman imitation coins from Southeast Asia in the perspective of the Bay of Bengal interaction sphere. These imitations are unique and bear evidences of creation and production of hybrids in and around Khlong Thom in Southeast Asia. These coins are in the form of pendants. On the basis of primary sources or empirical data the paper would like to address the broader issue of production, metal trade and cultural interaction between the Bay of Bengal coast and mainly maritime and partially mainland Southeast Asia. The transmission of ideas and trade linkages will be addressed. We shall raise pertinent questions like were the Khlong Thom pendants imported from India or were they made locally in Khlong Thom? Brigette Borell has identified this coin as a Roman imitation. The present author has identified it as a a local manufacture bearing Indian influence. According to present author one of the pendants bears close resemblance with Satavahana style portrait besides this there are four Brahmi letters though very distinct yet making no sense. This is a hitherto unknown combination of hybrid imitation and this is the first of its kind where a Satavahana portrait has been used as an opposed die to a Roman reverse device. In an attempt to situate this pendant from Khlong Thom we shall compare it with parallels from the Bay of Bengal interaction sphere.

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A *Dhāraṇī* Culture Shared Between Eastern India and the Wider Asian Region

Eng Jin OOI, Ph.D.

Abstract

The ritual of *dhāraṇī* practice has a long history in various Buddhist traditions. *dhāraṇī*, generally known as a mantra, is a functioning code believed to provide protection and the power to generate merit for Buddhist devotees when it is recited, stamped, or copied in a ritual process. Around and during the second half of the first millennium, one of these *dhāraṇī*s, the *Bodhigarbhālaṇkāralakṣa-dhāraṇī* or the *dhāraṇī* of the Hundred Thousand Ornaments of the Essence of Awakening, was widely circulated in the Eastern-Gangetic Plain and Eastern India. This Sanskrit *dhāraṇī*, inscribed on stone slabs and stamped on multiple clay sealings, was recovered in numerous archaeological sites in Odisha, Bihar, and Uttar Pradesh. However, the practice of invoking its benefits was not limited to these regions. Traces of this *dhāraṇī*, in the form of clay sealings or metal stamps, were found in the north-western region of Pakistan, and in Afghanistan. Fragments of this *dhāraṇī* in Uyghur letters were also recovered in the Tarim Basin. The *dhāraṇī* has been transcribed into Chinese characters in *Chang'an* and preserved in the Chinese Buddhist Canon which was then circulated widely in China including Korea, and Japan. Similarly, the *dhāraṇī* was transcribed into Tibetan and preserved in various Tibetan Kanjurs. To the southeast of India, the *dhāraṇī* found its way through the Bay of Bengal to the Thai-Malay Peninsula in Malaysia and the island of Java in Indonesia. Over there, the *dhāraṇī* was stamped on clay sealings, and engraved onto a gold foil respectively. Therefore, from this example of the transmission of the *Bodhigarbhālakāralakca-dhāraṇī* alone, it can be deduced that the ideology of merit-making in Buddhism by way of specific ritual practices is shared in different regions. Even though the rituals might have taken different expressions in different locations, the quest for merit in desiring a better life and protection remains a common aspiration between people in Eastern India and the wider Asian region over the centuries and is still relevant today.

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Approaches to the Development of the Bay of Bengal Region and Asian interactions: Communities, Agencies and Ecology

Selvakumar. V

Abstract

Bay of Bengal Zone is an important cultural region of Asia connecting South Asia and Southeast Asia. The region has cultural developments from the prehistoric period and interactions have been there from the first millennium BCE. The coastal stretch of the region has been the home of several communities and villages and urban centres. With the development of fisheries, industries and urban centres in the coastal areas, the issues of ecological balance have become important. While marine resources are important for the development of the blue economy, we need to ensure the ecological balance of the coastal areas. The coastal areas have the traces of ancient cities and coastal heritage monuments which bear the changes along the coastline. The stakeholders of the region need to work together for the sustainable development of this region. The paper addresses the issues of conservation, ecology and development and the participation of communities, corporates and stakeholders in this initiative.

