ARBITRATION UNDER ANNEX VII OF THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA

PEOPLE'S REPUBLIC OF BANGLADESH

V.

REPUBLIC OF INDIA

MEMORIAL OF BANGLADESH

VOLUME I

31 MAY 2011

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CHAPTER 1
INTRODUCTION

1.1 Bangladesh initiated these proceedings against the Republic of India on 8 October 2009, when it filed a Notification and Statement of Claim under Article 287 and Annex VII of the 1982 United Nations Convention on the Law of the Sea ("UNCLOS" or "the 1982 Convention").[1] In conformity with Article 3(b) of Annex VII, Bangladesh nominated Professor Vaughan Lowe QC as its party-appointed arbitrator in its Statement of Claim.

1.2 Acting within the 30-day period provided in Annex VII Article 3(c), India sent Bangladesh a Note Verbale dated 6 November 2009 in which it, *inter alia*, identified Dr. P. Sreenivasa Rao as its party-appointed arbitrator.[2]

1.3 Pursuant to Article 3(d) of Annex VII, Bangladesh and India subsequently made efforts to agree on the other three members of the Arbitral Tribunal. After several exchanges, however, they were unable to do so.

1.4 While the Parties were consulting regarding the constitution of the Arbitral Tribunal, on 13 December 2009, Bangladesh declared that it would accept the jurisdiction of the International Tribunal for the Law of the Sea ("ITLOS") in regard to this dispute.[3] India declined to make a corresponding declaration.

1.5 Given the Parties' inability to agree either (1) to submit the dispute to ITLOS, or (2) on the composition of the Arbitral Tribunal, by letter dated 13 December 2009 Bangladesh invited the President of ITLOS, Judge José Luis Jesus, to perform the role of appointing authority as contemplated in Article 3(e) of Annex VII. President Jesus subsequently invited representatives of Bangladesh and India to Hamburg to engage in the consultations required by Article 3(e). Following those consultations, President Jesus appointed Judge Rüdiger Wolfrum, Judge Tullio Treves, and Professor Ivan Shearer to be the three other members of the Arbitral Tribunal on 12 February 2010. At the same time, Judge Jesus appointed Judge Wolfrum President of the Arbitral Tribunal.

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1 Government of Bangladesh, Statement of Claim and Notification under UNCLOS Article 287 and Annex VII, Article 1 (8 October 2009). MB, Vol. III, Annex B26.

2 *Note Verbale* from the Indian Ministry of External Affairs to the Bangladesh High Commission, New Delhi, No. 3682/JS(BSM)09 (6 November 2009). MB, Vol. III, Annex B27.

3 *Note Verbale* from the Bangladesh Ministry of Foreign Affairs to the Indian High Commission, Dhaka, No. MOFA/UNCLOS/320/1/121 (13 December 2009). MB, Vol. III, Annex B28.

1.6 The first meeting of the Arbitral Tribunal was held in Heidelberg on 26 May 2010 at which time the *Rules of Procedure for the Arbitral Tribunal Constituted under Annex VII* were adopted. In the *Rules of Procedure*, the Parties agreed, among other things, that the Permanent Court of Arbitration (the "PCA") would act as Registrar in this case.

1.7 On 18 August 2010, Professor Lowe informed the Tribunal and the Registrar that he was stepping down as Bangladesh's party-appointed arbitrator. Acting in conformity with Article 6(a) of the *Rules of Procedure*, Bangladesh appointed Judge (ret.) Thomas E. Mensah to replace Professor Lowe on 13 September 2010.

1.8 Article 9 of the *Rules of Procedure* fixed the dates for the filing of the Memorial by Bangladesh as 31 May 2011, the Counter-Memorial of India as 31 May 2012, the Rejoinder of Bangladesh as 30 November 2012, and the Rejoinder of India as 31 May 2013. This Memorial is submitted in accordance with the agreed schedule.

* * *

1.9 In bringing these proceedings, Bangladesh has maintained its longstanding commitment to the rule of law in international relations. The initiative is premised on the availability of the dispute settlement system established by the 1982 Convention, which Bangladesh signed in 1982 and to which it became a party on 27 July 2001.[4] India ratified the Convention on 21 May 1996.[5] Bangladesh noted and was inspired by the preamble of the Convention, namely, to "promote the peaceful uses of the seas and oceans". Bangladesh also expresses the hope that these proceedings will enable the Parties to resolve a long-standing dispute, and to strengthen cooperation and friendly relations between these two neighbouring coastal States.

I. Reasons for the Institution of Proceedings Against India

1.10 Bangladesh has brought these proceedings for three related reasons. *First*, as noted, to bring to an end the long-standing dispute between the two States that is undermining their efforts to develop the resources associated with the maritime spaces adjacent to their coasts, including reserves of oil and gas. S*econd*, to obtain a definitive ruling on the delimitation of the maritime spaces that connect Bangladesh and India, including the

4 *See* Multilateral treaties deposited with the Secretary-General, U.N. Convention on the Law of the Sea (available at http://untreaty.un.org/ENGLISH/bible/englishinternetbible/partI/chapterXXI/treaty6.asp).

5 *Ibid.*

territorial sea, exclusive economic zone ("EEZ") and continental shelf up to and beyond 200 nautical miles ("M"). And *third*, to ensure that Bangladesh definitively establishes its rights under international law to have access to the resources of its outer continental shelf in the area beyond 200 M.

1.11 Bangladesh's case is set out in its Statement of Claim of 8 October 2009. It was prompted to bring these proceedings because, despite negotiations spanning more than three decades, it proved to be impossible for the Parties to reach agreement on an equitable delimitation of any portion of their maritime boundary. The failure to reach agreement has already had significant adverse consequences for the development of Bangladesh, in particular by limiting its ability to explore, exploit, and develop the natural resources to be found in the offshore areas.

1.12 Throughout the negotiations, India insisted on equidistance as the basis for any delimitation. Bangladesh made clear throughout that it could not accept an equidistance-based solution because it would not yield the "equitable solution" that the 1982 Convention requires. Bangladesh recognises that equidistance can produce an equitable result in certain geographic contexts but this is not such a case. The geographic conditions of this case are unique, and do not lend themselves, if an equitable result is to be achieved, to the formulaic approach adopted by India.

1.13 The fundamental geographic reality of this case is that Bangladesh sits in a broad and deep concavity at the northern limit of the Bay of Bengal, with India to its west and Myanmar to its east. Because of the effects of this concavity, equidistance lines drawn between Bangladesh and each of its neighbours converge a short distance in front of the coast, cutting off Bangladesh's maritime projection into the Bay.

1.14 The inequitableness of equidistance to Bangladesh may be seen in **Figure 1.1** (following page 4), which shows the combined effect of the equidistance lines claimed by India and Myanmar.[6] The two lines intersect 190 M from the Bangladesh coast. Despite Bangladesh's substantial coastal frontage onto the Bay of Bengal, equidistance would prevent it from reaching even the 200 M limit, and leave it with a small triangle of maritime space that is dwarfed by the areas claimed by India and Myanmar.

1.15 This case presents geographic circumstances substantially similar to those in the *North Sea Continental Shelf Cases* decided by the International Court of Justice ("ICJ") in

6 The line depicted reflects the equidistance line claimed by Myanmar in its Counter-Memorial of 1 December 2010 in the separate proceeding between Bangladesh and Myanmar currently pending before ITLOS.

1969.[7] Bangladesh's geographic situation is equivalent to that of the Federal Republic of Germany (as it then was), which was located in a similar concavity formed by the North Sea coast between Germany's borders with Denmark (to the north) and the Netherlands (to the west). Like Bangladesh, equidistance lines drawn between Germany and its two neighbours cut off its maritime projection very near the coast. Germany's central contention before the ICJ was that, given the geographic circumstances, equidistance did not yield an equitable result. The Court agreed and its Judgment remains a landmark in the history of maritime delimitation jurisprudence.

1.16 The inequitableness of equidistance to Bangladesh was recognized in the course of the proceedings in the *North Sea Cases*. In making its submission to the ICJ about the inequities equidistance can produce in certain geographic contexts, Germany specifically invoked the example of East Pakistan (now Bangladesh). In particular, Germany used a schematic depiction of equidistance lines drawn between East Pakistan and India, and East Pakistan and Burma (now Myanmar) to demonstrate the effects of a concave coastline on the direction of the equidistance lines. The figure from Germany's written pleadings is reproduced here as **Figure 1.2** below.

FIGURE NO. 9 FROM THE MEMORIAL SUBMITTED BY THE FEDERAL REPUBLIC OF GERMANY: 21 AUGUST 1967

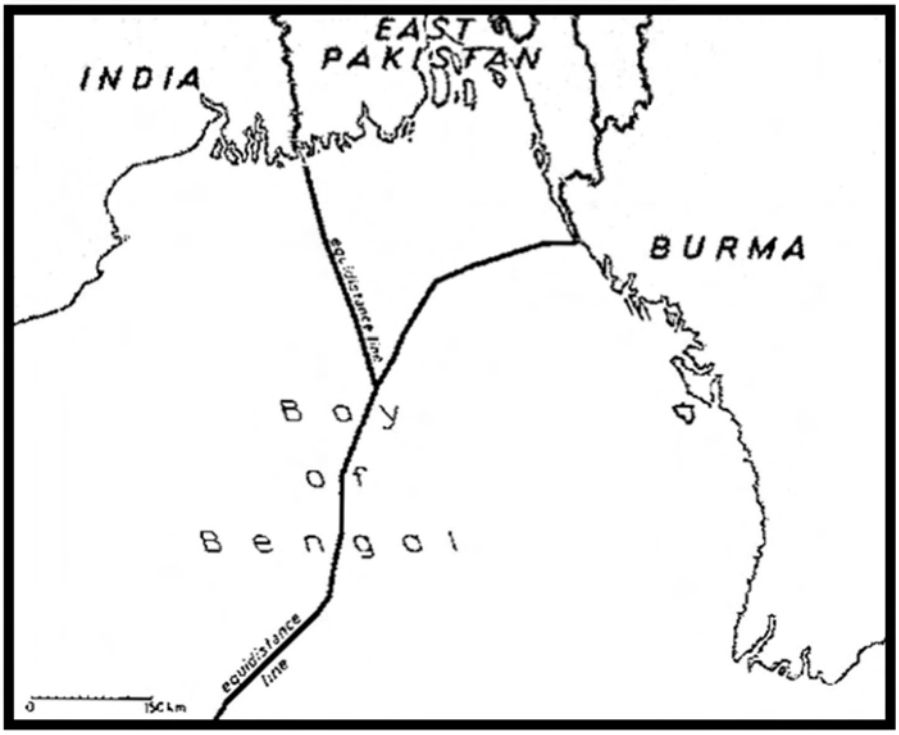

Figure 1.2

7 *North Sea Continental Shelf (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands)*, Judgment, I.C.J. Reports 1969, p. 3.

