

## Understanding Coastal Security – The Framework of Analysis

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### Abstract

The concept of coastal security has in recent years gained significant momentum and is being actively discussed at various forums. Without any doubt, India is essentially a maritime nation with a natural outflow towards the sea. The vast coastline and an access to open sea presents New Delhi with both opportunity and challenges. The exploitation of natural resources available along the seas can serve as a significant source of opportunity should requisite measures are undertaken on a priority basis. At the same time with increasing seafaring activities and the advancement of technology, the scope and extent of seaborne threats and challenges emanating from the seas have become a growing concern for our country and the policy makers involved in it. Indian coastline borders the mainland and the islands with Bay of Bengal in the East, the Indian Ocean on the South and the Arabian Sea on the West. The coastline stretches across nine States starting from Gujarat in the West to the West Bengal in the East. The other coastal states comprises of Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh and Odisha; and the four Union Territories viz. Daman & Diu, Lakshadweep, Puducherry and Andaman & Nicobar Islands are situated on the coast. India has a vital national interest and stakes in coastal security. India is committed to making itself prepared to stop traditional and non-traditional sea borne threats before they can seriously threaten the stability and security of our country.

**KEYWORDS:** Coastal Border Police Force, Coastal Piracy, Coastal Security, Maritime Terrorism, Maritime Zone.

#### Introduction:

As compared to India's land borders of 16000 km, the coastline of our country is just 7516 km. Like the land borders, the coastline is faced with many challenges, both, internally as well as externally. The 7516 km coastline is not our border, our maritime border lies a further 12 nautical miles seaward of that. Nowhere in the documents of our country is there an indicator of the length of our maritime border.<sup>1</sup>

India shares maritime boundaries with both South Asian and Southeast Asian neighbours - Maldives, Pakistan, Sri Lanka, Bangladesh, Myanmar, Indonesia, Thailand. The maritime borders are shared with more countries than those with which it has land borders. At present, there are two maritime disputes - with Pakistan in Sir Creek and with Bangladesh due to maritime boundaries overlapping issues. In addition to continental territory, there are more than 300 inhabited island possessions comprising of the Lakshadweep and Andaman and Nicobar Islands. Many of India's bordering countries and several Indian Ocean coastal States are facing problems like poverty, extremism, terrorism, political and military instability, which can seriously threaten peace and stability in India's coastal areas.<sup>2</sup>

<sup>1</sup> See, "India's Maritime Security and the Navy's Transformational Role", Lecture Delivered By Vice Admiral Pradeep Chauhan, Chief Of Staff, Western Naval Command, Indian Navy, Observer Research Foundation, Mumbai, 21 October 2011, p. 4.

<sup>2</sup> Humberto Santos Rocha, "Naval Power in India's Geopolitics", 2013, available at < <https://www.revistamilitar.pt/artigo/798>>.

Coastal security is linked to economic development of a country. Since majority of trade is conducted via the sea route, the oceans holds immense economic importance. Moreover, the commercial value of the oceans has been increasingly re-evaluated due to the economic potential of offshore resources, centrally fossil energy but also seabed mining, as well as the economic promises of coastal tourism.<sup>3</sup>

The coastal security is one of the sub sects of maritime security. The coastal security has become the key agenda in the context of 2008 Mumbai attack and the threat it posed to the overall national security. The coastal security holds immense significance for our country that vary from economic to political and security perspective. The issues at stake for India are the protection of her long coastline, her island territories, and the trade routes through which her imports and exports pass. An important related issue for India is to develop the vast economic resources in its 200-mile long economic zone in the Indian Ocean and provide them as well as her island territories and ports adequate security.

Despite the fact that India depend largely on sea for trade with other countries, coastal security has not received the deserved attention from the policy makers, strategic analysts and academicians. The 26/11 terrorist attack in Mumbai is an eye opener for military leaders, political leaders, policy makers and academia. The chapter make a conceptual analysis of coastal security and its nature. In doing so, first of all it highlight the present state of India's coastline and its infrastructure. Later, it conceptualises maritime terrorism and piracy and their characteristic features. Finally, it discusses the opportunities and challenges of the coastal states and India's stakes in coastal security.

#### **India's Coastline and Its Infrastructure:**

India has a long and porous coastline of 7,517 km, of which the mainland accounts for 5,422 km. The Lakshadweep coast extends for 132 km and the Andaman and Nicobar Islands have a coastline of 1,962 km. The Indian coastline passes through nine coastal states and four UTs, and almost the entire coast of India falls within the tropics. The coastal states and Union territories are comprised of Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha and West Bengal, Puducherry, Lakshadweep, Daman & Diu and Andaman and Nicobar Islands.<sup>4</sup>

Since India being the fourth largest producer of fish in the world and has got a huge fishing population. India is the seventh largest marine fishing nation in the world. The Indian coastline supports almost 30 per cent of its human population which depend on rich exploitable coastal and marine resources. The Bay of Bengal and Arabian Sea are rich fishing grounds.<sup>5</sup> India has large coastal wetlands covering an area over 41,401 km<sup>2</sup>, which is 27.13 per cent of the total area covered by wetlands in India. India's inland wetlands cover 1,05,649 km<sup>2</sup>. Most cargo ships that sail between East Asia, America, Europe and Africa passes through Indian territorial waters. According to the Ministry of Shipping (MoS), around 95 per cent of India's trade by volume and 70 per cent by value are done via sea. Special economic zones (SEZs) are being developed in close proximity to several ports, thereby providing a logistical advantage to industries within these zones. The government has announced plans to develop 14 coastal economic zones (CEZs) in a phased manner for port-led development in all coastal states.

<sup>3</sup> Anil Kumar P., n. 2, p. 161.

<sup>4</sup> Pushpita Das, "Coastal Security: The Indian Experience", *Institute for Defence Studies and Analyses (IDSA) Monograph*, No. 22, September 2013.

<sup>5</sup> PS Jha, "Environment Protection", *Indian Defence Review*, Vol. 19, No. 4, Oct-Dec 2004, p. 26.

According to the Maritime Zone Act, 1976, the maritime zones of India are divided into five Coast Guard regions, with the Indian Coast Guard (ICG) responsible for the enforcement of maritime zones. The five regions are North-West, West, East, North-East and Andaman and Nicobar, with the respective regional headquarters located at Gandhinagar, Mumbai, Chennai, Kolkata and Port Blair. The regions are further divided into twelve Coast Guard 'districts', one each for the nine coastal states on the mainland, two in the Andaman and Nicobar region and one at Kavaratti in the Lakshadweep and Minicoy Islands.

The presence of critical installations such as ports, oil refineries, naval base, air space centre, atomic research centre, etc. along the coastline and their vulnerability to anti-national elements, makes coastal security management really significant. At present, there are 13 major ports and 200 notified minor and intermediate ports in India. Maharashtra has got the largest ports numbering 48, followed by Gujarat with 42, Tamil Nadu (15), Karnataka (10), Kerala (17), Andhra Pradesh (12), Odisha (13), Goa (5), West Bengal (1), Daman and Diu (2), Lakshadweep (10), Pondicherry (2), and Andaman and Nicobar (23). Besides, it has got five main fishing harbours - Mangalore (Karnataka), Kochi (Kerala), Chennai (Tamil Nadu), Vishakhapatnam (Andhra Pradesh) and Raichak in (West Bengal). Moreover, it has 23 minor fishing harbours and 95 fish-landing centres which are designated to provide landing and berthing facilities to fishing craft. The coastal areas are safeguarded by the police forces of the respective coastal states and UTs, which have jurisdiction of up to 12 nautical miles (nm) from the coast. India, a traditionally maritime country with a rich maritime heritage, has an exclusive economic zone (EEZ) of 200 nm from its coast. India is currently seeking to extend its EEZ to 350 miles. The ICG and the Indian Navy have jurisdiction over the entire maritime zone up to 200 nm, including the 12 nm of territorial waters.<sup>6</sup> The development and security of ports are important for it generates revenue and also promotes wide-range of economic activities. The development of several ports has progressed in a significant way. However, this aspect has changed in the last couple of years.

**Table 1.1**  
**Major and Minor Ports of India**

Region/State/UT	Major Ports	Minor Ports
<b>West Coast</b>		
Gujarat	a. Kandla	40
Maharashtra	a. Mumbai b. Jawaharlal Nehru	53
Goa	a. Marmugao b. Panaji	5
Karnataka	a. New Mangalore	10
Kerala	a. Cochin	13
Daman and Diu	-	2
<b>East Coast</b>		
Tamil Nadu	a. Tuticorin b. Chennai c. Ennore	15
Puducherry	-	1
Andhra Pradesh	a. Visakhapatnam	12

<sup>6</sup> See, 'Smart Border Management: Indian Coastal and Maritime Security, Report Prepared by FICCI in Collaboration with Price water house coopers, September 2017, pp. 4-5.

Orissa	a. Paradip	2
West Bengal	a. Kolkata, Haldia	1
Lakshadweep Islands	-	10
A & N Islands	-	23
<b>Total</b>	<b>13</b>	<b>187</b>

**Source:** Mukund Narvekar, "Emerging Maritime Threats and Challenges in India's Marine Domain: Post 26/11", in Suresh R. (ed.), *The Changing Dimensions of Security: India's Security Policy Options* (New Delhi: Vij Books India Pvt. Ltd., 2015), p. 210.