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Strategizing Positive Interaction in the Bay of Bengal Interaction Sphere

Kalyan Kumar Chakravarty

Introduction

Woven into this volume on the pan Asian context of the Bengal Basin is an insistent plea for positive interaction in terms of cooperation rather than competition in the Bay of Bengal Interaction Sphere. The plea is backed up by an analysis of the history, cultural amalgam, commercial exchange, migration and geopolitics of the bay. The analysis demonstrates the positive and dynamic role which India is poised to play for ensuring this interaction.

Need for Cooperation, Intrinsic to the Hydrography of the Bay

The need for India to awaken to this task is substantiated by the growing importance of the Bay of Bengal, with its transformation, from an international migration highway till late 20th century, into an area of migration and trade in the 21st century, thanks to a sea bridge, connecting South and South East Asia, and a long coastline, with deep inland penetration. The largest Bay in the world, fed by large rivers, dotted by ports, its economic and geo political importance as a source of water, salt, energy, fish, minerals, transport, business, naval mission, scientific research and power politics, has grown exponentially. A focus has been placed on the Bay providing the main shipping channel through the Malacca strait between the Indian and Pacific Ocean. The growing need of Sino Indian cooperation over land and sea has been stressed, to dredge oil and natural gas deposits, as also the cooperation of Sri Lanka and India for harvesting hydrocarbon, titanium, rare earth, mineral sands and gems, in the Bay. The importance of cooperation among the littoral countries has grown over the years, for linking Indian and Pacific Ocean countries by shipping through the Malacca strait, and, for using the Andaman and Nicobar Islands near the Malacca strait, for coastal radar surveillance, trans shipments, ship repair, shore bunkering, regulation of piracy, drug traffic and gun running. India has entered naval cooperation agreements, to resolve disputes over oil and gas block rights and maritime boundaries with its South East Asian neighbours, and, with USA, Japan and Australia in Andaman, for dealing with the strategic encirclement, created by China through port and naval bases, in a maritime silk route, euphemistically called a string of pearls, around India's coastline. Sino Indian cooperation rather than competition will obviate the need for such strategic challenges and responses. Such

cooperation across the Bay will also facilitate overland transit, for both India and China, to their less developed regions, through Myanmar for India to its North East, and for China to Yunnan. Multipolar Indo Pacific cooperation is also vitally required for dealing with climate change, natural disaster, terrorism, refugees, drugs, piracy, especially in low lying regions like Bangladesh, threatened by submergence, under sea surge. The need for cooperation rather than conflict is substantiated by the way the hydrographic limits of the bay have been defined in the Christian era by different regional powers in India, by calling it the Chola lake, Kalinga Sagar, Ganga Sagar, and, by the international trading community, as Sinus Gangeticus (Sujan Ghosh).

Bay ports as Commercial and Cultural Channels of Contact

An account has been provided of the way the British demand for salt petre for its imperial objectives restored the importance of the northern Bay of Bengal, lost because of Mughal imperial policy (Shreyashi Paul)

Commercial cooperation rather than competition has also been elicited as the lesson from the history of the port of Chittagong. A suggestion for collaborative archaeological research emerges from the Moroccan, Arab, Persian, Portuguese travel accounts, textual, epigraphic, numismatic evidence, marshalled in this volume about the maritime and coastal link between 800 to 1500 AD, established through the Chittagong port, connecting Ganga and Brahmaputra valley, Northern Bay of Bengal, South and South East Asia, Pala and Shailendra empires, China and India, after the decline of Tamralipta in the 8th century AD. Chittagong port was endowed with the name of Samandar in Harikela in course of China India trade. Agaru/Aloeswood, used as a medicinal, aromatic incense, yaktail, porcelain jars, trident marked Chandra coins found a place in the trade through this port. Sufism also reached Chittagong through Arab Dervishes and Pirs, before it came to be controlled by Muslim rulers. (Suchandra Ghosh)