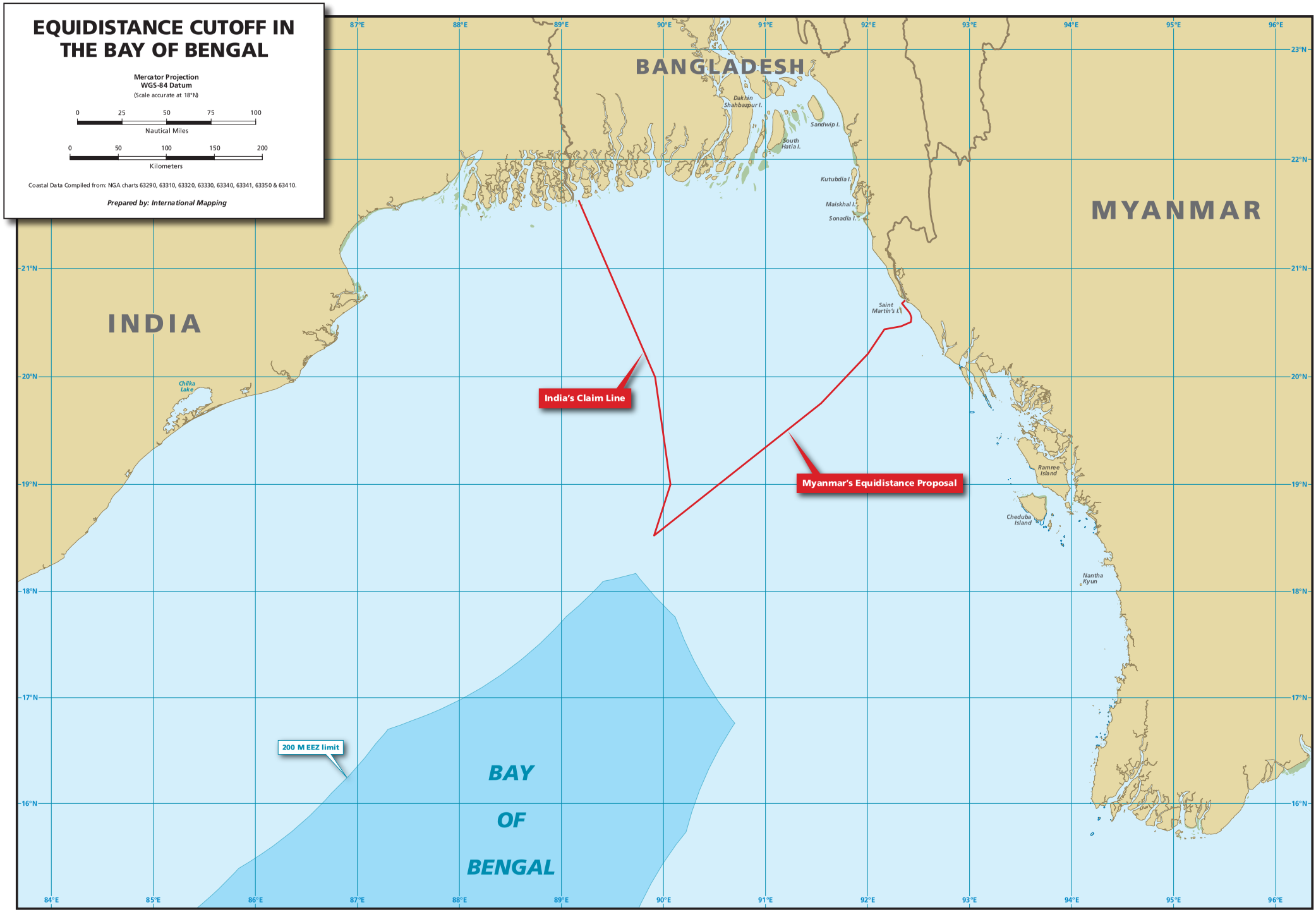
EQUIDISTANCE CUTOFF IN THE BAY OF BENGAL
Mercator Projection
WGS-84 Datum
(Scale accurate at 18°N)
0 25 50 75 100
Nautical Miles
0 50 100 150 200
Kilometers
Coastal Data Compiled from: NGA charts 63290, 63310, 63320, 63330, 63340, 63341, 63350 & 63410.
Prepared by: International Mapping
BANGLADESH
MYANMAR
INDIA
Dakhin Shahbazpur I.
Sandwip I.
South Hatia I.
Kutubdia I.
Maiskhal I.
Sonadia I.
Saint Martin's I.
Chilka Lake
Ramree Island
Cheduba Island
Nantha Kyun
India's Claim Line
Myanmar's Equidistance Proposal
200 M EEZ limit
BAY OF BENGAL
87°E
88°E
89°E
90°E
91°E
92°E
93°E
94°E
95°E
96°E
23°N
22°N
21°N
20°N
19°N
18°N
17°N
16°N
84°E
85°E
86°E

Figure 1.1

1.17 Bangladesh's case against the use of equidistance to delimit its maritime boundaries is even stronger than Germany's. Unlike Germany, nature has endowed Bangladesh with a substantial entitlement in the continental shelf beyond 200 M. As described in Chapters 2 (relating to the geography, geology, and geomorphology of the Bay of Bengal) and 7 (relating to the delimitation of the continental shelf beyond 200 M), Bangladesh has an extensive "natural prolongation" in the seabed and subsoil of the Bay of Bengal that extends substantially more than 200 M from its coast.

1.18 The land territory of Bangladesh is joined to the seabed and subsoil in the Bay by a unitary process of deposition and erosion that has (1) lifted much of Bangladesh's landmass out of the sea, and (2) shaped the highly unusual seabed throughout the Bay. Each year, the on-going erosion of the Himalaya Mountains transports over a thousand million tons of sediment first to the Bengal Delta and thence out into the Bay of Bengal. As it has passed through the Delta, much of this sedimentary rock has accreted onto the existing landmass, extending the Bengal Delta's land territory further and further into the Bay over time. Since the end of the last ice age, for example, the land territory in the area has been extended an additional 100 km seaward. The sediment that does not remain in the Delta is carried to the sea where it is deposited on the seafloor, which it now blankets in layers up to 24 km thick. The water line thus represents a wholly nominal – and constantly changing – distinction between the land territory of Bangladesh and the seabed in the Bay of Bengal.

1.19 For these reasons, the prospect of enclaving Bangladesh within just 190 M of its coast, as the equidistance lines claimed by its coastal neighbours would do, is even more inequitable than would have been the case for Germany, which has no similar entitlement. Equidistance boundaries would frustrate Bangladesh's ability to exercise sovereign rights beyond 200 M and would be inconsistent with the "equitable solution" for which UNCLOS calls.

1.20 Because the ICJ was not called upon to delimit the continental shelf in the North Sea but merely to determine whether or not equidistance was an appropriate delimitation methodology, its Judgment in the *North Sea Cases* does not provide guidance on the manner in which a delimitation should be effected in geographic circumstances like those existing in the Bay of Bengal. Other cases, however, do suggest an alternative. In situations where recourse to equidistance is inappropriate, the ICJ and international arbitral tribunals have relied on the angle-bisector methodology. This approach, first used in 1984 in the

Gulf of Maine case[8] and as recently as 2007 in *Nicaragua v. Honduras*,[9] involves depicting the general direction of the Parties' coastlines by means of straight-line coastal façades. The angle formed at the intersection of those lines is then bisected to yield the direction of the delimitation line.

1.21 Unlike an equidistance line, which can be affected by every irregular or anomalous feature, however insignificant, the angle-bisector method is based on a macro-geographic depiction of reality and therefore frequently yields results that are more consistent with the overall geography of a given set of coasts, especially in the case of adjacent States. The angle-bisector method is particularly useful in cases like this, where an unstable and changeable coastline makes it difficult to fix appropriate basepoints from which to draw a reliable equidistance line.

1.22 As described in Chapter 6 (relating to the delimitation of the continental shelf within 200 M and the EEZ), applying the angle-bisector method in the northern Bay of Bengal has the singular advantage of minimizing, although not eliminating, the distorting effects of the concavity within which Bangladesh is located. The angle-bisector method produces an equitable result in that it enables Bangladesh both to reach its 200 M limit and to access its natural prolongation in the continental shelf beyond 200 M. And it accomplishes this in a manner that is equitable for India.

1.23 Beyond 200 M, a different delimitation methodology is appropriate. Both the text of UNCLOS and the relevant jurisprudence establish that the criteria applicable to the delimitation of the outer continental shelf are distinct from those pertaining in the area within 200 M. Within 200 M, the 1982 Convention makes it clear that distance from the coast is the primary determinant of entitlement. Beyond 200 M, however, that is not the case. Instead, Article 76 of UNCLOS provides that entitlement is determined by the geological and geomorphological factors that inform the juridical concept of "natural prolongation".

1.24 As demonstrated in Chapters 2 and 7, and based on well-established geological and geomorphological realities, the natural prolongation of Bangladesh extends well beyond 200 M from its coast, to an outer limit that is defined by a line drawn 100 M beyond the 2,500 metre isobath, pursuant to Article 74(5) of UNCLOS. Although India also has a natural prolongation into the Bay beyond 200 M, that natural prolongation derives from

8 *Delimitation of the Maritime Boundary in the Gulf of Maine Area (Canada/United States of America)*, Judgment, I.C.J. Reports 1984, p. 246.

9 *Territorial and Maritime Dispute between Nicaragua and Honduras in the Caribbean Sea (Nicaragua v. Honduras)*, Judgment, I.C.J. Reports 2007.

the small portion of India's land territory located in the Bengal Delta abutting Bangladesh. The delimitation that Bangladesh proposes in Chapter 7 takes account of these facts and fashions an equitable solution that recognizes significant areas of outer shelf space for both States.

1.25 Against this background, the Tribunal will also be aware that Bangladesh is involved in simultaneous proceedings with Myanmar before ITLOS. Those proceedings are on a faster track and oral hearings on the merits are scheduled to begin on 8 September 2011.

II. Structure of the Memorial

1.26 Bangladesh's Memorial consists of five volumes. Volume I comprises the main text of the Memorial, together with the most illustrative maps and figures, while Volumes II through IV contain supporting materials. Volume II contains a full set of maps and figures. Volumes III and IV contain documentary annexes arranged in the following order: treaties and agreements; legislation and regulations; government documents; documents pertaining to these arbitral proceedings; UN documents; books and articles; and scientific papers and manuscripts. Volume V contains the judgments of *ad hoc* arbitral tribunals concerning maritime delimitation matters, some of which are difficult to access electronically and are therefore reproduced here for the convenience of the Tribunal.