The major ports are administered by the shipping ministry of the central government, while the minor ports are taken care off by the ministry of the respective states where they are located. The major and minor ports hold immense significance for our country from the economic and strategic point of view. Economically, they serve as the lifeline of India's economic growth and strategically, owing to its location in close proximity to unfriendly neighbours, they are highly vulnerable. The RDX used in the Mumbai bomb blasts was unloaded at Raigad port lacking security arrangement and later transferred at Mumbai to carry out heinous act. Therefore, it is pertinent to ensure the safety and security of these ports against all sorts of anti-national elements.<sup>7</sup>

Maintenance and repairs of ports and harbours must form an important aspect of coastal security development. It is highly imperative to keep the ports and harbours secured with state of the art advanced technology to meet any kind of sea borne non-traditional challenge that may arise from any direction. Presently, most of India's major and minor ports do not portray an image of satisfaction concerning their functioning. To meet this challenge, the present government is discussing a proposal to create a new force to guard maritime boundaries, the Coastal Border Police Force (CBPF). The CBPF is expected to assist the Indian Coast Guard with managing the littorals.<sup>8</sup> The security of the ports is really important for it contain a number of specific facilities that could be targeted by terrorists, including military vessels and bases, cruise ships, passenger ferries, terminals, dams and locks, factories, office buildings, power plants, refineries, and other critical infrastructure. In addition to vessels and infrastructure, terrorists may seek to attack coastal communities using ships by exploiting chemicals or explosives in cargo ships or onshore storage tanks in populated port areas.<sup>9</sup> The security of these ports are provided by the CISF (Central Industrial Security Force) personnel. In addition, Vessel Traffic Management System (VTMS) and Automated Identification System (AIS) have also been installed aimed at monitoring the movement of vessels in these ports.<sup>10</sup>

### **Coastal Security: Concepts and its Nature:**

<sup>7</sup> Mukund Narvekar, "Emerging Maritime Threats And Challenges In India's Marine Domain: Post 26/11", In Suresh R. (ed.), *The Changing Dimensions Of Security: India's Security Policy Options* (New Delhi: Vij Books India Pvt. Ltd., 2015), p. 200.

<sup>8</sup> Vivek Mishra, "India's Emerging Concept of Regional Maritime Security", *Maritime Affairs: Journal of the National Maritime Foundation of India*, New Delhi, 2017, pp. 5-6.

<sup>9</sup> Paul W. Parfomak and John Frittelli, "Maritime Security: Potential Terrorist Attacks and Protection Priorities", *Congressional Research Service Report for Congress*, Washington, DC, 9 January 2007, p. 5.

<sup>10</sup> Pushpita Das, *India's Border Management: Select Documents* (New Delhi: Institute for Defence Studies and Analyses, 2010), p. 27.

Coastal security is one of the domineering national security challenges for India in 21<sup>st</sup> Century. It has emerged as an area of special focus, both strategically and economically given peninsular India's ever increasing dependence on sea for overseas trade, technological corporation and energy security. Coastal security is concerned not only to protect the coastal frontiers but also important off shore and on shore coastal installations as well as our ports and trade.<sup>11</sup>

Before going into the details about coastal security, it is imperative to first understand the concept of coast. The term coast implies the land next to the sea, demarcated by the low-water line. But the term coastal means along or near the coast. A coastal area may, thus, cover both, a certain water area seawards of the coastline and also a land area at or along the coastline.<sup>12</sup> The coast is actually a zone or strip of land extending from the coastline, which borders the sea to where the land rises inland. Its limit is marked by the level of high tide. The coastline is the triple interface of air, land and sea.<sup>13</sup>

The concept of 'coastal security' gained prominence in the post 26/11 attacks and the associated fears over the crossing of illegal ships from neighbouring countries particularly from the Pakistan side.<sup>14</sup> Coastal security as a concept encompasses the systemic search for suitable means and methods of protecting the maritime interests in coastal areas fulfilling multifarious and interrelated needs for cooperative security by the concerned nation-states. It requires a mix of preventive and reactive measures to safeguard the coastal domain against threats and intentional unlawful activities. The concept of coastal security aims at maintaining the freedom of the coastal activities of the state concerned, facilitating and defending commerce, and sustaining good governance at sea against the threats and challenges emanating from internal or external sources, or because of the nexus of the two involved in unlawful activities at sea.

Coastal security being an important aspect of a broader context of maritime security seeks to draw significant attention to new threats and challenges and the need to sharply respond to it. Any sort of discussions on coastal security would be incomplete without pointing to threats that prevail in the maritime domain. The sea-borne coastal threats would be comprised of maritime inter-state disputes, maritime terrorism, piracy, trafficking of narcotics, people and illicit goods, arms proliferation, illegal fishing, environmental crimes, or maritime accidents and disasters. This way, coastal security should be defined as the absence of these threats.<sup>15</sup>

Coastal security is both multi-dimensional and multifaceted as it involves both the military and non-military dimensions of issues and challenges.<sup>16</sup> Coastal security is focused on the coastal waters. It refers to the security of or relating to the coast;

<sup>11</sup> Sachin S. Pendse, "Coastal Security Infrastructure", Paper presented at one day International Conference Sponsored by Mumbai University on "Vibrant India in the 21st Century", Organized by K.P.B. Hinduja College of Commerce, Mumbai, 13 March 2015.

<sup>12</sup> See, 'Ensuring Secure Seas: Indian Maritime Security Strategy', Integrated Headquarters, Ministry of Defence (Navy), New Delhi, October 2015, p. 163.

<sup>13</sup> Vikas M. and G. S. Dwarakish, "Coastal Pollution: A Review", *Aquatic Procedia*, No. 4, 2015, p. 381.

<sup>14</sup> Rhys Machold, "Militarising Mumbai? The 'Politics' of Response", *Contexto Internacional*, Vol. 39, No. 3, Sep-Dec 2017, pp. 477-92.

<sup>15</sup> Christian Bueger, "What is Maritime Security", *Marine Policy*, Vol. 53, March 2015, p. 159.

<sup>16</sup> Anil Kumar P., *op cit.*, p. 162.

located on or near or bordering on a coast.<sup>17</sup> It now involves protecting a state's coastal areas and the coastal infrastructure on land as well as in its coastal waters from any potentially damage that originates at sea. It seeks to prevent the coastal infrastructure and population from coming under the pressure of pirate and maritime attacks and smuggling. Such damage can result from a wide variety of criminal activities of all sorts such as trafficking in weapons, people, and drugs as well as environmental issues such as illegal fishing and the dumping of illegal waste. The consequences of such acts have serious social, economic, political and human implications.<sup>18</sup>

The coastal security could also mean freedom from all sorts of risk of serious incursions against a nation's sovereignty launched from the maritime domain that could undermine a nation's maritime interest. It is a task aiming for preserving the freedom of seas, facilitating and defending commerce and maintaining good governance along the coast. Coastal security in the Indian context is a difficult task requiring special attention. Coastal security would also mean protection of coastal assets and infrastructure that allows a nation to pursue sustainable economic growth through seaborne trade and coastal zone development. Coastal security is not only about protecting our coastal terrain and territorial waters from direct<sup>19</sup> military aggression and infiltration but also include security of the assets such as ships and oil rigs operating in the EEZ.<sup>20</sup>

Coastal security entails the protection, preservation and promotion of peace, stability and security in coastal waters, against various threats. This would enable the pursuit of legitimate activities in the coastal waters and also adjacent coastal land. The ensuring of coastal security would encompass the maintenance of law and order, measures to monitor and regulate activities with a bearing on security, and aspects related to defence in case of armed threat or attack in coastal waters. In view of the range of activities, directly and indirectly affecting India's coastal security, there are a large number of agencies that are involved in the coastal security framework.

Every coastal nations including India seeks to facilitate the vibrant maritime commerce that underpins economic security, and to protect against ocean-related terrorist, hostile, criminal, and dangerous acts. Coastal security is ensured through coordinated efforts amongst multiple stakeholders at the Centre and States, towards provision of comprehensive security against traditional and non-traditional threats. Coastal security has a wide connotation encompassing maritime border management, island security, maintenance of peace, stability and good order in coastal areas and enforcement of laws therein, security of ports, coastal installations and other structures, including Vital Areas and Vital Points (VAs/VPs), vessels and personnel

<sup>17</sup> S. Utham Kumar Jamadhagni, "Coastal Security of Tamil Nadu: An Empirical Study to Elicit a Community Perspective", in Suresh R. (ed.), *Maritime Security of India: The Coastal Security Challenges and Policy Options* (New Delhi: Vij Books India Pvt. Ltd., 2014), p. 179.

<sup>18</sup> Joseph S. Szyliowicz, "The Dimensions of Maritime Security", Joseph S. Szyliowicz and Özlen Çelebi (eds.), *Global Maritime Security: New Horizons* (Istanbul: Turkish Naval Forces Printing Office, 2014), p. 3.