Effective bilateral Indo Bangladesh collaboration, multisectoral, polycentric technical and economic cooperation have been emphasized in the circular economy of Bay of Bengal, in a closed loop approach, across national boundaries, specially for the mangrove microcosm of Sundarbans (Rakhi Mitra). Such collaborative action, supported by Forest Department and forest based communities, would guard Sundarbans water ways and Bay of Bengal estuaries against piracy and infiltration. It would save and sustain mangrove habitats against aggressive shrimp farming, provide sustenance to coastal communities through aqua culture, fisheries, honey manufacture and tourism, and, guard them against cyclones, storm surges and tsunamis. Such collaboration will also help the marginalized denizens of Sundarbans by stopping their migration for employment, by ensuring their participation in ecotourism, and, by reducing their life threats in a hunting gathering economy in a

dangerous terrain, subject to the tidal cycle. Similar cooperation in skill development in drying or salting of fish for later sale or conversion into fertilizer, will improve their livelihood opportunities. Collaboration is also essential for improved disaster response, waste minimisation, climate change mitigation, early warning systems, and coastline protection, to arrest irreversible changes in sedimentation patterns caused by cyclones in the Sundarbans. Such international cooperation will bolster a blue economy in a sensitive zone of the Bay, by boostingecological stability, biodiversity and shared environmental health.

Indigenous Knowledge for Conserving Biocultural Diversity

The value and validity of a variation of the Apatani agro ecosystem, based on zero tillage, combined with mechanical rice transplantation, in wet paddy fields, and with direct seeded Kharif and Rabi crops, have been advocated in situations of labour scarcity, for small and marginal farmers. Its viability has been reinforced by a field survey of its cost effectiveness in machine and human efforts, and beneficial socio economic impact, in the Punjab and Haryana states of India, and, in South and South East Asia (Rana Rohit).

Cooperation for solving problems of Trans Border Migration

Cooperation rather than conflict has also emerged as the necessary solution for the security threat posed by unregulated trans border migration in South and South East Asia. The maritime migration of Rohingya Muslims due to ethnic cleansing and violence, from coastal Arakan in Southern Myanmar, has posed unprecedented problems of demographic explosion, security and humanitarian crisis in the Bay region. A summary dismissal of these problems under the name of Boat Crisis has hidden the extent and depth of the tragedy. The Rohingya Muslims have been denied citizenship by the Buddhist majority in Burma, persecuted by the Burmese army in Rakhine in Arakan, and subjected to ethnic violence, incited by Buddhist monks after the rape and murder of a Buddhist woman. Bangladesh, Indonesia, Malayasia and Thailand have given shelter to Rohingyas but denied them formal asylum, employment, education or health care, as illegal immigrants. Not being a party to the 1951 Refugee Convention, India has ordered their deportation. Rohingyas have died in sea journeys, and, in refugee camps, due to abysmal living conditions, inadequate food, malnourishment and health hazards. They have also been subjected to human trafficking and sex racket. The solution of such problems demands cooperation from the regional economic blocks of SAARC, the South Asian Association for Regional Cooperation, and the Association for South East Asian Nations, across the Northern extension of the Indian Ocean. These regional associations need to get together to create adequate record for these refugees as a positive response to UNHCR appeals to coastal authorities for compliance with the UN

Convention on the Law of the Sea, and, with the directions of the UN office on Drugs and Crime. (Swagata Sarkhel)