1.27 The main text of the Memorial, Volume I, consists of seven Chapters, including this Introduction, followed by Bangladesh's Submissions. **Chapter 2** describes the unique geographical setting of this dispute, including in particular the coastlines and other features that are relevant to the delimitation. It also addresses the geology and geomorphology of the Bay of Bengal, including the seabed and subsoil of the Bay. As will be seen, the core geographic facts of this case are the concave configuration of the Bay's north littoral combined with the instability of the Parties' deltaic coasts. With respect to geology, the central element is the clear physical continuity between the land territory of the Bengal Delta, and the seabed and subsoil in the Bay beyond 200 M. By contrast, the landmass of peninsular India south of the Bengal Delta does not share the same degree of continuity with the Bay's seafloor. And India's Andaman Islands on the eastern margin of the Bay of Bengal are separated from the seabed in the rest of the Bay by a tectonic plate boundary located just 50 M from their coast.

1.28 **Chapter 3** relates the history of the dispute, including the Parties' maritime legislation, the history of their negotiations and the extent of their respective claims in the outer

continental shelf beyond 200 M. As will be shown, despite extensive efforts spanning more than three decades, Bangladesh and India have not been able to reach an agreement of any kind concerning the delimitation of any part of their maritime boundary. In addition to their competing claims within 200 M, Bangladesh and India also have substantially overlapping claims in the outer continental shelf beyond 200 M.

1.29 **Chapter 4** sets forth the basis of the Tribunal's jurisdiction to delimit the entire maritime boundary between Bangladesh and India. Jurisdiction arises directly from Articles 287 and 288 of UNCLOS. This Chapter also addresses the jurisdiction of the Tribunal to delimit the outer continental shelf, which is not affected by the competence of the Commission on the Limits of the Continental Shelf ("CLCS") under the 1982 Convention to make recommendations on the delineation of the outer limits of the continental shelf.

1.30 **Chapter 5** addresses the delimitation of the territorial sea. It begins by showing that the land boundary terminus between the Parties – and thus the starting point for the maritime boundary in the territorial sea – was fixed in 1947 at the time of the dissolution of the British Indian Empire into the Dominions of India and Pakistan. The Chapter then turns to a discussion of the applicable law and shows that the unique geographic facts of this case, including both the instability of the Parties' coastlines and the concave configuration of the Bay's north coast, mean that the equidistance method cannot be used for any part of the maritime delimitation, including in the territorial sea. Instead, for the reasons more fully elaborated in Chapter 6, which constitute "special circumstances" under Article 15 of UNCLOS, the boundary in the territorial sea should be based on the angle-bisector method.

1.31 **Chapter 6** addresses the delimitation of the continental shelf within 200 M and the exclusive economic zone. It begins by reviewing the legal regime applicable to the continental shelf and EEZ with a particular emphasis on the case law relating to the delimitation of these areas. It then examines the application of the existing jurisprudence in the particular context of the northern Bay of Bengal. It sets out in detail the reasons why, in this context, equidistance does not produce the "equitable solution" required by Articles 74 and 83 of UNCLOS. This Chapter then proposes an approach that does lead to an equitable result; namely, the angle-bisector methodology that has been adopted by the ICJ and arbitral tribunals where equidistance is inappropriate. As will be seen, the angle-bisector yields a result that is consistent with the dominant geographic realities of this case and, most importantly, is fully equitable to both Parties. The result consists of an angle bisector of 180 degrees extending due south into the Bay of Bengal from the Parties' land boundary terminus in the Bengal Delta.

1.32 **Chapter 7** addresses the factual and legal issues relating to the Parties' entitlements in, and the delimitation of, the continental shelf beyond 200 M. The basis of entitlement beyond 200 M is the juridical concept of "natural prolongation" first expounded by the ICJ in the *North Sea Continental Shelf Cases* in 1969 and subsequently incorporated into Article 76 of the 1982 Convention. As will be shown, the natural prolongation of the Bengal Delta extends into the seabed and subsoil of the Bay of Bengal well beyond 200 M of the coast. As a result, Bangladesh has an indisputable entitlement in the area. Because it too has a presence in the Bengal Delta (albeit smaller than that of Bangladesh), India also has a legitimate claim in the outer continental shelf. That claim, however, derives primarily from India's limited portion of the Bengal Delta. India's peninsular landmass south and west of the Bengal Delta does not have a comparable prolongation into the Bay; it is at best adjacent to the natural prolongation emanating from the Bengal Delta, which covers virtually the entire seafloor of the Bay of Bengal from west to east and north to south. India's Andaman Islands on the eastern margins of the Bay have no natural prolongation beyond some 50 M from their coast, where they are separated from the rest of the Bay of Bengal seafloor by a tectonic plate boundary. The equitable solution Bangladesh proposes in Chapter 7 takes appropriate account of these critical geological facts, attributing to Bangladesh the area beyond 200 M congruent with its claim and leaving to India the substantially larger area of outer continental shelf south of the Bangladesh claim limit.

1.33 This Memorial concludes by setting out Bangladesh's Submissions.

CHAPTER 2
THE GEOGRAPHY, GEOLOGY AND GEOMORPHOLOGY OF BANGLADESH, INDIA AND THE BAY OF BENGAL

2.1 This Chapter describes the geographical, geological, and geomorphological circumstances relevant to the delimitation of the maritime boundary between Bangladesh and India in the Bay of Bengal. **Section I** describes the geographical circumstances, which are most pertinent to the delimitation of the maritime boundary *within* 200 M. **Section II** addresses the geological and geomorphological circumstances, which are most pertinent to the delimitation of the maritime boundary in the continental shelf *beyond* 200 M.

2.2 As discussed in greater detail in the pages to follow, the most significant geographical circumstance pertinent to the delimitation within 200 M is the fact that Bangladesh lies entirely within a major concavity along the northern coast of the Bay of Bengal. Moreover, much of the Bangladesh coastline itself consists of a second deep concavity that lies within the overall concavity formed by the Bay's north coast. Due to the effects of this double concavity, using the equidistance method to delimit its maritime boundaries would severely prejudice Bangladesh. As depicted in Figure 1.1 (following page 4), the equidistance lines claimed by India and Myanmar intersect well within 200 M of the Bangladesh coast, inequitably truncating its maritime space and preventing it from reaching any part of its indisputable entitlement in the outer continental shelf.[1]

2.3 As also discussed in greater detail below, the most important geological and geomorphological circumstance pertinent to the boundary delimitation beyond 200 M is the fact that the seabed and subsoil of the Bay of Bengal is the physical extension – in legal terms, the natural prolongation – of Bangladesh's land territory and, to a lesser extent, of the land territory of India's West Bengal state. As a matter of geology, the underwater extension of the Bangladesh landmass continues hundreds of nautical miles beyond the limits of the outer continental shelf Bangladesh claimed in its February 2011 submission to the CLCS. By contrast, the landmass of peninsular India[2] does not possess the same degree of geological continuity with Bay of Bengal's seafloor. On the other side of the Bay, the physical extension of India's Andaman Islands ends less than 50 M from its shores, at the boundary between the Burma Tectonic Plate, on which the Islands (and Myanmar) sit, and the Indian Tectonic Plate (on which Bangladesh, mainland India, and the seafloor of the Bay of Bengal sit).

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1 Memorial of Bangladesh (hereinafter "MB"), at chap. 6.

2 "Peninsular India" refers to that part of the Republic of India located south of approximately the 21°30' N parallel.

I. The Geographical Circumstances

2.4 The Bay of Bengal is a lobe of the Indian Ocean that covers nearly 2.2 million sq km. The International Hydrographic Organization (the "IHO") describes the limits of the Bay of Bengal as follows:

- In the North, the coasts of Bangladesh and India's West Bengal;
- In the South, the line joining the southern-most point of Sri Lanka with the northern tip of Sumatra;
- In the West, the Indian subcontinent; and
- In the East, the west-facing coasts of Bangladesh and Myanmar, and continuing south along "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…".[3]

2.5 The Bay and the general area to be delimited in these proceedings are depicted in **Figure 2.1** (on the next page).

2.6 As shown, the Bay of Bengal's north coast traces the contours of a broad and deep concavity at the apex of which sits Bangladesh. The coasts of India and Myanmar protrude southwards on either side. Although all three States face onto the concavity described by the Bay's north coast, only Bangladesh has *both* of its land boundary termini located within the concavity. It is that fact that forms the central geographic issue in this case.

A. The Geography of Bangladesh

2.7 Bangladesh's land territory covers approximately 147,570 sq km and is home to more than 160 million people. It is the most densely populated country in the world that is not a city- or island-state.

2.8 With the exception of a short, 240 km land boundary with Myanmar in the far southeast, Bangladesh is surrounded on three sides by India. The only portion of this extensive land boundary with India pertinent to these proceedings, however, is the final stretch nearest the Bay that divides Sathkira District in Bangladesh from North 24 Par-