<sup>19</sup> M P Muralidharan, "Maritime Coastal Security Concerns", in Suresh R. (ed.), *Maritime Security of India: The Coastal Security Challenges and Policy Options* (New Delhi: Vij Books India Pvt. Ltd., 2014), pp. 63-4.

<sup>20</sup> Gurmeet Kanwal, "Why India Needs a National Security Strategy", available at <<http://www.rediff.com/news/column/why-india-needs-a-national-security-strategy/20160617.htm>>.

operating in coastal areas. An effective organisation for coastal security also facilitates coastal defence.<sup>21</sup>

Coastal security as seen by fishing community is different from the policy planners of such security. The fishing community defines coastal security from the human security perspective such as the safety and security of their livelihood. For them coastal security is about security of their life and limb plus the sustenance of their livelihood.<sup>22</sup> In fact, it won't be wrong to say that coastal security is an area where national security interests and human security interests converge. Meeting the development needs of the coastal area would result in enlisting the support of the coastal community to ensure coastal security.<sup>23</sup>

Unlike coastal security, coastal defence is primarily concerned with defending the nation and citizens against seaborne threat of conventional and sub-conventional armed attacks in coastal areas. It encompasses all sorts of measures undertaken to prevent, counter and neutralise such attacks, both in the coastal areas and further seawards, before the threat can be brought to bear on the coast. Such type of attacks can be directed against the coast and coastal assets, including populace, ports, harbors, infrastructure, VAs/VPs.<sup>24</sup>

### **Understanding the Phenomenon of Maritime Terrorism and Piracy**

Conceptualising maritime terrorism and coastal piracy is a difficult task when there is no such universally accepted definition of it. The threat of maritime terrorism and coastal piracy along the coastal waters and the illegal use of the maritime transportation system have led to dramatic changes in coastal security arrangements in recent years. In order to distinguish between piracy, acts of armed robbery of ships and maritime terrorism, it is necessary to define these concepts and identify the origins of these definitions.

#### **Maritime Terrorism:**

Maritime terrorism is an old phenomenon that existed for over a century as an adjunct to political and quasi-military campaigns. In the post second world war, maritime terrorism possesses characteristics common to other areas of terrorism in the period.<sup>25</sup> The United Nations Laws of the Sea defines maritime terrorism as any illegal act of violence or detention or any act of depredation committed by individuals for vested interest against a marine vessel.<sup>26</sup> Maritime terrorism may be defined as:

- Any attempt or threat to seize control of a ship by force;
- To damage or destroy a ship or its cargo;
- To injure or kill a person on board a ship; or

<sup>21</sup> See, *Ensuring Secure Seas: Indian Maritime Security Strategy*, n. 15, p. 109.

<sup>22</sup> S. Utham Kumar Jamadhagni, n. 20, p. 179.

<sup>23</sup> Suresh R and Rakhee Viswambharan, "Coastal Security of India: The Role of Coastal Community", In Suresh R. (ed.), *Maritime Security of India: The Coastal Security Challenges and Policy Options* (New Delhi: Vij Books India Pvt. Ltd., 2014), p. 191.

<sup>24</sup> See, *Ensuring Secure Seas: Indian Maritime Security Strategy*, *op cit.*, p. 163.

<sup>25</sup> Yingping Li, "Addressing Major Maritime Security Issues of Global, Regional and National Significance: Law and Policy Implications in the Context of China", *M. Sc Dissertation Submitted to the Maritime Administration, World Maritime University, Malmo, Sweden, 2003*, p. 11.

<sup>26</sup> Visit the site, <<http://www.un.org/Depts/los/index.htm>>.

- To endanger in any way the safe navigation of a ship that moves from the territorial waters of one State into those of another State or into international waters.<sup>27</sup>

From a modern perspective, maritime terrorism is related to hijacking of a ship, seeking ransom, smuggling of small weapons, narcotics and hazardous waste, illegal fishing and dumping, the piracy, murders, seizure and sabotaging of ships, clandestine movement of terrorist organisation. The modern day maritime terrorism may be categorised as - Small scale; Large scale and the Phantom ship. The small scale attacks occur generally at ports; while the large scale attacks are master minded by the terrorist organisations of the type of 26/11 Mumbai attacks that was well planned and executed which had caused considerable damage to the country.<sup>28</sup>

Maritime terrorism as defined by Raymond as, 'any illegal act directed against ships, their passengers, cargo or crew, or against sea ports with the intent of directly or indirectly influencing for political purposes, a government or groups of individuals.'<sup>29</sup> The Council for Security Cooperation in the Asia Pacific (CSCAP) Working Group has offered an extensive definition for maritime terrorism as, "...the undertaking of terrorist acts and activities within the maritime environment, using or against vessels or fixed platforms at sea or in port, or against any one of their passengers or personnel, against coastal facilities or settlements, including tourist resorts, port areas and port towns or cities."<sup>30</sup> In other words, maritime terrorism may be defined as 'terrorist attacks executed within, or with the intent of compromising the features of the maritime domain.'<sup>31</sup> Maritime terrorism includes attack of threat of attacks against vessels (warships, cruise liners, tankers and other carriers, tugboats and barges), harbour attacks, fixed land based targets near ports – oil refineries, oil storage depots, other ports infrastructure, energy pipelines – and hijacking of commercial / passenger ships on high seas. Maritime terrorism, therefore, as the use or threat of violence against a ship (civilian as well as military), its passengers or sailors, cargo, a port facility, or if the purpose is solely a platform for political ends. The definition can be expanded to include the use of the maritime transportation system to smuggle terrorists or terrorist materials into the targeted country. Maritime terrorism is motivated by political goals beyond the immediate act of attacking a maritime target. Terrorist can develop effective attack capabilities relatively quickly using a variety of platforms including –

<sup>27</sup> D. Johnson & M. Valencia (eds.), *Piracy in Southeast Asia: Status, Issues and Responses* (Singapore: Institute of Southeast Asian Studies, 2005).

<sup>28</sup> Shaverri Thakur, "India's Maritime Security and the Role of Navy: Threats, Challenges and Responses", *Ph. D Thesis Submitted to the Department of Defence and National Security Studies*, Punjab University, Chandigarh, 2011, pp. 82-3.

<sup>29</sup> C. Z. Raymond, "Maritime Terrorism, A Risk Assessment: The Australian Example", in J. Ho and C. Z. Raymond (eds.), *The Best of Times, the Worst of Times: Maritime Security in the Asia Pacific* (Singapore: Institute of Defence and Strategic Studies, 2005), p. 181.

<sup>30</sup> Michael D. Greenberg, et al. (eds.), *Maritime Terrorism: Risk and Liability* (Santa Monica, CA: Rand Publications, 2006), p. 10.

<sup>31</sup> Andreas Graf, "Countering Piracy and Maritime Terrorism in Southeast Asia and off the Horn of Africa-Applying the lessons learned from the countermeasures against maritime violence in the Strait of Malacca and to the Gulf of Aden", the PiraT-working papers on Maritime Security Series, "Piracy and Maritime Terrorism as a Challenge for Maritime Trade Security: Indicators, Perceptions and Options for Actions", project, 5 April, 2011.

- Explosives laden suicide boats and light aircraft;
- Merchant and cruise ships as kinetic weapons to ram another vessel, warship, port facility, or offshore platform;
- Commercial vessels as launch platforms for missile attacks;
- Underwater swimmer to infiltrate ports; and
- Unmanned underwater explosive delivery vehicle.<sup>32</sup>

Several factors have contributed to the cause of maritime terrorism. These includes - legal and jurisdictional opportunities; geographical necessity; inadequate security; secure base areas; maritime tradition; charismatic and effective leadership; state support; and promise of reward.<sup>33</sup> Maritime terrorism, like all forms of terrorism, has mostly a political, ideological or religious background. Terrorists will therefore ask themselves where they can hit the infrastructure of the industrialized world most effectively.<sup>34</sup>

### **Coastal Piracy and its Manifestation:**

Piracy is derived from the Greek word “*peirātēs*” which means ‘attacker’ or ‘marauder’ as a noun originating from the verb “*peiran*” signifying ‘attempt’ or ‘attack’.<sup>35</sup> Piracy is a crime with international character and is governed under international law. It is traditionally regarded as *hostis humani generis*, meaning the enemy of the human race. They commit acts of murder, robbery, plunder, rape or other villainous deeds at sea, cruelly against humanity. Because of such nature of its offense, it is punishable wherever encountered. The law of piracy is directed to eliminate and suppress all acts of piracy in the world. Since piracy is *sui generis*, the law is to some extent very special in comparison with other laws.<sup>36</sup>

From a historical perspective, the problem relating to piracy has been legally dealt with by each littoral state according to their traditional municipal law.<sup>37</sup> Piracy is an illegal act of violence committed for private, rather than political ends by the crew or passengers of a ship against another ship outside state’s territorial waters.<sup>38</sup> It is an act of boarding or attempting to board any ship with the apparent intent to commit theft or any other crime and with the apparent intent or capability to use force in

<sup>32</sup> Ioannis Parinis, “The Maritime Dimension of European Security – Strategies, Initiatives, Synergies”, *The Fletcher School of Law and Diplomacy Working Paper*, No. 1, February 2015, p. 22.