This humanistic and cultural perspective about transborder migration in the Bay of Bengal region, has been reinforced by countering the view of the Bengal Delta as an isolated region, hermetically sealed from the wider geographical terrain. An empathetic analysis has been provided about the problems arising from continuous demographic movement, through porous boundaries of the Bengal delta, steered by a market economy, which has been grinding localities and identities under a new globality. It has been demonstrated that the delta was the conduit of a continuous flow of people, commerce and culture from Burma and North West Asia through North East India to South East Asia. It has been pointed out that the city of Kolkata was settled, despite being in a pestilential swamp, because of the fertility, resources and strategic location of the region between the Bay and the mountains. The search for trade and livelihood has been identified as the motive for the journey via silk route, from the Himalayan Tibetan plateau, or to Mongolia via Myanmar, leaving behind a trail of graves, shrines and resting points. This trail has been reinforced by a flow of human genetic, agricultural, faunal and cultural material, and by trade in wool, salt, rice and sugar, minerals, elephant tusks, opium and timber. During the colonial period, the British conducted trade in Pashmina wool, borax and tea across the Himalayas, accompanied by construction of roads and rail roads. In this transcontinental movement, the peripheral zones, designated as Zomia, comprised the Bengal delta and Chittagong hill tracts. In course of this movement of people and commodities, the Rohingyas moved from Bengal to Burma with the British conquest, and turned into a Muslim minority in Buddhist Burma, after the departure of the British. Santhals, Oraons and Mundas came to Assam from Bengal for rice cultivation, and Bengalis came back to Bengal after Japanese occupation of Burma. Sharatchandra's Sri Kanto series speaks about free minded women like Abhaya among the Bengali expatriates in Burma. Films like Bisarjan and Sankhchil have shown continuous border crossings from Bangladesh to West Bengal. Irawati Karve, the anthropologist, who took her name from Irawati River, came from Burma. The mingling of French, Portuguese and English cultures became evident in the linguistic fusion in the poetry of Anthony Kabyal, use of eggs benedict, plum cake, women's under attire, sherbet, kebab and curry. The influence travelled back from the Bengal Delta to England, with a display of the Hindu myth of Samudra Manthan at the base of the statue of Sir William Jones in St. Paul's Cathedral in London, with Jones holding a Manusmriti in his hand. Gosain traders carried Buddhism from Bengal to Tibet, while Buddhism returned to India with Dalai Lama in the 20th century. The boundaries of peasant and tribe land remained amorphous in Bengal, until the parcelling of land under the Zamindari settlement. The 1942 Bengal famine, depicted by Satyajit Roy in his film, the Asani Sanket, was a direct result of 2nd World War. The Greater Naga Lim, visualized in the Naga liberation movement,

showed Burma, Manipur and Assam as part of Nagaland. The forest dwellers were deprived of their habitats and livelihood in the Bengal Delta with the colonization of forest under industrial capitalism. The Rabhas were evicted for rhinos and tigers from Jaldapura, while the Tripuris, Lodhas and Lepchas were marginalized through adverse inclusion as members of urban and coal mine slums. The alignment of the neo liberal global market economy with a post colonial definition of national interest furthered the eco politics of domination, exclusion and suffering. An understanding of the economic and cultural history of migration has been emphasized in this manner to reinforce the argument of international cooperation in the Bay of Bengal region for alleviating its tragic dimensions (Subhadra Mitra Channa).

Demographic and Cultural Links as a background to Cooperation

International cooperation rather than competition in the Bay of Bengal interaction sphere has also been advocated on the ground of the prehistory of migration. It has been suggested that an Austronesian dispersal took place from Africa, via Southern route along the Indian coast, across the Bay of Bengal, through the Indo Pacific region. It has been proposed that this demographic movement took placethrough littoral, near shore gateways in the Indian Ocean, to reach the Sahul landmass, comprising Australia and New Guinea, which had been separated 8 millennia back from the South Asian landmass, by rising sea level. This postulate for ancestrally North Indian (ANI) or ancestrally South Indian (ASI) settlement has been backed up by genetic, molecular, anthropological, archaeological and linguistic data. This theory of Out of Africa dispersal and colonization of the New World and the Pacific, has served as the background to an Out of India hypothesis, about India serving as a crossroad for the migration of Austroasiatic, Indo Aryan, Dravidian and Sino Tibetan linguistic groups (Banrida T. Langstieh). It has also been suggested that sea faring expeditions took place across the Bay of Bengal and the Eastern Indian Ocean Littoral, 60 thousand years ago, when the sea level was lower. This suggestion has been based on applied navigational technology and nautical networks of the Bengal Basin. It has been proposed that floats or rafts with names like Mehrli, Goluiya, Paukia, Patia, Suntani, Khoro Kisti, Betnai, Chhot and Bachhari were used for this purpose (Kaustav Ghosh Roy). Shared ethnographic study has been suggested for the reconstruction of the riverine and maritime technology, etymology, nautical networks and history of boats, in the port towns of the Bengal region. Illustrative examples for such study have been provided through Patia, in a river Clinker tradition, and Balagarhi Dingi, water tight dug outs, personified with an eye and treated as sacred (Swarup Bhattacharya). The coir cushioned, buoyant and water resistant coconut palm has been flagged as an amphibious, pan tropical invader of eco cultural landscapes, for establishing a link between the Bay of Bengal region, South East Asia and Pacific Islands, in the Austronesian dispersal (Shreyashi Chaudhuri and Kuntal Narayan Chaudhuri). In this connection, it can be mentioned that India, Australia, New Zealand and South East Asia have been connected in recent history through organizations like