3 International Hydrographic Organization, *Limits of Oceans and Seas* (3d ed. 1953), at p. 21. MB, Vol. III, Annex B38.

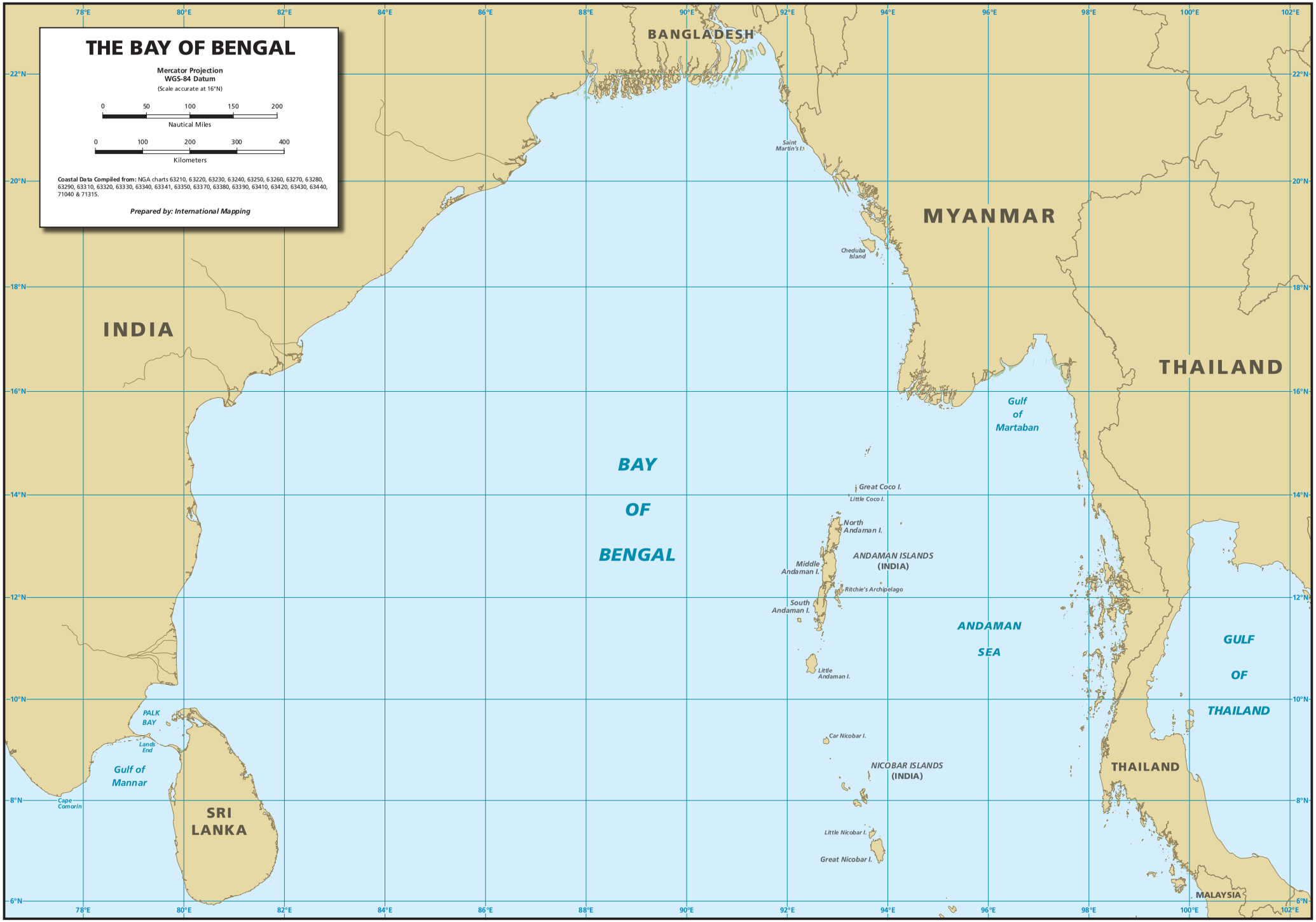
THE BAY OF BENGAL
Mercator Projection
WGS-84 Datum
(Scale accurate at 16°N)
0 50 100 150 200
Nautical Miles
0 100 200 300 400
Kilometers
Coastal Data Compiled from: NGA charts 63210, 63220, 63230, 63240, 63250, 63260, 63270, 63280, 63290, 63310, 63320, 63330, 63340, 63341, 63350, 63370, 63380, 63390, 63410, 63420, 63430, 63440, 71040 & 71315.
Prepared by: International Mapping
BANGLADESH
MYANMAR
INDIA
THAILAND
SRI LANKA
MALAYSIA
BAY OF BENGAL
ANDAMAN SEA
Gulf of Martaban
GULF OF THAILAND
Gulf of Mannar
PALK BAY
Lands End
Cape Comorin
Saint Martin's I.
Cheduba Island
Great Coco I.
Little Coco I.
North Andaman I.
ANDAMAN ISLANDS (INDIA)
Middle Andaman I.
Ritchie's Archipelago
South Andaman I.
Little Andaman I.
Car Nicobar I.
NICOBAR ISLANDS (INDIA)
Little Nicobar I.
Great Nicobar I.
78°E
80°E
82°E
84°E
86°E
88°E
90°E
92°E
94°E
96°E
98°E
100°E
102°E
22°N
20°N
18°N
16°N
14°N
12°N
10°N
8°N
6°N

Figure 2.1

ganas District in West Bengal, India. The end of the Bangladesh-India land boundary in this area, the land boundary terminus, is the starting point for the maritime delimitation between the Parties.

2.9 Bangladesh's coast extends from this land boundary terminus with India in the west to the land boundary terminus with Myanmar in the southeast. It measures approximately 421 km in length (as measured by means of segmented straight lines). The primary segment of the Bangladesh coast lying between the boundary with India and the east bank of the Meghna River runs generally east-west, while the smaller portion abutting Myanmar follows a northwest-to-southeast direction.

2.10 As stated, this 421 km coast is located in the seat of the concavity described by the Bay's north coast, between India and Myanmar. Moreover, the middle portion of the Bangladesh coast is characterized by a second concavity formed by the broad mouth of the Meghna River, which measures more than 50 M across. As described further in Chapter 6, this additional "concavity within a concavity" exacerbates the prejudicial effect of equidistance lines on Bangladesh.

2.11 Besides its concave coastline, Bangladesh's most striking geographic feature is the major river systems that flow through it and into the Bay of Bengal. Bangladesh owes its very existence to these rivers and the vast quantities of sediments they carry down from the Himalaya Mountains in the north.

2.12 Chief among these rivers are the Ganges and Brahmaputra Rivers. Together, they (and their precursors) have formed the Bengal Delta, by far the world's largest river delta. In fact, the Bengal Delta is larger than the Nile and Mississippi deltas *combined*. It stretches some 350 km from the mouth of Bangladesh's Meghna River in the east to the mouth of India's Hooghly River in the west, and covers an area of more than 110,000 sq km. Of this extensive surface area, more than three-quarters is located in Bangladesh; the remainder is in India's West Bengal state.[4] The Bengal Delta makes up more than half of Bangladesh's land territory.

2.13 Aided by South Asia's annual monsoons, the Ganges-Brahmaputra river system transports nearly a thousand million tons of sediments down from the Himalayas towards

4 S. Kuehl et al., "The Ganges-Brahmaputra Delta", in *River Deltas – Concepts, Models, and Examples* (L. Giosan & J. Bhattacharya eds., 2005) (hereinafter "Kuehl et al. (2005)"), at p. 413. MB, Vol. IV, Annex B71.

the Bay of Bengal every year.[5] Two-thirds of these sediments are deposited in the Bay;[6] the remaining one-third is deposited in the Bengal Delta, accreting to the existing landmass. Since the end of the last ice age some 12,000 years ago, these sedimentary processes have extended the land territory of Bangladesh seawards more than 100 km.[7]

2.14 Although Himalayan sediments are responsible for the Delta's creation, they are one of several factors controlling its size and shape. Because the mean elevation of the Delta in Bangladesh is just three metres above sea level,[8] the area is highly susceptible to flooding produced by monsoons, tidal streams, cyclones, and, increasingly, by sea-level rise caused by climate change. Of 15 cyclones that struck the Bay of Bengal coast between 1989 and 2000, nine of them made landfall along the northeastern coast of the Bay.[9] The damage caused by cyclones which strike the Delta on an almost annual basis is exacerbated by the Delta's location at the head of the Bay of Bengal and by the additional concavity created by the Meghna Estuary.[10] As two commentators have observed:

> Bangladesh is virtually the midpoint of two inverted funnels. One inverse funnel drains millions of tons of silt through the rivers on the mainland from the top, and the other funnel pushes all the cyclones from the Bay of Bengal onto the deeply indented, concave coast of Bangladesh. All these features have made Bangladesh a geographically disadvantaged country.[11]

2.15 The effect of all these forces is to make Bangladesh's deltaic coast deeply indented and cut into, with a great number of islands and mudflats immediately offshore. **Figure 2.2** (in Volume II only) is a recent satellite photograph of the Bengal Delta in the vicin-

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5 *Ibid.*

6 S. Kuehl and S.L. Goodbred, "Holocene and modern sediment budgets for the Ganges–Brahmaputra River: Evidence for highstand dispersal to flood-plain, shelf, and deep-sea depocenters", *Geology*, Vol. 27, No. 6 (1999), at pp. 560-61. MB, Vol. IV, Annex B62.

7 S. Kuehl et al., "Subaqueous Delta of the Ganges-Brahmaputra River System", *Marine Geology*, Vol. 144, No. 1 (1997) (hereinafter "Kuehl et al. (1997)"), at p. 84. MB, Vol. IV, Annex B57.

8 Mead A. Allison, "Geologic Framework and Environmental Status of the Ganges-Brahmaputra Delta", *Journal of Coastal Research*, Vol. 14, No. 3 (1998) (hereinafter "Allison (1998)"), at p. 829. MB, Vol. IV, Annex B60.

9 Bangladesh experiences 40% of the storm surges in the world and was struck by 154 cyclones between 1877 and 1995 – an average of 1.28 per year. Susmita Dasgupta et al., "Vulnerability of Bangladesh to Cyclones in a Changing Climate: Potential Damages and Adaptation Cost", World Bank Policy Research Working Paper No. 5280 (April 2010). MB, Vol. IV, Annex B78.

10 T. Islam and Richard E. Peterson, "Climatology of landfalling tropical cyclones in Bangladesh 1877-2003", *Natural Hazards,* Vol. 48, No. 1 (2009), at pp. 115-16. MB, Vol. IV, Annex B76.

11 M. Shah Alam and A. Al Faruque, "The Problem of Delimitation of Bangladesh's Maritime Boundaries with India and Myanmar: Prospects for a Solution", *International Journal of Marine and Coastal Law*, Vol. 25, No. 3 (2010), at p. 409. MB, Vol. III, Annex B51.

ity of the Bangladesh-India border. These images capture the extraordinary nature of the region.

2.16 Among the other notable aspects of the images, the Tribunal will note the particularly verdant area along the coast in the vicinity of the Bangladesh-India boundary. This is the world's largest mangrove forest, known as the Sundarbans, which is home to the largest remaining population of wild Royal Bengal Tigers. A 10,000 sq km portion of this area straddling the Bangladesh-India border is now a UNESCO World Heritage site.

2.17 The effects of accretion and erosion are not felt equally throughout the Bengal Delta. Today, the western two-thirds of the Delta (from the banks of Bangladesh's Haringhata River to the mouth of India's Hooghly River) is slowly eroding.[12] The current supply of sediments to that area is insufficient to counteract the combined forces of wave action, tectonic subsidence, and sea-level rise.[13]

2.18 This does not mean that no new land is being formed in this area, however. On the contrary, new low-tide elevations and unstable deltaic islands constantly emerge – even as other similar features erode into the sea. While cyclones and other large storms that annually inundate the Delta often permanently submerge large swathes of land, they also force sediments that have been deposited just offshore back towards the shore, creating new insular features.[14]

2.19 To illustrate, following a massive cyclone in 1970, a patch of mud off the mouth of the Hariabhanga River emerged above the water, creating a feature known as South Talpatty Island.[15] No sooner had it emerged, however, than waves and storms began to wash South Talpatty back into the sea. By 1990, satellite imagery showed that it had disappeared completely. Its brief existence and subsequent disappearance are captured in satellite images from 1973 and 1989 (reproduced as **Figure 2.3** (in Volume II only)).

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12 Mead A. Allison, "Historical Changes in the Ganges-Brahmaputra Delta Front", *Journal of Coastal Research*, Vol. 14, No. 4 (1998) (hereinafter "Allison (1998a)"), at p. 1270. MB, Vol. IV, Annex B61.

13 *Ibid.* at pp. 1269, 1274.