<sup>33</sup> Martin N. Murphy, *Small Boats, Weak States and Dirty Money* (New York: Columbia University Press, 2009).

<sup>34</sup> Peter Roell, “Maritime Terrorism – A Threat to World Trade?”, in *International Relations and Security Network (ISN)*, Center for Security Studies (CSS) 7 December 2009, ETH Zurich, available at <<http://www.isn.ethz.ch/isn/Digital-Library/Publications/Detail/?id=110282>>.

<sup>35</sup> Jean Edmond Randrianantenaina, “Maritime Piracy and Armed Robbery against Ships: Exploring the Legal and the Operational Solutions - The Case of Madagascar”, Division for Ocean Affairs and the Law of the Sea Office of Legal Affairs, The United Nations, New York, 2013, p. 2.

<sup>36</sup> Zou Keyuan, “Piracy at Sea and China’s Response”, *Lloyd’s Maritime and Commercial Law Quarterly*, August 2000, p. 382.

<sup>37</sup> M. Mejia, “Maritime Gerrymandering: Dilemmas in Defining Piracy, Terrorism, and Others Acts of Maritime Violence”, *Journal of International Commercial Law*, Vol. 2, No. 2, 2003, p. 159.

<sup>38</sup> Brian Wilson, “Naval Diplomacy and Maritime Security in Western Indian Ocean”, *Strategic Digest*, IDSA, New Delhi, July 2009. p. 489.

furtherance of that act.<sup>39</sup> The term piracy is usually referred to a broad range of violent acts at sea. Both the United Nations (UN)'s International Maritime Organization (IMO) and the International Maritime Bureau (IMB) currently use the definition of piracy as described in the United Nations Convention on the Law of the Sea (UNCLOS). In article 101 of the 1982 UNCLOS, Piracy is said to be comprised of the following acts:

- a. any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft, and directed:
  - b. on the high seas, against another ship or aircraft, or against persons or property on board such ship or aircraft;
  - c. against a ship, aircraft, persons or property in a place outside the jurisdiction of any State;
  - d. any act of voluntary participation in the operation of a ship or of an aircraft with knowledge of facts making it a pirate ship or aircraft;
- e. any act of inciting or of intentionally facilitating an act described in subparagraph a or b.<sup>40</sup>

According to this definition, piracy is limited to acts outside the jurisdiction of the coastal waters of a state. Acts committed in coastal waters are considered armed robbery. This means that many cases of violence against ships occurring in the territorial waters of states are excluded from this definition. This also excludes acts of maritime terrorism, as political objectives are not included in this definition.<sup>41</sup>

The IMO in its 26th Assembly session defines Armed Robbery in Resolution A.1025 "Code of Practice for the Investigation of Crimes of Piracy and Armed Robbery against Ships" as follows: "Armed robbery against ships," means any of the following acts:

- any unlawful act of violence or detention or any act of depredation, or threat thereof, other than an act of piracy, committed for private ends and directed against a ship or against a person or property on board such a ship, within a State's internal waters, archipelagic waters and territorial sea;
- any act of inciting or of intentionally facilitating an act described above.<sup>42</sup>

In order to overcome the distinctions between high seas and territorial waters, the International Maritime Bureau in its annual report of 2009, defined piracy as,

<sup>39</sup> Peter Chalk, "The Maritime Dimension of International Security - Terrorism, Piracy and the Challenges for the United States", Prepared for the United States Air Force, Rand Corporation, Santa Monica, 2008, p. 3.

<sup>40</sup> United Nations Convention on the Law of the Sea, 10 December 1982, pp. 60-1, available at <[http://www.un.org/Depts/los/convention\\_agreements/convention\\_overview\\_convention.htm](http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm)>.

<sup>41</sup> D. Johnson, et al., "Introduction - Research on Southeast Asian Piracy", in D. Johnson & M. Valencia (eds.), *Piracy in Southeast Asia: Status, Issues and Responses* (Singapore: Institute of Southeast Asian Studies, 2005).

<sup>42</sup> See, '*International Maritime Organization (IMO)*', Assembly 26th session, Resolution A.1025, 18 January 2010, p. 4.

‘an act of boarding or attempting to board any ship with the apparent intent to commit theft or any other crime and with the apparent intent or capability to use force in the furtherance of that act’.

Issues arising from the definition of IMB above, is that, intent, specification, extent and the use of force are principal elements to be considered in what constitute piracy and not necessarily where or location of occurrence.<sup>43</sup> Established by the International Chamber of Commerce (ICC) in 1981, the IMB came into existence with the backing of the IMO, the world’s foremost agency for exchanging and collecting information on maritime crime. However, according to the IMO, it is estimated that piracy incidents are likely under-reported by a factor of two (meaning, they assume that for each attack that was announced, there were two additional attacks that were not announced). Moreover, it is likely that the statistics are subject to distortion as many smaller attacks go unreported. This mainly stems from two factors:

- a. the increase in insurance premiums often outweigh the value of the claim for smaller attacks; and
- b. Reporting a piracy attack is often time-consuming can lead to a delay of several days. Keeping in mind the running sunk costs of an idle ship (up to \$25,000 per day), in many, especially smaller cases, it is cheaper not to report the incident.<sup>44</sup>

Martin N. Murphy defines piracy as “unlawful depredation at sea involving the use or threat of violence possibly, but not necessarily, involving robbery... Piracy, while not a political crime, has invariably been linked to politics and the expression of state power, or more commonly weakness...”<sup>45</sup> Maritime piracy is a maritime transport issue that directly affects ships, ports, terminals, cargo and seafarers. Above all, piracy is associated with considerable human costs, as seafarers are the first to be affected by piracy attacks. They are usually held hostage and may be injured or killed. There are different forms of piracy ranging - maritime and coastal piracy, capers and corsairs. The piracy occurs on the high seas where no state is sovereign. Piracy is indiscriminate, meaning that any vessel originating from any state is fair game. The fact that piracy occurs in an ungoverned space and has the potential to impact all states has made piracy a problem “of the commons” requiring a collective solution.<sup>46</sup> Piracy consists of the following main forms of criminal activity:

- a. Harbor and anchorage attacks
- b. Attacks against vessels at sea—(sea) robbery, sometimes also referred to as “Asian piracy”
- c. Attacks against vessels at sea - hijacking accompanied by the neutralization of the crew (a variation of this can include the permanent seizure of a vessel by pirates)

<sup>43</sup> See, ‘*International Maritime Bureau – IMB, ‘Piracy and Armed Robbery against Ships: Report for the period January 2009 – December 2009’*, International Chamber of Commerce, London, 2009.

<sup>44</sup> Refer to Maritime Terrorism Site, available at <<http://www.maritimeterrorism.com/definitions/>>.

<sup>45</sup> Martin N. Murphy, n. 36.

<sup>46</sup> James Kraska and Brian Wilson, “The Pirates of the Gulf of Aden: The Coalition is the Strategy”, *Stanford Journal of International Law*, Vol. 45, 2009, pp. 243-49.

d. Kidnap for ransom<sup>47</sup>

Depending on the gravity of crime, Jones classifies piracy into four categories. They are

- a. Opportunity Crimes
- b. Low Level Armed Robbery
- c. Medium Level Armed Assault and Robbery
- d. Major Criminal Hi-jacking<sup>48</sup>

The naval law considers pirates as the enemies of the State since beginning. The Indian Navy's Regulations, Part I (1985 revised in 1990) states,

'if any armed vessel, not having commission as a warship from a recognised government, whether de facto or de jure, should commit piratical acts and outrages against the vessels or goods of India's citizens or the subjects of any other foreign power in amity with India, and if credible information would be received thereof, such armed vessel shall be seized and detained by any of Indian naval ships falling in with her, and sent to the nearest Indian port where there is a court of competent jurisdiction for the trial of offences committed on the high seas, together with the necessary witnesses to prove the act or acts and with her master and crew in safe custody, in order that they may be dealt with according to law.'<sup>49</sup>

In connection to these definitions, there are two internationally recognise universal principles that is applied to piracy. Firstly, the state is obligated to suppress piracy within its own territory. Secondly, every state has the authority to exert its jurisdiction over pirate ships on the high seas. However, the application of international law eventually depends upon enforcing at municipal law level.<sup>50</sup>

Piracy occurs in wide range of forms across the world, with differences in the place of attacks such as ports, coastal waters, high seas and the severity of violence used. In recent years, the pattern of attacks has changed, with a majority of incidents now taking place on the high seas. In many cases, the incidents of piracy are largely simple robberies where the crew's personal belongings, unsecured material on deck and where possible, the contents of containers and crates are taken by the threat of violence. Of the many forms of piracy, the Somali piracy is becoming increasingly sophisticated. They now make use of technical equipment to track traffic and mother-ships that permit them to conduct attacks not only from their bases along the coast but also from the high seas right across the Indian Ocean. By way of extending their operational radius and refining their tactics, Somali pirates have directly reacted to the

<sup>47</sup> Hans Tino Hansen, "Distinctions in the Finer Shades of Gay: The 'Four Circles Model' for Maritime Security Threat Assessment", in Rupert – Herbert Burns, et al. (eds.), *Lloyd's MIU Handbook of Maritime Security* (Auerbach Publications Taylor & Francis Group, 2009), p. 76.