the Anglo Indian Research Association, Melbourne, and the New Zealand Indian Central Association. The reference in Kalidasa's Raghuvamsam to the King of Kalinga as Mahodadhipati and to the Bay of Bengal as Kalinga Sagar, the continuity of Khukuni Osha and Boita Vandana maritime festivals, and their visual representation in medieval Odisha temples, provide literary and visual evidence of the contact of the Bay region with South East Asia. Such evidence needs to be verified and supplemented by an archaeological examination of diagnostic potteries, ancient ports, jetties, stone anchors, and, of the objects excavated at Tamralipta, Saptagram, Bangarh and Mangalkot in Bengal, Sishupalgarh in Odisha or Mahasthangarh in Bangladesh.

Cooperation for International Security

International Security has been addressed as a further plank for cooperation rather than competition among nations in the Bay of Bengal interaction sphere. Souradeep Sen describes the growing geo strategic and economic importance of the Bay of Bengal vis a vis the Atlantic region in the Indo Pacific maritime domain. He emphasises the need for reviewing India's strategy of engagement with China, by sharing its security concerns with South and South East Asian countries, and, by substituting global and geo centric politics for nation centric and international politics. He points out the paramount need for such a policy review by India in the background of the growing tussle for dominance between USA on the one hand, and China, Russia and Iran on the other. He thinks that India is poised to use the Necklace of Diamonds in the ANI island chain in the Pacific to counter Chinese encirclement in naval port access. He shows that this is necessary in view of the maritime competition for trade in oil, weaponization of supply chains, choke points, and, in the light of the China's Belt and Road, String of Pearls, Maritime Silk Road initiatives, its use of the debt trap to tighten control over countries like Nepal, and its proposal for the China Thailand KRA Canal. He feels that India has to take such precautions against the escalation of tension from troubled regions, armed with nuclear weapons. As the Basin country with the largest land border and share of territorial waters, its Look East policy, its geo strategic network of the QUAD, BIMSTEC, SAARC, IORA (Indian Ocean Rim Association), India is advantageously poised for opening up bilateral and plurilateral realms of cooperation in the Indo Pacific region. India can promote such cooperation for training in disaster management, security deployment, as well as in creating infrastructural linkages in ports, roads, pipelines and railways, or in creating agreements for trade liberation, nuclear non-proliferation, human rights and climate change (Souradeep Sen). The political situation in Bangladesh has to be discussed in the light of the need for energy security, because it assumes importance, in view of the ouster of Shaikh Hasina, whose presence was considered useful, at the time of the writing of the article, with respect to traditional security issues of border dispute, migration and terrorism (Ankhi Sen/Sanyal)