14 M. A. Allison & E.B. Kepple, "Modern Sediment Supply to the Lower Delta Plain of the Ganges-Brahmaputra River in Bangladesh", *Geo-Marine Letters*, Vol. 21 (2001), at p. 66. MB, Vol. IV, Annex B63.

15 D. Freestone et al., "Legal Implications of Global Climate Change for Bangladesh", in *Implications of Climate and Sea-Level Change for Bangladesh* (R.A. Warrick & Q.K. Ahmad eds., 1996), at pp. 12-13. MB, Vol. III, Annex B44.

2.20 South Talpatty is not the only insular feature in the western Bengal Delta to have come and gone. In 2006, India's far larger Lohachara Island, located near the mouth of the Hooghly River, disappeared beneath the waves, displacing a population of 10,000.[16] So active is the morpho-dynamism that characterizes this region that recent satellite imagery suggests that a new island may be emerging precisely where Lohachara once was.[17]

2.21 The situation in the eastern third of the Bengal Delta (between Bangladesh's Haringhata and Meghna Rivers) is quite different. Here, accretion is dominant. On average, seven sq km of new land is being added every year.[18] Much of the new land is being formed in and around an extensive series of mud and sand shoals near the mouth of the Meghna River known as the Meghna Flats. These constantly shifting shoals are separated by shallow, muddy channels that pose a major hazard to navigation – for small as well as large vessels – in the areas northwest of Chittagong.[19] There are also many islands in the estuary and along the coast, the largest of which are Sandwip, Kutubdia, Moheskhali, and Sonadia.

2.22 The unusual combination of forces that constantly reshape the Bengal Delta coast make it one of the most dynamic and unstable coastlines anywhere in the world.

2.23 Beyond the Bengal Delta at the east bank of the Meghna River, the Bangladesh coastline makes a nearly 90-degree turn and runs south-southeast to the land boundary terminus with Myanmar in the Naaf River. This southeast corner of Bangladesh is marked by the Chittagong Hills, the only part of Bangladesh with significant elevations above sea level. The coastline here, beginning at Cox's Bazar, is relatively straight and includes many long, flat beaches backed by steep cliffs.

2.24 In the south, some 6.5 M southwest off the coast where the land boundary terminus with Myanmar is situated, lies Bangladesh's St. Martin's Island, home to a thriving population of some 7,000 and a popular tourist destination among the Bangladeshi people.

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16 Geoffrey Lean, "Disappearing world: Global warming claims tropical island", *The Independent,* 24 December 2006 (available at <http://www.independent.co.uk/environment/climate-change/disappearing-world-global-warming-claims-tropical-island-429764.html>). MB, Vol. III, Annex B49.

17 Achintyarup Ray, "Lohachara rises from waters again", *The Times of India*, 4 April 2009 (available at <http://timesofindia.indiatimes.com/city/kolkata-/Lohachara-rises-from-waters-again/articleshow/4352475.cms>). MB, Vol. III, Annex B50.

18 Allison (1998), at p. 833. MB, Vol. IV, Annex B60.

19 Rodman E. Snead, "Bangladesh", in *Encyclopedia of the World's Coastal Landforms* (Eric C.F. Bird ed., 2010), at p. 1079-1080. MB, Vol. IV, Annex B77.

B. The Geography of India

2.25 India occupies a land territory covering nearly 3.3 million sq km and has a population of over 1.2 billion people. These figures make it the second most populous and the seventh largest country in the world.

1. Mainland India in the Vicinity of Bangladesh

2.26 Moving west from the land boundary terminus with Bangladesh in the Bengal Delta, the first 65 km of India's coast represent a continuation of the Bengal Delta and the great Sundarban mangrove forest. The next segment of the Indian coast, which stretches some 85 km from the Thakuran River to the Hooghly River, is also deltaic. Here, however, the mangrove forests that are native to the region have been cleared to make way for agriculture.

2.27 The Hooghly River is the western-most distributary of the Ganges River; its right bank marks the western limit of the Bengal Delta.

2.28 Southwest of the Hooghly River, India's deltaic coast gives way to the coast of peninsular India. The coast here is generally regular and unremarkable. A broad, shallow curvature dominates the coast from the right bank of the Hooghly River to Maipura Point, a modest promontory located at about 20°42' N; 80°E. Within this curvature are long stretches of sandy beaches interspersed by occasional mangrove stands.

2.29 Beyond Maipura Point, peninsular India's Bay of Bengal coast runs virtually straight southwest for approximately 970 km to Nizampatnam Bay where it turns sharply south, extending to the southern tip of the peninsula at Cape Comorin.

2. Andaman Islands

2.30 Approximately 700 M across the Bay, some two-thirds of the way between peninsular India and the Malay Peninsula, are India's Andaman Islands. The islands stretch nearly 350 km from north to south and are covered by a series of north-south trending hills. They have a total area of approximately 4500 sq km and an estimated population of roughly 300,000 people. The Andaman Islands are part of an archipelago that includes India's Nicobar Islands to the south and Myanmar's Coco and Preparis Islands to the north. All these islands together mark the eastern limits of the Bay of Bengal.

II. The Geological and Geomorphological Circumstances

2.31 We turn to a discussion of the geological and geomorphological circumstances. These are most pertinent to the delimitation of the continental shelf beyond 200 M, a subject addressed in Chapter 7. We begin with an overview of the geological history of the region to appreciate how the situation today came to be.

A. Plate Tectonics

2.32 The geological history of the Bay of Bengal region is commonly described in terms of four phases, each contributing to the elements of the geological structure seen today. They are depicted in **Figure 2.4** (in Volume II only).

2.33 The *first* phase began more than 120 million years ago with the breakup of the ancient super-continent known as Gondwana. Previously, what is now the Indian subcontinent was fused to a single massive landmass with Africa, Australia, and Antarctica. Approximately 120 million years ago, this super-continent began to break up. A rift was formed between what are now the coasts of India and Antarctica, producing a new Indian tectonic plate that began drifting away from its Gondwana parent.[20]

2.34 The *second* phase, between 120 and 60 million years ago, was characterized by the movement of the newly-formed Indian Plate from its former position well south of the Tropic of Capricorn towards its present location north of the Equator. As the Indian Plate moved north at rates of up to 10 cm per year,[21] the oceanic crust underlying what is now the Bay of Bengal was formed by a process known as seafloor spreading.[22] This oceanic crust is attached to the continental crust on the eastern edge, or continental margin, of what is now the Indian subcontinent.

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20 M. Alam et al., "An Overview of the Sedimentary Geology of the Bengal Basin in Relation to the Regional Tectonic Framework and Basin-fill History", *Sedimentary Geology*, Vol. 155, No. 3-4 (2003) (hereinafter "Alam et al. (2003)"), at p. 184. MB, Vol. IV, Annex B66.

21 Joseph R. Curray, "The Bay of Bengal: Tectonics, Stratigraphy and History of Formation" (26 May 2011) (hereinafter "Curray Expert Report (2011)"), at p. 2. MB, Vol. IV, Annex B52. This rate is very high for continental drift. Most continental movements are in the range of two to seven centimetres per year.

22 D. Rao et al., "Crustal Evolution and Sedimentation History of the Bay of Bengal Since the Cretaceous", *Journal of Geophysical Research*, Vol. 102, No. B8 (1997), at p. 17747. MB, Vol. IV, Annex B58. Seafloor spreading is the name given to the process during which oceanic crust is formed. Magma from the Earth's mantle breaks through the thinned-out crust along the length of a mid-ocean ridge system to form dense, basaltic rock. The force of the upwelling magma and the underlying convection drives the entire process of plate tectonics.

2.35 During the *third* phase, between 60 and 25 million years ago, the tectonic collision between the Indian Plate and the Eurasian Plate began.[23] The early collision involved only the undersea edges of the two continents but, as the Indian Plate continued to drift northward, a "hard" collision between the two continental landmasses followed. Starting some 44 million years ago,[24] the impact began to force upward the early precursors of today's Himalayas.

2.36 The upward thrust of the new mountains along the northern edge of the Indian Plate had the effect of forcing downward the area immediately to the south, forming a low-lying basin.[25] A forerunner of the Ganges River transported sediments eroded from the newly-formed mountains to this basin, where some were deposited and began to form the proto-Bengal Delta[26] and its deep water extension, the Bengal Fan (described further below).[27]

2.37 The *fourth* phase, which began 25 million years ago and continues to the present, is dominated by the on-going, landmass-to-landmass impingement of the Indian and Eurasian tectonic plates. As the Indian Plate continues to push against the Eurasian Plate, the Himalayas continue to grow upwards by as much as seven millimetres per year.[28] Even as they grow, however, they are being eroded rapidly by the torrential rain associated with South Asia's annual monsoons. In the process of eroding, the Himalayas shed enormous volumes of sediments that are transported by the Ganges-Brahmaputra river system to the Bengal Delta and beyond, into the Bay.

2.38 The volume of sediment deposited in the Delta is so great that today the estimated thickness of the sedimentary rock in the region ranges from 12 to 24 kilometres.[29] (By way of comparison, Mount Everest rises slightly less than 9 km above sea level.)

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23 Alam et al. (2003), at p. 188. MB, Vol. IV, Annex B66.

24 *Ibid.*

25 A. Mukherjee et al., "Geologic, Geomorphic and Hydrologic Framework and Evolution of the Bengal Basin, India and Bangladesh", *Journal of Asian Earth Sciences*, Vol. 34, No. 3 (2009) (hereinafter "Mukherjee et al. (2009)"), at p. 228. MB, Vol. IV, Annex B75.

26 A. Uddin & N. Lundberg, "Miocene Sedimentation and Subsidence During Continent–Continent Collision, Bengal Basin, Bangladesh", *Sedimentary Geology*, Vol. 164, No. 1-2 (2004), at pp. 132, 137. MB, Vol. IV, Annex B69.

27 Joseph R. Curray et al., "The Bengal Fan: Morphology, Geometry, Stratigraphy, History and Processes", *Marine and Petroleum Geology*, Vol. 19, No. 10 (2002) (hereinafter "Curray et al. (2002)"), at p. 1195. MB, Vol. IV, Annex B65.

28 R. Bilham et al., "GPS Measurements of Present-day Convergence Across the Nepal Himalaya", *Nature*, Vol. 386 (6 March 1997), at p. 62. MB, Vol. IV, Annex B56.

29 Joseph R. Curray, "Sediment Volume and Mass beneath the Bay of Bengal", *Earth and Planetary Science Letters*, No. 125 (1994), at p. 374. MB, Vol. IV, Annex B53.

2.39 At about the same time that the "hard collision" between the Indian and Eurasian Plates began, the eastern edge of the Indian Plate collided also with a third tectonic plate, the Burma Plate. As they collided, the oceanic crust of the India Plate slid underneath the Burma Plate in a process known as subduction.[30] Today, the intersection of the two plates is marked by the Sunda Subduction Zone, which stretches along a north-south axis from the Bangladesh-Myanmar border south to Indonesia.