<sup>48</sup> S. M. Jones, *Maritime Security: A Practical Guide* (London: The Nautical Institute, 2006), pp. 16-18.

<sup>49</sup> R Sawhney and N. A. Mohan, "Role of the Indian Navy in Combating Piracy," Coast Guard Seminar and Workshop on Piracy and Armed Robbery against Ships, Mumbai, 22-24 March 2000.

<sup>50</sup> R. Cauty, "The Law of Piracy: Is There Room for Terrorism", in K. G. Hawkes, et al (eds.), *International Perspective on Maritime Security; A Cooperative Effort of the Maritime Security Council* (United States: Department of Transportation, 1996), p. 46.

international presence off the Somali coast - and have thus proven their growing ability to adjust their modus operandi to evade countermeasures taken against them. Piracy of whatever types, carry out attacks on any vessels from any country of origin.<sup>51</sup>

The piracy activities are of transnational in character. The transnational character of piracy occurs in the geographical context and the diversity of the affected actors. It is characterised by the involvement of both non-state and state actors from different countries. Both of them create obstacles to the fight against piracy, requiring consensus among the countries to effectively deal with the threat of piracy.<sup>52</sup>

**Maritime Terrorism and Piracy– Convergences and Divergences:**

Between maritime terrorism and piracy, there are point of convergences and divergences. According to John Patch, “The distinction between piracy and terrorism is neither semantic nor academic. If for piracy, the responsibility lies with local law enforcement officials, not the military. But maritime terrorism means scrambling the Navy.”<sup>53</sup> Maritime terrorism and piracy differs in terms of their motivation, objectives and rationale, but the effect of both on the victim remains the same.<sup>54</sup>

The most distinctive feature between pirates and terrorists is their motives. If on the one sides, pirates are influenced by the financial benefits, then terrorists are influenced by political factors.<sup>55</sup> The pirate activity is fundamentally aimed at sustaining their trade while terrorism will court publicity and inflict as much damage as possible.<sup>56</sup>

Another distinction lies in the use of violence. The pirate seeks to prevent loss of life for fear of retaliation by foreign navies. The opposite is true for terrorists where publicity usually increases with greater loss of human life. As compared to pirate, terrorists use more sophisticated tactics. Pirate activities occurs at local or regional level, while terrorists activities are global in character. However, there are terrorist groups that operate only at local or regional level and aim to fulfil political agendas at local level.<sup>57</sup>

<sup>51</sup> Kerstin Petretto, “Piracy as a Problem of International Politics”, in Stefan Mair (ed.), *Piracy and Maritime Security - Regional Characteristics and Political, Military, Legal and Economic Implications*, SWP Research Paper, Berlin, Germany, March 2011, pp. 11-13.

<sup>52</sup> Ibid., p. 17.

<sup>53</sup> John Patch, “The Overstated Threat”, in M.R. Habermeld and Agostino Von Hassell (eds.), *Modern Piracy and Maritime Terrorism: The Challenge of Piracy for the 21st Century* (Dubuque, IA: Kendall Hunt, 2009), pp. 65-75.

<sup>54</sup> Pradeep Kaushiva, “Maritime Perspective on Terrorism”, *Chanakya Journal*, Vol. 1, No. 1, 2015, p. 31.

<sup>55</sup> Christian Bueger, “Learning from Piracy: Lessons for Maritime Security Governance”, *Global Affairs*, Vol. 1, No. 1, 2015.

<sup>56</sup> Adam Young and Mark Valencia, “Piracy and Terrorism Threats Overlap,” *The Washington Times*, 7 July 2003; Young and Valencia, “Conflation of Piracy and Terrorism in Southeast Asia: Rectitude and Utility,” *Contemporary Southeast Asia*, Vol. 25, No. 2, August 2003, p. 267.

<sup>57</sup> F. Chew, “Piracy, Maritime Terrorism and Regional Interests”, *Geddes Papers*, Australian Defence College, 2005, available at <[www.defence.gov.au/adc/docs/publications2010/PublicnsGeddes2005\\_310\\_310\\_PiracyMaritime.pdf](http://www.defence.gov.au/adc/docs/publications2010/PublicnsGeddes2005_310_310_PiracyMaritime.pdf)>.

From the point of view of convergences, both pirates and maritime terrorists are a form of international terrorism.<sup>58</sup> Both operate in the maritime environment using ships or boats and must have the skills to operate such vessels. In both cases, actions are mostly aimed at civilians and have a human cost attached to operations, and both groups can operate across borders.<sup>59</sup> Small, fast boats are often chosen for operations for their speed, manoeuvrability, effectiveness to evade radar detection and because they are less expensive to acquire and maintain than large vessels. Both groups also need a land base from which to operate. Violence or the threat of violence is also utilised by both groups. Pirates as well as terrorist organisations need funds to sustain their operations.<sup>60</sup>

**Table 1.2**  
**Piracy, Armed Robbery against Ships and Maritime Terrorism -**  
**Characteristics and Legal Status**

	<b>Piracy</b>	<b>Armed Robbery against Ships</b>	<b>Maritime Terrorism</b>
<b>Authoritative Source</b>	The 1982 United Nations Conventions on the law of the sea, Article 101.	The IMO decision – Code of Practice for the investigation of Crimes of Piracy and Armed Robbery against ships.	Absent of authoritative definitions; The one elaborated by the Council for security Cooperation in the Asia Pacific (CSCAP) Working group is much referred to.
<b>Characteristics</b>	- For private ends; - Against another ship; - on the high seas.	- For private ends; - Against another ship; - Within a state’s internal waters, archipelagic waters and territorial sea.	- Forms of terrorist acts and activities; - Within the marine environment.
<b>Legal Status</b>	Codified international law	With weighing referential values	A working definition by CSCAP

**Source:** Hui-Yi Katherine Tseng, “Maritime Security in Southeast Asia: Interfacing Regional and Extra-Regional Stakeholder”, in *Maritime Security and Piracy: Common Challenges and Responses from Europe and Asia* (Singapore: Konrad-Adenauer Stiftung and European Union, 2014), p. 91.

Neither terrorists nor pirates are completely self-sufficient and both require some form of support in order to achieve their goals and objectives. The support or assistance could range from money to arms and supplies. Terrorists alone lack the skills and experience that are needed to conduct maritime attacks, because unlike land-based operations where the targets are static, ships in sea are in constant motion, and pirates provide them with the required insight. While, terrorists could provide the

<sup>58</sup> Natalya A. Knyazeva and Alexander I. Korobeev, “Maritime Terrorism and Piracy: The Threat to Maritime Security”, *Mediterranean Journal of Social Sciences*, Vol. 6, No. 6, November 2015, p. 226.

<sup>59</sup> D. Johnson & M. Valencia (eds.), *op. cit.*

<sup>60</sup> E S Nelson, “Maritime Terrorism and Piracy: Existing and potential threats”, *Global Security Studies*, Vol. 3, No. 3, Winter 2012.

pirates with the arms and supplies needed to conduct their attacks and could help pirates secure a safe passage once on shore as well.<sup>61</sup>

### **Coastal States of India: Opportunities and Challenges:**

With a coastline of 7516.60 km bordering the mainland and islands, India is geo-strategically surrounded by Bay of Bengal in the East, Indian Ocean on the South and Arabian Sea on the West. There are nine coastal states - Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha and West Bengal and four Union Territories - Daman and Diu, Lakshadweep, Puducherry and Andaman and Nicobar Islands situated on the coast. The coastal states and union territories face a wide range of opportunities and challenges requiring closer understanding and coordination between the state and central government towards addressing the issues faced by the coastal states and union territories. The coastal issues and challenges vary from one state to another. The issue ranges from coastal erosion, pollution along the coast, shoreline erosion, etc.

The state of Gujarat shares the longest coastline with 1,64,183 km<sup>2</sup> continental shelf supporting 18,369 mechanized vessels and 11,784 non-mechanized vessels. It has 263 marine fishing villages, with 59,889 fisher folk operating along its coastline.<sup>62</sup> The state is highly sensitive due to its close proximity to a very vulnerable part of International Maritime Border Line (IMBL).<sup>63</sup> The state is bounded by the Arabian Sea in the West, Pakistan and Rajasthan in the North West, North and North East, Madhya Pradesh in the East and Maharashtra in the South and South East. It has got 14 coastal districts<sup>64</sup> and is home to 42 ports which include one major port and 41 non-major ports. It has the highest number of operational ports and commercial cargo ports, and ranks first in cargo amongst all Indian states.<sup>65</sup>

The man-made coastal issues are usually triggered due to reclamation of seaward side; effluent discharge into estuary areas; blocking of flow of water in delta regions; illegal mining from rivers; dredging activities resulting in high turbidity conditions; proliferation of ports, oil terminals, chemical industries; pipelines; coastal erosion due to heavy infrastructure construction including seawalls; oil pollution in sea due to oil refineries and from ships like oil tankers.<sup>66</sup>

<sup>61</sup> Aditi Chatterjee, "Piracy and Maritime Terrorism: An Overview of Linkages and Counter-Measures", Vijay Sakhuja and Gurpreet S Khurana (eds.), *Maritime Perspectives - 2014* (New Delhi: National Maritime Foundation, 2015), pp. 117-18.