Commercial Considerations, for Cooperation

A few other presentations emphasize the convergence of geo archaeological, epigraphic, numismatic archaeological evidence, trade history and geopolitics in the Indo Pacific region, to reinforce the need for cooperation rather than conflict in the Bengal delta. It has been suggested that such study has to encompass three contiguous areas of the Delta, one mature Dum Dum, and two intermediate and active tidal estuary belts, to explain the environmental and settlement history of the region and its close connections with the surrounding region of South East Asia (Durga Basu). Such analysis has to take into account the numismatic evidence of the hybrid Khlong Thom pendants with a Satavahana portrait, used as a die, opposed to a Roman reverse device (Susmita Basu Majumdar). Such analysis can be supplemented by the evidence of the late medieval urbanization of the Bay of Bengal littoral region through the development of the Portuguese trading ports like Bandel of Ugolin, into fortified urban settlements in the 16th century (Priscilla Namrata Rozario). The development of FDI movement, accompanied by the formation of RTAS and FTAS, heralded by trade in organic cosmetics, further reinforces the logic of regional cooperation in South East Asia, especially under the BIMSTEC (Kallol Banerjee). Regional cooperation has been also stressed as being of paramount importance for the management of coastal heritage and ecology, along with coastal fisheries, industries and ancient urban centres, which have developed since the first millennium BCE, connecting South and South East Asia (V. Selvakumar).

Collaboration for Harvesting Historic Links and Protecting Environment

The outstanding papers presented in this seminar open up certain dimensions of the Bay of Bengal as an interaction sphere for Asia. One such dimension is to look for and chart the archaeological evidence of the cord impressed pottery and shouldered celts of the Neolithic period, shared between North East India and South East Asia. This is also to be linked with an investigation of their connections in the deep water, waterlogged rice ecosystems. The Hoabinhian industries connect the two regions from the Pleistocene to the Holocene period. These industries comprise lithic cromlechs, unifacial, centripetal, circumferential; cobble reduced flakes and debitage, found in Jaintia and Garo hills, as well as in Laos, Cambodia, Sumatra, in late Pleistocene and early Holocene period. These have been found in Irrawaddy Valley, Chao Phraya, Mekong and Hong in Myanmar, Bangladesh, Tripura, Daojali Hading, Assam, Kamla Valley, Arunachal, Garo Hills, Meghalaya, Phunan Hills, Manipur, as well as in Laos, Cambodia and Sumatra. The routes of dispersal of this lithic industry appear to coincide with the migration routes of Sino-Tibetan, Tibeto-Burman, Austro-Asiatic families of languages. These provide evidence of early dispersal of human beings and their tools in the region. Such evidence can be reinforced by regional cooperation for an examination of the ramifications of the Sino Tibetan,

Austro Asiatic, Austronesian families of languages in the linguistic fusion of the region, and, of the path of their migration. Such cooperation is also needed in the region for examining the ecological adaptations of deepwater, waterlogged rice eco systems, slash and burn and shifting cultivation, use of bamboo in ceremonial, ritual cremation, and, in the spread of megalithic traditions.

Sino Indian cooperation for developing cooperative geo strategic networks in shared interest maybe worth pursuing, because of the immense cultural links between India and China, which have hardly been harvested in multilateral interactions. For this to materialize, there is a need to emphasize regional cultural and ideological links between India and China, rather than the overarching spiritual or ideological umbrella, held by China or India, over the countries in the region. There is ample evidence of the trade, which was conducted through central Asian cities under the northern Wei and Sui dynasties between the 3rd and 6th centuries AD. This evidence can be reconstructed through joint Indo Chinese study, from oasal towns in Central Asia like Chang-an, Loyang, Yeh and Ping Cheng. The marriage of Kumarajiva from Kashmir with a Chinese lady, the rock carvings with inscription in Sanskrit or in Chinese scripts, dotting the route through Ladakh and Central Asia, the continuing vogue of Lokapala and Devaraja cults in China, bear ample evidence to the role played by the Bengal basin in maintaining commercial and religious link with China through centuries. The near mirror image of the 5th century AD Pasupati image at Tala, Bilaspur, Chhattisgarh, which was administratively connected with the Bengal provinces in British days, at Longman cave 16 in China, with an inscription tracing the principle to its source, reinforces the evidence of the strong link maintained by the Bengal Bay region with China. In consolidating such links, it is necessary to recognize the remnants of their contacts, like the surviving farewell rituals of the trans Himalayan trade, conducted from Himachal Pradesh, through Dooars passes and Tibet, by Bhotia farmers, organized in Ranth lineage structures in Munshiari. Likewise, it is necessary to work jointly with the Dard people of Ladakh, who arrived from Central Asia via Gilgit and Sindh, and adopted Buddhism under Tibetan rule around 10th century AD. Similarly, it will be rewarding to undertake a collaborative study of Brokpa traditions, reflected in the artefacts in villages like Garkon in Kargil. A joint Indo Chinese study of the 1st century AD chronicle Ch'ien Han Shu will provide insights into the demographic movements between China, Khotan, Afghanistan and India, through Khyber, Gomal and Mula passes. This study should cover the Kharosthi and Brahmi inscriptions in Central Asian Museums in order to chart such movements. The memorial monuments created for Dharmarakshita or Dharmaratna in China in 2nd century AD, the 2nd century AD 36 line Sanskrit inscription from Ushnisha Vijaya Dharani Sutra near the 17th gate of the Great Chinese wall, the travelogues of inter cultural translators or lotsavas, like Fahien, Xuan Zang, Itsing, will also help chart the routes of Indo Chinese interaction in the Bay of Bengal interaction sphere. It remains for China and India to follow up on the evidence, recorded by Chinese travellers,