2.40 The nature of the subduction varies along the Sunda Subduction Zone. In the northern half of the zone, from the Bangladesh-Myanmar land boundary to Cape Negrais in Myanmar, the denser oceanic crust of the Indian Plate is subducting under the lighter continental crust of the Burma Plate.[31] As it does so, the sediments accumulated on the former are scraped off and accreted – essentially piled up – onto the latter to form a mass of rocks known as an "accretionary wedge" or "accretionary prism".[32] The process can be compared to the way in which a wedge-shaped mound of earth builds up in front of an advancing bulldozer. Today, this accretionary prism can be seen forming the elongated north-south mountain ranges along the Chittagong Hills in Bangladesh and the Rakhine Yoma range in Myanmar.[33]

2.41 The situation in the southern half of the subduction zone stretching from Cape Negrais to Sumatra is different. Here, the dense oceanic crust of the Indian Plate is colliding with and being forced underneath the equally dense oceanic crust of the Burma Plate.[34] In the process, parts of the oceanic crust and the mantle underlying both plates have broken off to form a class of rocks known as "ophiolites", which have then become mixed with sediments scraped off the descending Indian Plate to create a *mélange* of different rock types.[35] It is this process that has given rise to the chain of islands that includes the Andaman and Nicobar Islands in India.

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30 Alam et al. (2003), at pp. 187-188. MB, Vol. IV, Annex B66; Tung-Yi Lee & Lawrence A. Lawver, "Cenozoic Plate Reconstruction of Southeast Asia", *Tectonophysics*, Vol. 251 (1995), at pp. 132-134. MB, Vol. IV, Annex B54.

31 M. S. Steckler et al., "Collision of the Ganges-Brahmaputra Delta with the Burma Arc: Implications for Earthquake Hazard", *Earth and Planetary Science Letters,* Vol. 273 (2008) (hereinafter "Steckler et al. (2008)"), at p. 367. MB, Vol. IV, Annex B74.

32 *Ibid.*

33 C. Nielsen et al., "From Partial to Full Strain Partitioning along the Indo-Burmese Hyper-oblique Subduction", *Marine Geology*, Vol. 209 (2004) (hereinafter "Nielsen et al. (2004)"), at p. 303. MB, Vol. IV, Annex B70.

34 T. Pal et al, "Geodynamic evolution of the outer-arc–forearc belt in the Andaman Islands, the central part of the Burma–Java subduction complex", *Geological Magazine,* Vol. 140, No. 3 (2003) (hereinafter "Pal et al. (2003)"), at p. 289. MB, Vol. IV, Annex B68.

35 *Ibid.* at pp. 291-92.

2.42 The meeting point of the Indian and Burma tectonic plates is shown on **Figure 2.5** (following page 26). It is located along the western edge of the chain of hills extending from the north to the south along the Bangladesh/Myanmar border, and into the Bay of Bengal where they manifest themselves further to the south as, *inter alia*, the Andaman and Nicobar Islands.[36]

* * *

2.43 The interaction of the tectonic forces described above has produced three distinct geological provinces in the area in and around the Bay of Bengal as it exists today.

2.44 *First*, to the west is the **continental crust of the Indian Plate**. Peninsular India is part of this geological province.

2.45 *Second*, in the centre is the **oceanic crust of the Indian Plate** underlying most of the Bay of Bengal. This crust was formed by the process of seafloor spreading as the Indian Plate rifted away from Gondwana. Most of Bangladesh and the Bengal Fan, which, as discussed below, covers most of the Bay of Bengal seafloor, are part of this geologic province.

2.46 *Third*, in the east lies **the Burma Plate**, which is separated from the oceanic crust of the Indian Plate by the Sunda Subduction Zone. India's Andaman and Nicobar Islands, Myanmar's Coco and Preparis Islands, and mainland Myanmar are all part of this geological province.

2.47 The three geological provinces are depicted in **Figure 2.6** (in Volume II only).

B. The Bengal Depositional System

1. The Subaqueous Bengal Delta

2.48 The portions of the Bengal Delta above sea level have been described in Section I above.[37] But the Delta does not end at the coastline. As much as one-quarter of it lies submerged beneath the waters of the Bay. This submerged portion of the Bengal Delta,

36 Joseph R. Curray, "Tectonics and history of the Andaman Sea region", *Journal of Asian Earth Sciences,* Vol. 25, No. 1 (2005), at p. 192. MB, Vol. IV, Annex B72.

37 MB at paras. 2.14 and 2.23.

known technically as the "subaqueous delta", extends as much as 80 M from the current shoreline[38] to roughly the 80 metre isobath.[39]

2.49 The submerged Bengal Delta is an extension of the onshore Delta in more than name. Similar geomorphological processes of sedimentary deposition, and tide and storm erosion, take place in the onshore and submerged portions of the Delta.[40] The main difference between the two is that the submerged Delta is covered by shallow water. Even then, the line between the onshore and subaqueous Delta is in a perpetual state of flux. New deltaic islands and low-tide elevations are constantly being formed where none existed, and old ones are being eroded until they no longer appear above sea level.

2. The Bengal Fan

2.50 The sedimentary processes that have created the Bengal Delta and most of Bangladesh itself do not end at the outer edge of the subaqueous Delta. Beyond the physical shelf break in the Bay of Bengal is another immense sedimentary feature known as the Bengal Fan, a further seaward extension and product of the same natural processes that have built up the Bengal Delta, both on and off shore.

2.51 Other large rivers elsewhere in the world, such as the Amazon and Congo, have also built up large fan-shape sedimentary deposits on the seafloor. None, however, comes close to matching the Bengal Fan in terms of mass, area, or volume. It extends more than 1,500 M from the base of the continental slope off the coast of Bangladesh to an area southeast of Sri Lanka at around 7° S latitude.[41] The total surface area of the Fan is some 3,000,000 sq km – an area that is larger than the Bay of Bengal itself.[42]

2.52 The Ganges and Brahmaputra Rivers and their precursors have deposited enormous quantities of sedimentary material in the Bengal Fan which, over geological time, have consolidated into sedimentary rock. Today, the sedimentary rock in the Fan ranges in thickness from more than 16.5 km near the base of the continental slope to less than 1 km south of the Equator, beyond the limits of the Bay of Bengal.[43] The total volume of the sedimentary material contained in the Fan has been estimated at 12.5 million cubic kilo-

38 Kuehl et al. (2005), at p. 425. MB, Vol. IV, Annex B71.

39 Kuehl et al. (1997), at p. 88. MB, Vol. IV, Annex B57.

40 *See generally* Kuehl et al. (1997). MB, Vol. IV, Annex B57.

41 Curray et al. (2002), at p. 1198. MB, Vol. IV, Annex B65.

42 *Ibid.*

43 *Ibid.*

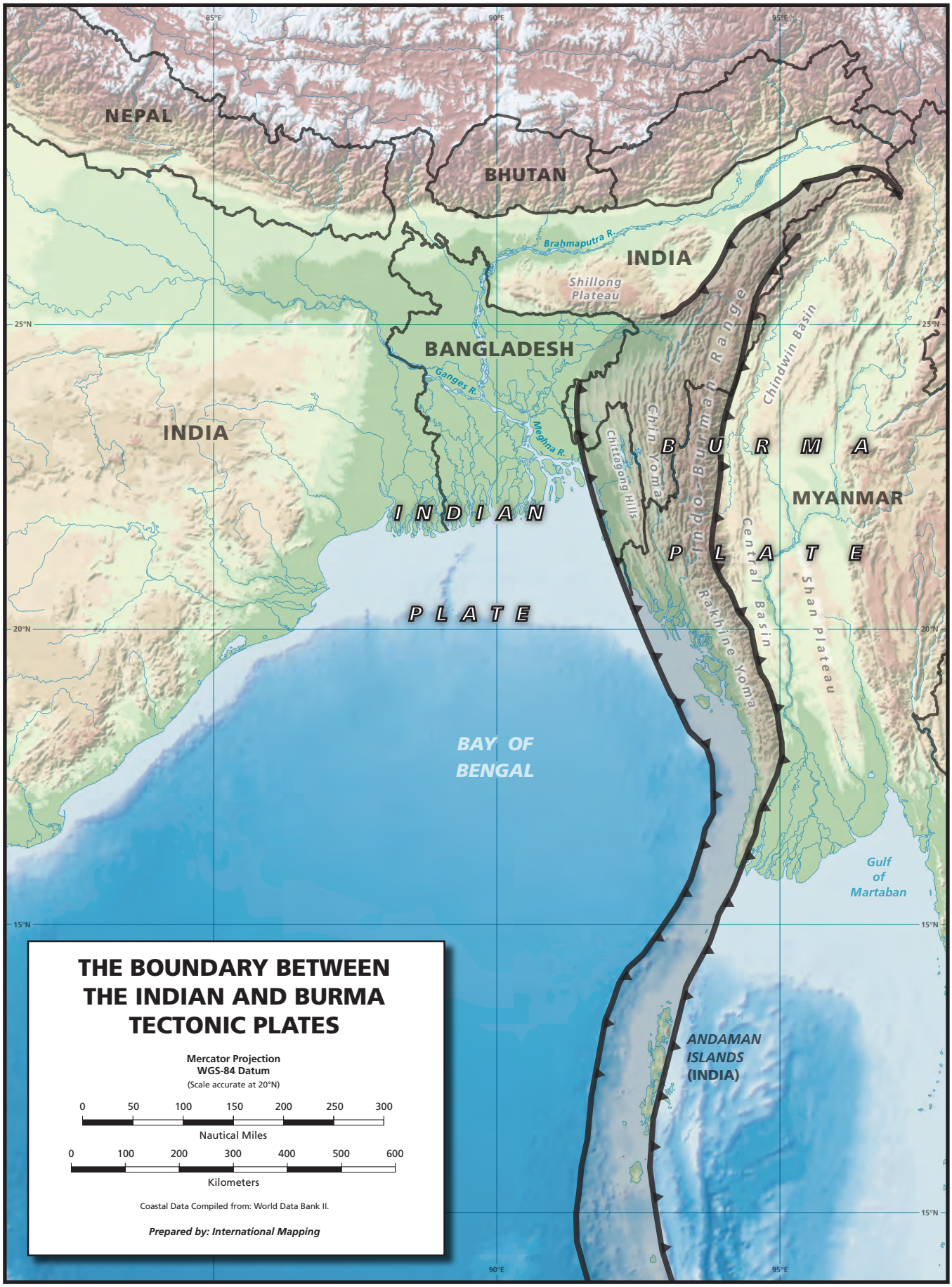
NEPAL
BHUTAN
INDIA
BANGLADESH
INDIA
INDIAN PLATE
BURMA
MYANMAR
PLATE
BAY OF BENGAL
Brahmaputra R.
Shillong Plateau
Ganges R.
Meghna R.
Chittagong Hills
Chin Yoma
Indo-Burman Range
Chindwin Basin
Central Basin
Rakhine Yoma
Shan Plateau
Gulf of Martaban
ANDAMAN ISLANDS (INDIA)
85°E
90°E
95°E
25°N
20°N
15°N
THE BOUNDARY BETWEEN THE INDIAN AND BURMA TECTONIC PLATES
Mercator Projection
WGS-84 Datum
(Scale accurate at 20°N)
0 50 100 150 200 250 300
Nautical Miles
0 100 200 300 400 500 600
Kilometers
Coastal Data Compiled from: World Data Bank II.
Prepared by: International Mapping

Figure 2.5

metres.[44] This is a sufficient volume of material to cover the entire European continent in a layer of sediments one kilometre thick.