<sup>62</sup> Ganapathiraju Pramod, "Illegal, Unreported and Unregulated Marine Fish Catches in the Indian Exclusive Economic Zone", Field Report, Policy and Ecosystem Restoration in Fisheries, Fisheries Centre, University of British Columbia, BC, Vancouver, Canada, 2010, p. 11.

<sup>63</sup> See, 'Coastal Security Scheme', *Report Prepared by Department-Related Parliamentary Standing Committee on Home Affairs*, Report No. 177, Parliament of India, Rajya Sabha, February 2014, p. 6.

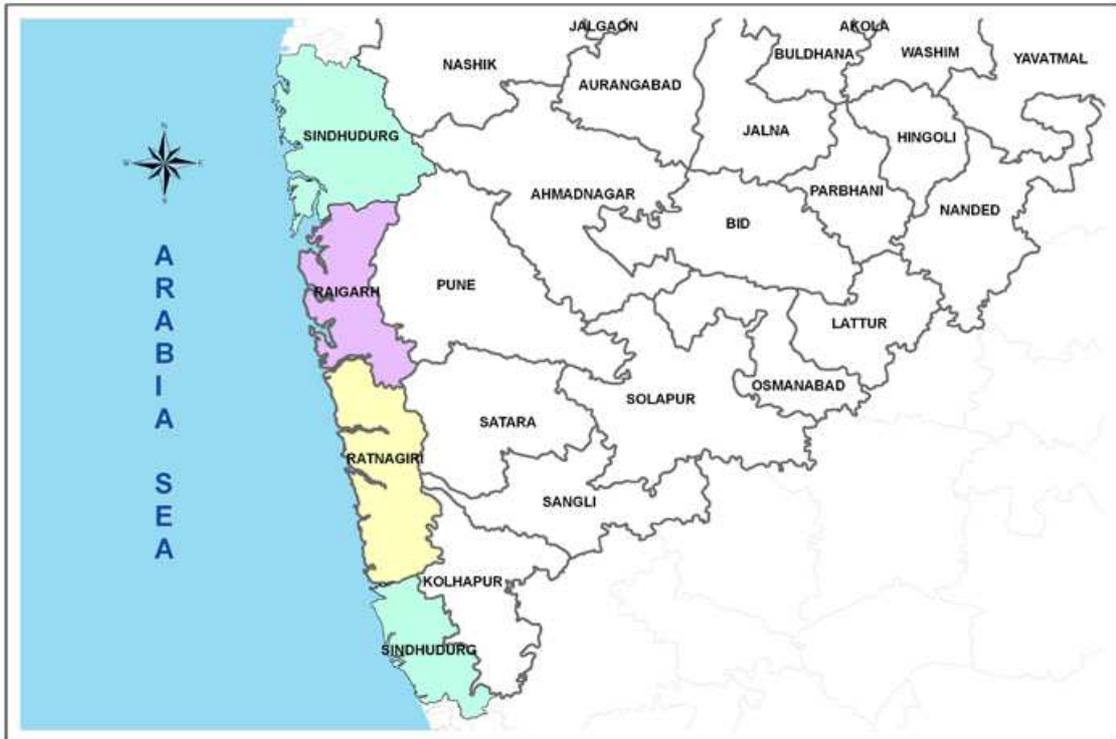
<sup>64</sup> See Gujarat Information in, 'Centre for Coastal Zone Management and Coastal Shelter Belt', Institute for Ocean Management, Anna University, Chennai, Sponsored by Ministry of Environment, Forests & Climate Change, Government of India, available at <<http://iomenvi.nic.in/index3.aspx?sslid=883&subsublinkid=112&langid=1&mid=>>.

<sup>65</sup> See, *Smart Border Management: Indian Coastal and Maritime Security*, n. 9, p. 18.

<sup>66</sup> Indra Gadhi in 'Coastal Issues and Concerns: Challenges for the Research Community', *Prepared by Consortium of Coastal Academic Institutions for the National Centre for Sustainable Coastal Management (NCSCM)*, Ministry of Environment and Forests Government of India, New Delhi and Anna University, Chennai, 21 June 2010, p. 46.

The state of Maharashtra has a long coastline of 720 km spread over seven districts. It is home to 2 major and 51 minor and intermediate ports.<sup>67</sup>

**Map 1.1**  
**Coastal Districts of Maharashtra**



**Source:** Sanjay V. Deshmukh in 'Coastal Issues and Concerns: Challenges for the Research Community', *Prepared by Consortium of Coastal Academic Institutions for the National Centre for Sustainable Coastal Management (NCSCM)*, Ministry of Environment and Forests Government of India, New Delhi and Anna University, Chennai, 21 June 2010, p. 36.

The state has a continental shelf of 1,11,512 km<sup>2</sup>, supporting 23,508 fishing crafts of which 13,053 are mechanized craft, 3382 were motorized and 7073 non-motorised craft. It has 406 marine fishing villages with 65,313 fisher folk operating along its coastline.<sup>68</sup> The vulnerability of the coastal regions of the state can be reflected from the 26/11 event. The Maharashtra coast (popularly known as Konkan) harbours a significant diversity of natural resources. This region has endowed with number of natural and man-made assets. It stretches from the River Tapi in the north up to the River Terekhol in the south and encompasses six districts viz. Thane, Greater Mumbai, Mumbai, Raigad (former Colaba), Ratnagiri and Sindhudurg (previously under Ratnagiri). The coastline is indented by numerous river mouths, creeks, small bays, headlands, sandy and rocky beaches, promontories, cliffs etc. The widely increasing pollution problems, extensive destruction and modification of marine habitats in the interests, called economic development, and the prodigious over-exploitation of renewable resources are definite indications of our heading towards a point of no return in many areas of our country.

<sup>67</sup> See Maharashtra Information in, 'Centre for Coastal Zone Management and Coastal Shelter Belt', Institute for Ocean Management, Anna University, Chennai, Sponsored by Ministry of Environment, Forests & Climate Change, Government of India, available at <<http://iomervis.nic.in/index3.aspx?ssid=883&subsublinkid=112&langid=1&mid=>>>.

<sup>68</sup> Ganapathiraju Pramod, n. 65, p. 12.

Coastal urban areas such as Mumbai have been severely affected by erosion, partly due to clearance of mangroves and associated vegetation along the shoreline and also due to construction of offshore and coastal infrastructure. Rural coastal regions are hence adversely affected by erosion. This has increased the vulnerability of resident coastal communities to natural disasters (such as cyclones) since their dwellings are along the fringes of the shoreline. The government of Maharashtra recognizes the need to address coastal protection in a more systematic manner.<sup>69</sup>

**Map 1.2**  
**Coastal Districts of Goa**



**Source:** G. N. Nayak in 'Coastal Issues and Concerns: Challenges for the Research Community', *Prepared by Consortium of Coastal Academic Institutions for the National Centre for Sustainable Coastal Management (NCSCM)*, Ministry of Environment and Forests Government of India, New Delhi and Anna University, Chennai, 21 June 2010, p. 34.

Goa is a small state located along the west coast of India with a coastline of just 131km. It has 1 major and 5 minor port.<sup>70</sup> It is characterized by pocket beaches flanked by rocky cliffs, estuaries, bays, and at some places mangroves. Beaches in southern Goa are long and linear in nature with sand dunes. The coastal zone in Goa is exposed to environmental and anthropogenic pressures due to a number of factors. The factor ranges from demographic settings to population growth and rapid urbanization to migration and tourism activities, etc. It is evident that the multitude of increasing pressures on the coastal systems, coastal wetland transformation and

<sup>69</sup> Sanjay V. Deshmukh in 'Coastal Issues and Concerns: Challenges for the Research Community', *Prepared by Consortium of Coastal Academic Institutions for the National Centre for Sustainable Coastal Management (NCSCM)*, Ministry of Environment and Forests Government of India, New Delhi and Anna University, Chennai, 21 June 2010, pp. 37-9.

<sup>70</sup> See Maharashtra Information in, 'Centre for Coastal Zone Management and Coastal Shelter Belt', Institute for Ocean Management, Anna University, Chennai, Sponsored by Ministry of Environment, Forests & Climate Change, Government of India, available at <<http://iomenvis.nic.in/index3.aspx?sslid=883&subsublinkid=112&langid=1&mid=>>>.

ecological stress on the estuaries is posing a threat to the human population and the coastal resources.<sup>71</sup>

**Map 1.3**  
**Coastal Districts of Karnataka**



**Source:** H.R.V. Reddy in 'Coastal Issues and Concerns: Challenges for the Research Community', *Prepared by Consortium of Coastal Academic Institutions for the National Centre for Sustainable Coastal Management (NCSCM)*, Ministry of Environment and Forests Government of India, New Delhi and Anna University, Chennai, 21 June 2010, p. 28.