about flourishing Buddhist Sanghramas in Tamralipta or Tamluk in Midnapur between the 4th and 2nd century AD. The Chinese traveller Seng Chi visited Samatata, around 672-73 AD. He mentioned the Khadga dynasty ruler Raja Bhata, who was making gifts of thousands of earthen Buddha images to Buddhist monks and disseminating knowledge about the Mahaprajnaparamita Sutra. As late as the 14th and 15th century AD, during Muslim rule in Bengal, Chinese ambassadors of the Ming Dynasty like Fei-Shan, Ma-Huan and Gong-Jan described the magnificence of river port towns of Bengal like Chittagong and Sonargaon, markets, palaces and towns of Pandua and Hooghly, and, the cotton, silk and woollen fabric being traded by them with China. One of the Muslim envoys to China, during the Ming dynasty, between 1409 and 1420, served under five Sultans of Bengal. Ample evidence of continuing Indo Chinese contact is provided by the survival of terms, used today in Bengal, like Chini for sugar, Chinamati for porcelain, of musical tunes like Mera Nam Chin Chin Chu, tanneries manned by Chinese shoe makers from Gung Dong, and, of Lion and Dragon Boat dance in the Hakka Chinese settlement in Kolkata in Tiretta bazar, known also as Tangara and China Town. There is a recent memory from the 18th century A.D., about the arrival of the Chinese pioneer Tang Acheus in 1780, after a shipwreck near Hooghly, to work at a Sugar factory at Budge Budge.

There is still a lot of ground work to be done about the Bay of Bengal ramifications of India, South and South East Asia links. The Indo Sri Lankan connection across the 22 miles, separating Tamilakam and Lanka, was preceded by a migration from the Bengal Odisha coast, the memory of which is preserved, as pointed out earlier, in Kuduru Kuni Osa festival and depiction of sea going vessels in Bhubaneswar temples. Literature like Nouka Dubi or Padma Nadir Majhi, produced in recent years, will reward study, for furthering South, South East Asia contacts. Such contacts will also be promoted by the Joint Indo Korean study of the early record of the shipwrecked Ayutthaya/Ayodhya princess, marrying the Silla prince in Korea, and converting Korea to Buddhism, through the Buddhist sutras carried by her and Buddhist Shramanas accompanying her. The Bay of Bengal ramifications of India South East Asia links should also be explored in the expeditions described in Mangal Kavya stories, use of royal and official titles, terms like Basa or Bhasha Kavi, the Dutch translation of Ramayana in Java, in the affinity of the characters of the Sanskrit rock inscription of Purna Varman to Pallava Grantha script in Java, the depiction of scenes, described in Lalita Vistara or Aryasura's Jatakamala, and, in the Borobudur Chandi temple. The description of Shiva as Bhatara guru, depiction of Rama Reliefs in the sculptures of Prambanam, the equation of King Airlanga in 10th century AD Java, King Kreta Rajasa and Kings of Majapahit Kingdom, between 1200 and 1500, with the Shiva Buddha incarnation, provide further evidence of links that remain to be pursued, for building cultural platforms for cooperation, between the Bay, South and South East Asia region.