2.53 As described in the annexed expert report of Dr. Joseph Curray, the world's foremost expert on the geology of the Bay of Bengal, the Bengal Fan, together with the Bengal Delta (on- and off-shore) constitute a single, integrated, and uninterrupted depositional system which Professor Curray labels the "Bengal Depositional System."[45] It is depicted in **Figure 2.7** (following page 30) and in Professor Curray's report.

2.54 The Bengal Depositional System renders the bathymetry of the Bay highly unusual. In most ocean basins, bathymetric contours generally lie (1) perpendicular to a given source of sediment supply, and (2) parallel to the direction of the coastline near that source. Since most ocean basins are supplied by several equally significant sources of sediment, their bathymetric contours usually neatly shadow the coastline. In the Bay of Bengal, however, bathymetric contours trend generally east-west, even at considerable distances from the coast. This reflects the fact that the sediments associated with the Bengal Depositional System are the primary determinant of depth in the Bay. This striking bathymetry is depicted in **Figure 2.8** (in Volume II only). The Tribunal will note that there is a deep canyon that slices through the physical continental shelf in the areas immediately offshore of the Bangladesh-India border. This feature is known as the "Swatch of No Ground", so named because when British sailors were originally conducting depth measurements in the region, they were unable to find bottom in the canyon.

2.55 As discussed, the vast majority of the sediments deposited in the Bengal Fan are of Himalayan origin.[46] The sedimentary rocks that comprise the Fan are thus the same material deposited by the same geological processes in continuous layers that extend all the way back to the land territory of Bangladesh and India's West Bengal state.

2.56 In contrast, there is no comparable continuity of sedimentary layers extending from peninsular India into the Bengal Fan. This is because rates of erosion are much lower in peninsular India than along the southern flank of the Himalayas. Not only does penin-

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44 *Ibid*.

45 Curray Expert Report (2011), at pp. 2, 5-6. MB, Vol. IV, Annex B52.

46 G. Einsele et al., "The Himalaya-Bengal Fan Denudation-Accumulation System during the Past 20 Ma", *Journal of Geology*, Vol. 104, No. 2 (1996) (hereinafter "Einsele et al. (1996)"), at p. 179. MB, Vol. IV, Annex B55. Himalayan sediments are easily identified because they are chemically distinct from those originating from other regions that drain into the Bay of Bengal, such as the southern peninsula of India. See G. S. Roonwal et al., "Mineralogy and Geochemistry of Surface Sediments from the Bengal Fan, Indian Ocean", *Journal of Asian Earth Sciences*, Vol. 15, No. 1 (1997), at pp. 33-41. MB, Vol. IV, Annex B59.

sular India not have sediment-shedding mountains comparable to the Himalayas, but the relatively flat topography in the area does not produce the same torrents of precipitation as do the Himalayas.

2.57 As a result, the supply of sediments from peninsular India into the Bay is miniscule compared to the supply from the Bengal Depositional System.[47] Sediments from peninsular India do not reach the area beyond 200 M in sufficient quantities to produce comparable sedimentary layers connecting the seabed back to the coast. Thus, while peninsular India is directly adjacent to the Bengal Fan, it is not made of the same geological material as the Fan, nor has its landmass been created by the same processes.

2.58 The discontinuity between the Andaman and Nicobar Islands and the Bengal Fan is even more pronounced than the discontinuity between the Fan and peninsular India. Quite apart from the fact that, owing to their small surface area, the erosion of these islands generates only minuscule amounts of sedimentary material, the islands are separated from the Bengal Depositional System by a tectonic plate boundary, the most fundamental discontinuity on the surface of the earth. Like Myanmar, the Andaman and Nicobar Islands are located on the Burma Plate, which is separated from the Indian Plate by the Sunda Subduction Zone. No part of the Burma Plate belongs to the Bengal Depositional System.

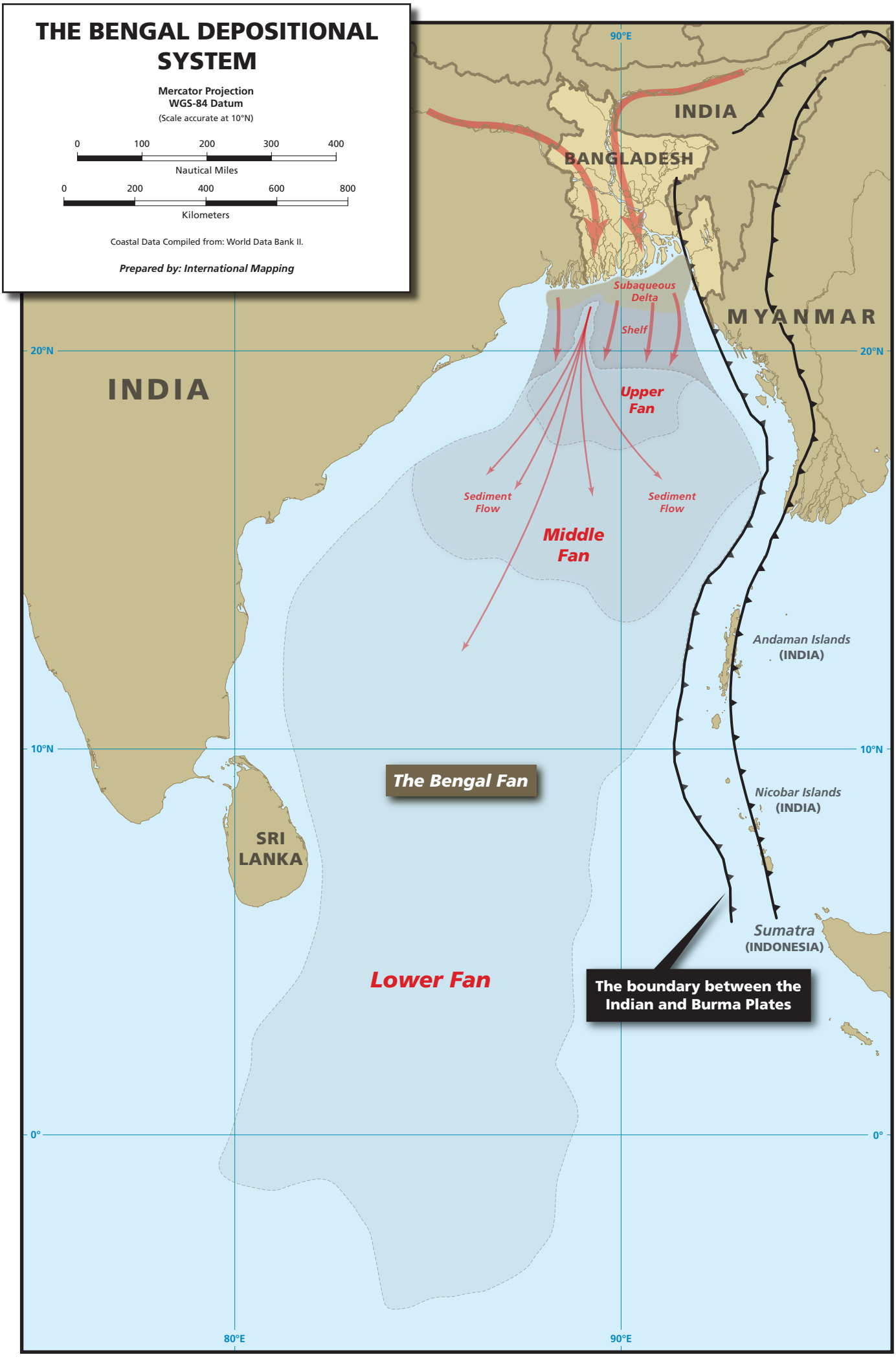
C. Continuities and Discontinuities

2.59 The geological and geomorphological facts reveal multiple elements of continuity between the Bengal Delta on the one hand, and the seabed and subsoil of the Bay of Bengal on the other. They also reflect that peninsular India is merely adjacent to the seafloor and subsoil of the Bay, while the Andaman Islands (and Myanmar) are completely disconnected from it.

2.60 The exceptionally strong physical continuity between Bangladesh and the Bay seafloor is established by the following elements:

- The onshore Bengal Delta, and thus most of the landmass of Bangladesh, was formed by the Bengal Depositional System and the accumulation of the sediments associated with it;

47 Curray Expert Report (2011), at p. 3. MB, Vol. IV, Annex B52.



Source: Adapted from Joseph R. Curray, "The Bay of Bengal: Tectonics, Stratigraphy and History of Formation," 26 May 2011.

Figure 2.7

- The onshore Bengal Delta is united to the submerged (or "subaqueous") Bengal Delta by the same geomorphological processes of sedimentary deposition, and tide and storm erosion;

- The seabed and subsoil throughout the Bay of Bengal was formed and shaped — and continues to be formed and shaped — by the Bengal Depositional System which, over geologic time, has deposited millions of cubic kilometers of sedimentary material on the oceanic crust of the Indian Plate;

- Practrically the entire Bengal Delta and most of the seabed of the Bay of Bengal are located on the same oceanic crust of the Indian Plate; and

- The sedimentary rock that makes up virtually all of Bangladesh is the same geologic material, with the same origin, arranged into continuous layers, located on the same underlying crust as that which makes up the seabed and subsoil of the Bay.[48]

2.61 In contrast to these multiple elements of physical continuity between the Bengal Delta and the seafloor in the Bay of Bengal, the only element of continuity between peninsular India and the seabed in the Bay is that they are both located on the Indian tectonic plate. Unlike the landmass of the Bengal Delta, peninsular India is *not* part of the Bengal Depositional System, has contributed little if anything to the growth of the Bengal Fan, and is not connected to the Fan by comparable layers of sedimentary rock. Thus, the most that can be said is that peninsular India is *adjacent* to the Bengal Depositional System.