Karnataka's coast stretches for 320 kms in length along the three districts of Dakshina Kannada, Udupi and Uttara Kannada districts. Of these, Uttara Kannada has 160-km long coastline while 98 kms are in Udupi district and the rest in Dakshina Kannada.<sup>72</sup> The state has got 10 major ports and 2 minor and intermediate ports. It has a 300 km coastline with continental shelf of 27,000 km<sup>2</sup> supporting 15,655 fishing crafts of which 7577 were traditional non-motorized craft, 3705 were motorized and 4373 mechanized vessels (2515 trawlers; 1254 gillnetters).<sup>73</sup>

The state of Karnataka has 5 police stations in three districts. Mangalore coastal security police station in Dakshina Kannada district, Malpe coastal security

<sup>71</sup> G. N. Nayak in 'Coastal Issues and Concerns: Challenges for the Research Community', *Prepared by Consortium of Coastal Academic Institutions for the National Centre for Sustainable Coastal Management (NCSCM)*, Ministry of Environment and Forests Government of India, New Delhi and Anna University, Chennai, 21 June 2010, pp. 33-4.

<sup>72</sup> H.R.V. Reddy in 'Coastal Issues and Concerns: Challenges for the Research Community', *Prepared by Consortium of Coastal Academic Institutions for the National Centre for Sustainable Coastal Management (NCSCM)*, Ministry of Environment and Forests Government of India, New Delhi and Anna University, Chennai, 21 June 2010, p. 27.

<sup>73</sup> Ganapathiraju Pramod, *op cit.*, pp. 12-3.

police station in Udupi District, Bhatkala, Kumta and Karwar coastal security police station in Uttara Kannada District. All the 5 Coastal Police Stations are functioning properly.<sup>74</sup> However, under the second phase of CSS, funds for construction of another 4 Coastal Police Stations have been released to State of Karnataka.<sup>75</sup>

Kerala state has 590 km coastline with continental shelf of 36,000 km<sup>2</sup> supporting 29,177 fishing crafts of which 5504 vessels were mechanized, 14,151 motorized and 9522 non-motorized fishing crafts. Of the vessels operating along Kerala coast, trawlers comprised (72%), ring seiners (8%) and gillnetters (7.8%) in the mechanized sector.<sup>76</sup>

The state of West Bengal has a 158 km coastline with continental shelf of 17,000 km<sup>2</sup> supporting 18,646 fishing crafts of which 15,444 were traditional non-motorized craft, 1776 were motorized and 6829 mechanized vessels (610 trawlers).<sup>77</sup> In the case of West Bengal, large numbers of districts are exposed to the coast (as can be seen from the Map depicting coastal districts of West Bengal). The coastline of West Bengal along the Bay of Bengal is dominated by the Ganga delta, which covers around 60 per cent of this coastline. This is being attacked by sea waves and destructive tidal currents, which have produced erosive transgression over the sub-aerial part of the sub-delta. Frequent embankment failures, submergence and flooding, beach erosion and siltation at jetties and navigational channels, cyclones and storm surges are all making this area increasingly vulnerable.<sup>78</sup>

Illegal incursion of Bangladeshi fishing trawlers to fish in the West Bengal's rich estuarine waters has been regular phenomena. However, due to intense patrolling by the Coast Guard, these vessels have been observed moving towards Orissa's territorial waters. Many such Bangladesh trawlers have been arrested by both the Forest Department and the Coast Guard along the Orissa Coastline in recent years.<sup>79</sup> At present, the state has a total of 14 coastal police stations approved under Phase-I and phase-II of the Coastal Security Scheme and maintain regular surveillance and patrolling along the coast line.<sup>80</sup>

<sup>74</sup> See, 'Coastal Security Scheme', *Report Prepared by Department-Related Parliamentary Standing Committee on Home Affairs*, Report No. 177, Parliament of India, Rajya Sabha, February 2014, p. 12.

<sup>75</sup> *Ibid.*, p. 13.

<sup>76</sup> Ganapathiraju Pramod, *op cit.*, p. 13.

<sup>77</sup> *Ibid.*, p. 16.

<sup>78</sup> Abhijit Mitra in 'Coastal Issues and Concerns: Challenges for the Research Community', *Prepared by Consortium of Coastal Academic Institutions for the National Centre for Sustainable Coastal Management (NCSCM)*, Ministry of Environment and Forests Government of India, New Delhi and Anna University, Chennai, 21 June 2010, p. 2.

<sup>79</sup> Ganapathiraju Pramod, *op cit.*, p. 16.

<sup>80</sup> See, 'Coastal Security Scheme', *Report Prepared by Department-Related Parliamentary Standing Committee on Home Affairs*, Report No. 177, Parliament of India, Rajya Sabha, February 2014, p. 13.

**Map 1.4**  
**Coastal Districts of West Bengal**



**Source:** Abhijit Mitra in 'Coastal Issues and Concerns: Challenges for the Research Community', *Prepared by Consortium of Coastal Academic Institutions for the National Centre for Sustainable Coastal Management (NCSCM)*, Ministry of Environment and Forests Government of India, New Delhi and Anna University, Chennai, 21 June 2010, p. iii.

The state of Orissa state has 485 kms of coastline with continental shelf of 26,000 km<sup>2</sup> supporting 23,740 fishing craft of which 15,444 were traditional non-motorized craft, 4719 were motorized and 3577 mechanized vessels (1340 trawlers).<sup>81</sup> The state covers six coastal districts which are frequently ravaged by cyclonic storms and associated flood causing colossal loss of life and property almost every year. The state is considered to be least developed as it has just one major port and 3-4 minor/fishing ports. Two major ports at Gopalpur and Dhamra are coming up with private partnership. In addition to which the government of Orissa has signed MoU for six ports, while it has proposal to construct 17 more ports.<sup>82</sup>

<sup>81</sup> Ibid., p. 16.

<sup>82</sup> P.K. Mohanty in 'Coastal Issues and Concerns: Challenges for the Research Community', *Prepared by Consortium of Coastal Academic Institutions for the National Centre for Sustainable Coastal Management (NCSCM)*, Ministry of Environment and Forests Government of India, New Delhi and Anna University, Chennai, 21 June 2010, pp. 5, 8.

**Map 1.5**  
**Coastal Districts of Odisha**



**Source:** P.K. Mohanty in 'Coastal Issues and Concerns: Challenges for the Research Community', *Prepared by Consortium of Coastal Academic Institutions for the National Centre for Sustainable Coastal Management (NCSCM)*, Ministry of Environment and Forests Government of India, New Delhi and Anna University, Chennai, 21 June 2010, p. 4.

Various strategic installations are located on the coast such as Gopalpur Port, IRE, Matikhal and INS, Chilka under Ganjam district, Paradip Port, proposed POSCO project and Oil Refinery Project under Jagatsinghpur district, Dhamara Port, Wheeler Island (DRDO installation) in bhadrak District, ITR and P&EE, Chandipur in Balasore district. To ensure the protection of the coastline and the strategic installations, as many as 5 Marine Police Stations (MPS) have been operationalised in the phase-I of CSS and in the 2nd phase additional 13 Marine Police Stations are in process of being set up. The State Government has further stated that the five Marine Police Stations in Odisha are patrolling the sea line. Each Marine Police Station has been provided with 22 Ex-Navy personnel to operate the boats.<sup>83</sup>

Andhra Pradesh has a 974 km coastline with continental shelf of 33,000 km<sup>2</sup> supporting 41,039 fishing crafts of which 24,386 were traditional non-motorized craft, 14,112 were motorized and 2541 mechanized vessels (1802 trawlers).<sup>84</sup> The coastline is densely populated with more than 30 million people living on the coast. The coastal population constitutes 40 per cent of the total state population. These coastal populations mostly depend on the coastal and marine resources and partially on agriculture, aquaculture and industries located along the coastal zone. There are nine coastal districts in the state comprising of 508 fishing villages supported by an equal number of fish landing centers. Presently, there are five major harbours viz. Visakhapatnam, Kakinada, Nizampatnam, Machilipatnam and Krishnapatnam, which

<sup>83</sup> See, 'Coastal Security Scheme', *Report Prepared by Department-Related Parliamentary Standing Committee on Home Affairs*, Report No. 177, Parliament of India, Rajya Sabha, February 2014, p. 14.