Cooperation in the management of Environment and Resources in the Bay Region

In the Bengal Bay interactive zone of mountain and the sea, cooperation rather than conflict is required to ensure the water flow from valley to valley, from valley to ridge, and, to maintain the springs connected with fractures, faults and karsts, which create perennial water sources known as Jhora, Dhura, Kholcha. Since such flow of waters does not recognize political boundaries, international cooperation is vital for the appropriate management of waters. Collaborative action on the conservation of the aquifers, and the observance of customary laws regarding such conservation, will be essential to arrest the ongoing depletion of the water table, loss of keystone species, and anthropogenic mal adaptations like monoculture, invasive, extractive trawling of the shallow coastal waters. Sharing of research and application among the nations in the region is vital to stop the steady erosion of biodiversity, which cannot be replaced by bio variety, artificially introduced through plantation, germicide, herbicide, pesticide, to replace organic agriculture, for quick yield. Collaborative action in the Bay is necessary to stop the wholesale destruction of inter tidal forests and mangroves in the Sundarbans for invasive fish farming. Such forests being difficult to replenish, their loss, combined with trawling and acidification has accelerated the disintegration of life support systems of the coastal flora and fauna and other eco system species. It is possible to reverse such loss caused by human mal adaptation to environment, not by artificial plantation, but through a comprehensive, cross border plan to establish an interactive soil, moisture, vegetation, land use regime, to lower evapotranspiration. In view of the integral connection of the Himalayas and the Bay of Bengal, multinational action is essential to stop invasive tourism with reckless construction on hill slopes, and, to create thermally efficient structures, using ductile, malleable, pliant material, from forests across the borders. The traditional Bugyal mountain pastures have to be restored through such action, with community cooperation, to keep the Himalayas alive as a Vavilov centre of biocultural diversity. Such collaboration will also be required, to substitute, energy efficient micro hydro, photo voltaic, geo thermal applications, for large hydro thermal projects, to stop submergence. Regional networks like the BIMSTEC, SAARC and ASEAN, have to get together to introduce a seamless, multisectoral web of road transport, energy grid, disaster management, free trade, and security against cybercrime and terrorism. The Bay nations have to put together a non-extractive, self-equilibrating sustainable materials economy, functioning like a heating unit with a thermostat, based on a cybernetic, bio geo chemical cycling, recycling, flow and exchange of energy and materials, in order to maintain the Bay of Bengal interaction sphere, as a self-regulating biological Holon. An integrated regime of synergistic attention to atmosphere, geosphere, pedosphere, hydrosphere, biosphere and lithosphere has to be put in place, not through the use of most materials, but by making the most of existing materials. This will help the Bay nations to generate low carbon, micropolitan developments, and minimize pollutants and soil pathogens. It is time to combine the

local knowledge of communities in the Bay region about geology, botany, entomology, bacteriology, soil chemistry, treatment of compost and waste, for water shed protection, photosynthesis, pollution free agriculture and climate regulation.

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      today lot rain be-pr.pf.3rd
      'Today there was heavy shower.'
   b) boneder ʧhobi.
      sister-gen.pl. picture
      'Sisters' picture.'
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Paper Back Edition, ISBN: 978-81-955545-1-5
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Editors : Archita Ghose & Sarmistha De Basu
June : 2021 Pub: Kolkata Society for Asian Studies
ASIN : B097NL92S2
E-Book, File size: 2386 KB/ Kindle Editlon

Published by Kolkata Society for Asian Studies, Postal Address : 3/25/1, R.K. Chatterjee Road, Kolkata - 700042
Phone : +91-9432490361
Email : Ksasianstudies@gmail.com kspublicationl@gmail.com
Website: www.kolkatasocietyforasianstudies.com www.jrksas.org

Printed at : The Saraswati Printing Works, 2, Guru Prosad Chowdhury Lane, Kolkata 700 006

Price: Rs.500.00