<sup>84</sup> Ganapathiraju Pramod, *op cit*, p. 15.

actively support fishing and other port operations. More than 9000 mechanized boats and 50000 traditional crafts operated from the coastal districts of Andhra Pradesh.<sup>85</sup>

**Map 1.6**  
**Coastal Districts of Andhra Pradesh**



**Source:** P. Rajendra Prasad in ‘Coastal Issues and Concerns: Challenges for the Research

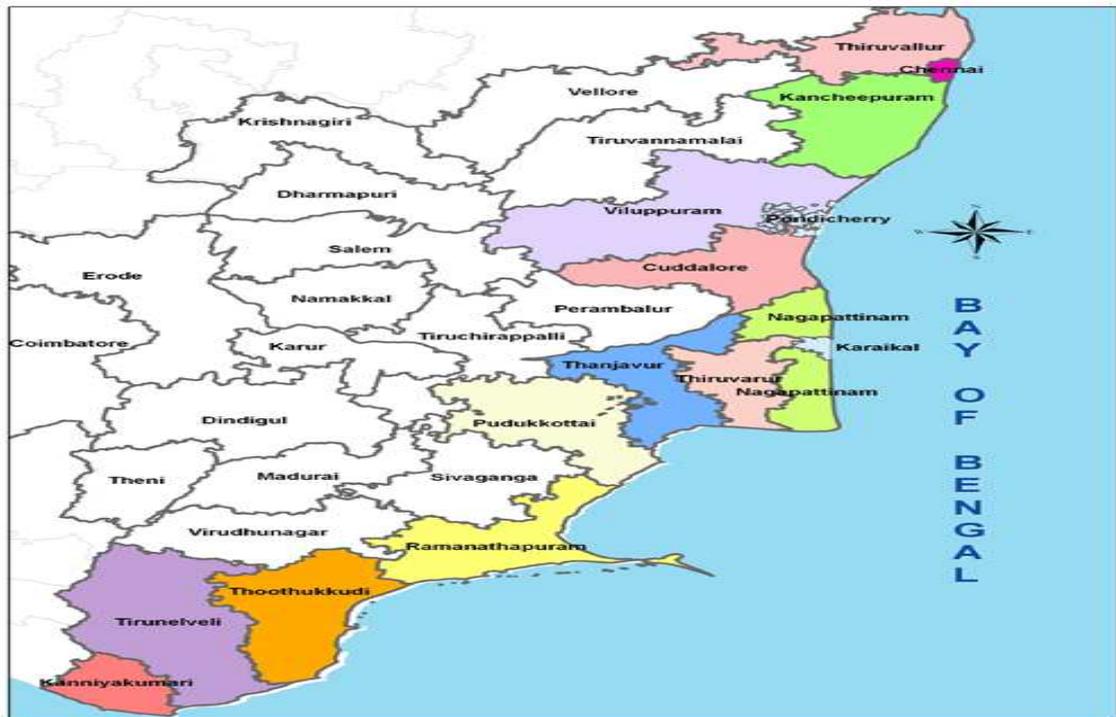
Community’, *Prepared by Consortium of Coastal Academic Institutions for the National Centre for Sustainable Coastal Management (NCSCM)*, Ministry of Environment and Forests Government of India, New Delhi and Anna University, Chennai, 21 June 2010, p. 12.

The state comprises of 4 major and 10 minor ports that serve as India’s gateways to East and Southeast Asia. Around 3.13 lakh fishermen that operate over 70,000 vessels on the coast experience varying climatic conditions as droughts in the summer turn to severe floods and cyclones with the arrival of the monsoons.<sup>86</sup>

<sup>85</sup> P. Rajendra Prasad in ‘Coastal Issues and Concerns: Challenges for the Research Community’, *Prepared by Consortium of Coastal Academic Institutions for the National Centre for Sustainable Coastal Management (NCSCM)*, Ministry of Environment and Forests Government of India, New Delhi and Anna University, Chennai, 21 June 2010, p. 13.

<sup>86</sup> See, ‘*Smart Border Management: Indian Coastal and Maritime Security*, *op cit.*, p. 21.

**Map 1.7**  
**Coastal Districts of Tamil Nadu**



**Source:** K. S. Kavikumar in 'Coastal Issues and Concerns: Challenges for the Research Community', *Prepared by Consortium of Coastal Academic Institutions for the National Centre for Sustainable Coastal Management (NCSCM)*, Ministry of Environment and Forests Government of India, New Delhi and Anna University, Chennai, 21 June 2010, p. 19.

The state of Tamil Nadu has the second largest coastline of 1, 076 km. The type of coastline in the state is characterized by sandy beach, muddy flats, rocky coast, marshy coast, etc. It has a total of 12 coastal districts.<sup>87</sup> Its coast is home to 12 coast houses, 2 major seaports, 13 minor seaports, fishing harbours and a variety of coastal industries such as nuclear thermal power plants, refineries, fertilisers and marine chemicals.<sup>88</sup> The state has a continental shelf of 41,000 km<sup>2</sup> supporting 54,420 fishing crafts of which 24,448 were traditional non-motorized craft, 22,312 were motorized and 7618 mechanized vessels (5256 trawlers; 2361 gillnetters, purse seiners, liners, dol-netters).<sup>89</sup>

<sup>87</sup> See Tamil Nadu Information in, 'Centre for Coastal Zone Management and Coastal Shelter Belt', Institute for Ocean Management, Anna University, Chennai, Sponsored by Ministry of Environment, Forests & Climate Change, Government of India, available at <<http://iomenvis.nic.in/index3.aspx?sslid=883&subsublinkid=112&langid=1&mid=>>.

<sup>88</sup> See, 'Smart Border Management: Indian Coastal and Maritime Security, *op cit.*, p. 20.

<sup>89</sup> Ganapathiraju Pramod, *op cit.*, p. 15.

**Map 1.8**  
**Coastal Districts of Kerala**



**Source:** K.V. Thomas in 'Coastal Issues and Concerns: Challenges for the Research Community', *Prepared by Consortium of Coastal Academic Institutions for the National Centre for Sustainable Coastal Management (NCSCM)*, Ministry of Environment and Forests Government of India, New Delhi and Anna University, Chennai, 21 June 2010, p. 24.

The State of Kerala lies along the southwest coast of India. It has long seashore of 590 km and over 200,000 ha brackish water bodies. This spreads over 221 marine and 113 inland fishing villages. The density of population is one of the highest in the country the average density of the coastal area is over 2000 per sq. km. The coastal literacy rate is the highest in the country.<sup>90</sup> It has one major port, namely the port in Kochi, along with 3 intermediate and 14 minor ports.<sup>91</sup>

#### **India's Stakes in Coastal Security:**

India has so many maritime interests that need to be marked and safeguarded, especially in coastal areas. These interests include protection of coastal assets, sea routes, energy security, fisheries, mining, maritime trade and disaster management at sea, etc. At the same time, the rising maritime security threats and challenges are multifarious in nature and magnitude. India's maritime interests also lie in safeguarding its offshore oil and gas fields, continuing deep-sea oil drilling enterprises in its exclusive economic zone, and an extensive infrastructure of coastal and offshore oil and gas wells, ports and pipeline grids, and refineries.

<sup>90</sup> K.V. Thomas in 'Coastal Issues and Concerns: Challenges for the Research Community', *Prepared by Consortium of Coastal Academic Institutions for the National Centre for Sustainable Coastal Management (NCSCM)*, Ministry of Environment and Forests Government of India, New Delhi and Anna University, Chennai, 21 June 2010, p. 23.

<sup>91</sup> See, 'Smart Border Management: Indian Coastal and Maritime Security, *op cit.*, p. 22.

The issues at stake for India are the protection of her long coastline, her island territories, and the trade routes through which her imports and exports pass. An important related issue for India is to develop the vast economic resources in its 200-mile long economic zone in the Indian Ocean and provide them as well as her island territories and ports adequate security.

As a maritime nation, India has huge responsibilities because sea frontiers are as significant as land borders. Managing sea frontiers is a difficult task given the host of varied non-conventional and asymmetric threats that have emerged over the years. India has more maritime borders with other countries than it does with its land borders. Any trouble originating in either the Andaman Sea or the Bay of Bengal can threaten India's strategic interests. Currently, there are a number of maritime security threats originating from the Indian Ocean such as piracy, armed robbery, maritime terrorism, narco-terrorism, gun-running, marine pollution and poaching, etc. These threats pose a major challenge to India as they endanger peace and security in its maritime domain. Another security concern for India is Pakistan's competition on the maritime front, Pakistan's links with the Maldives and Sri Lanka, and its sponsorship of jihadist groups that attempt to enter India across the intervening waters.

India as coastal state are responsible for exercising control over criminal acts that occur within their territorial seas, while flag states are responsible for controlling criminal acts committed on high seas. The coastal states in the region, however, do not have sufficient power to exercise this responsibility. Similarly, in the case of ships navigating under flags of convenience, the flag states may also not possess sufficient power. Furthermore, maritime states do not exercise jurisdiction over marine crimes committed in territorial seas of other nations. They only have the authority to control piracy under international law. This situation makes it extremely difficult to suppress the modern piracy that occurs frequently on the seas of South-East Asia. According to the United Nations Convention on the Law of the Sea (UNCLOS), all states are responsible for cooperating as much as possible in the suppression of acts of piracy committed on the high seas and seas that are not under the national jurisdiction.<sup>92</sup> The suppression of piracy within territorial seas is primarily the responsibility of the national security forces of the coastal states, and the problem lies in their ability to guard their territorial seas.

Coastal areas have played an important role in the socio-economic development of a country primarily because seaborne trade remains the cheapest method of transporting large quantities of goods over long distances. Today's globalization requires movement of large quantities of raw materials and finished goods, and consequently there is strong emphasis on the development of ports and harbours. Concomitantly, the areas around the port are also under development pressure – for industries, tourism and settlements.<sup>93</sup>

<sup>92</sup> See, *United Nations Convention on the Law of the Sea*, Article 100.

<sup>93</sup> Ahana Lakshmi, et al. (eds.), "The Challenged Coast of India", *A Report Prepared By Pondycan in Collaboration With Bnhs and Tiss*, October 2012.