2.62 The absence of continuity between the Andaman Islands and the Bay of Bengal's seafloor is even more evident:

- The Andaman Islands are not on the Indian Plate but rather on the neighbouring Burma Plate;

- They are separated from the seafloor of the Bay of Bengal by the Sunda Subduction Zone; and

- The Andaman Islands are composed of a mixture of broken pieces of oceanic crust, mantle and deformed seafloor sediment piled upon themselves – substantially different material than that comprising the seabed of the Bay.

48 *Ibid.* at p. 7.

2.63 The comparative continuity (or discontinuity, as the case may be) between the Bay's seafloor and the Bengal Delta, peninsular India, and the Andaman Islands, can be appreciated by reference to the differing nature of their continental margins.[49] In classical marine geological analysis, continental margins are of two main types: passive and active. The south-facing coast of the Bengal Delta and the east-facing coast of peninsular India are both "passive margins" (although, as discussed below, of very different sorts). The Andaman Islands (together with Myanmar's Rakhine coast) are part of a single "active margin" that corresponds to the Sunda Subduction Zone. The schematic cross-sections presented below illustrate the differences among these various margins.

2.64 **Figure 2.9A** on the next page depicts peninsular India's passive margin, which shares the features of many similar passive margins around the world.[50] As discussed, the outer edge of the continental crust, formed by the rifting and breakup of Godwana, is attached to oceanic crust, which in turn was formed by the process of seafloor spreading after the break-up. During the break-up process, the continental crust stretched and thinned, and merged into oceanic crust. As a result, there is not a sharp boundary between the two but rather a transition zone. One of the main distinguishing features of such a simple passive margin, as compared with an active margin, is that there is relatively little volcanic or earthquake activity.[51]

2.65 Recently collected geophysical data reveal that this transition zone, which varies in width between 25 M and 70 M, is located between 40 M and 80 M off the coast of peninsular India.[52] Thus, the transition from continental to oceanic crust along the continental margin of peninsular India occurs entirely within 200 M of India's coast.

2.66 In a typical passive margin, sediment derived from erosion of the continental interior forms a thin layer overlying the continental crust and the physical continental shelf and slope. Peninsular India's passive margin looks typical up to the foot of the continental slope. Beyond that point, however, the peninsular Indian margin departs from the norm.

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49 Scientists define the continental margin as the zone separating the thin oceanic crust of the deep ocean basins from the thick continental crust.

50 This style of passive margin is typical of the east and west coasts of India and Africa, the east coast of South America, and others.

51 C. Subrahmanyam & S. Chand, "Evolution of the Passive Continental Margins of India—A Geophysical Appraisal", *Gondwana Research*, Vol. 10, No. 1-2 (2006), at p. 173. MB, Vol. IV, Annex B73.

52 S. T. Sinha et al., "The Crustal Architecture and Continental Break Up of East India Passive Margin: An Integrated Study of Deep Reflection Seismic Interpretation and Gravity Modelling", *Search and Discovery,* Article #40611 (10 October 2010) (available at <http://www.searchanddiscovery.com/documents/2010/40611sinha/ndx_sinha.pdf>), at p. 23. MB, Vol. IV, Annex B80.

Seaward of the foot of the continental slope, the seafloor of the Bay of Bengal is covered in thick sediments derived from the Bengal Depositional System in the north. In contrast to most passive margins, the thickness of the sediment actually *increases* seaward of the continental shelf as one moves towards the centre of the Bay.[53] This is a direct result of the overwhelmingly greater contribution of sediments from the Bengal Depositional System in the north, as compared to the relatively insignificant contribution from peninsular India. It is in this sense that peninsular India can be described as distinct from but adjacent to the sediments that have built up the Bengal Fan and the Bengal Delta, both on and off shore.

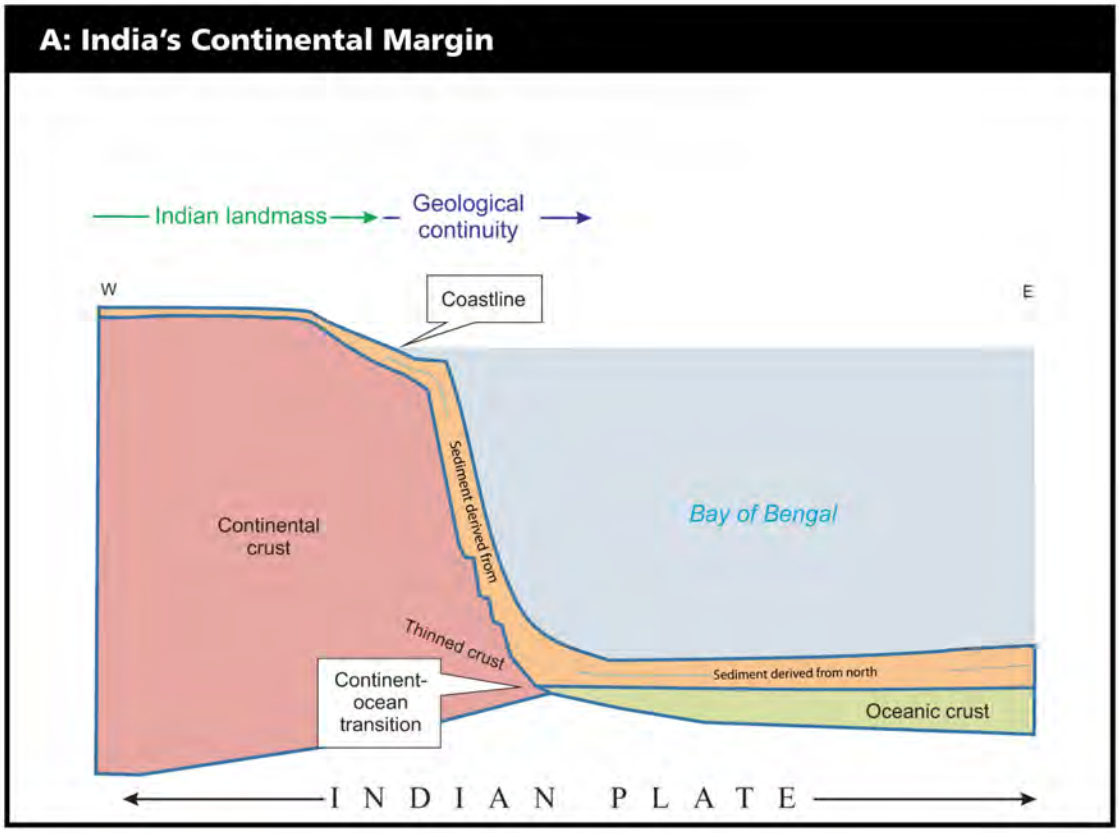

Figure 2.9A

2.67 Bangladesh's coast is also part of a passive margin but, while having underlying similarities to a typical margin as depicted in Figure 2.9A, it has a very different origin and very different characteristics. As a result of the Bengal Depositional System, innumerable layers of sediment have built up into a massive sequence of sedimentary rocks blanketing the edge of the continental crust and extending onto and across the oceanic crust, as depicted in **Figure 2.9B** on the next page. These accumulated sedimentary lay-

53 Curray Expert Report (2011), at fig. 18. MB, Vol. IV, Annex B52.

ers comprise the Bengal Delta (and thus the Bangladesh landmass), the submerged Delta, and the deep-sea Bengal Fan, and have buried the edge of the continental crust so that the continent-ocean boundary is now hundreds of miles inland.[54] These sedimentary deposits extend continuously from the Bangladesh mainland through the continental shelf, slope, and rise in the Bay of Bengal. In this case, the continental rise, which in conventional passive margins is less than 200 km in width (if present at all), extends southwards over 2000 km along the entire north-south axis of the Bay of Bengal and beyond.

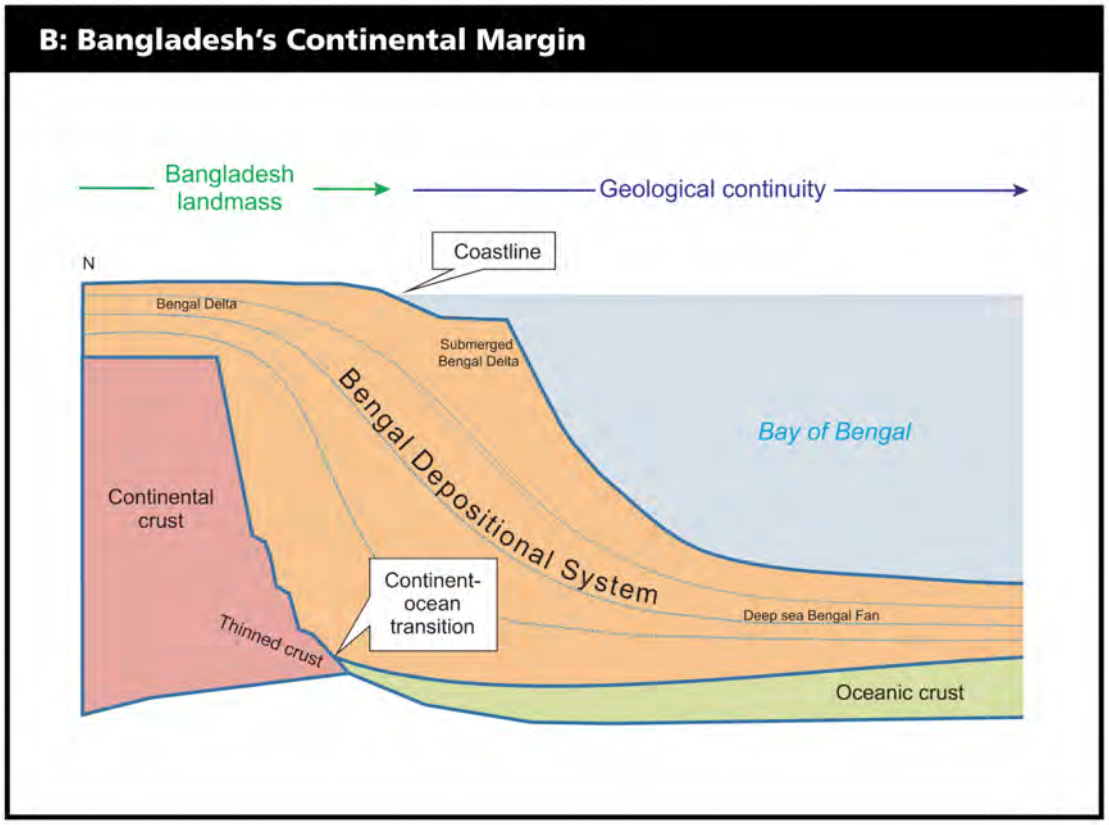

Figure 2.9B

2.68 Turning to the Andaman/Myanmar margin, this is an active (convergent) margin. That is to say, the margin is defined by the Sunda Subduction Zone where the oceanic crust of the Indian Plate underlying the Bay of Bengal impinges upon and is forced beneath the Burma Plate to the east.[55] This movement generates significant earthquakes along the whole margin and sporadic volcanism.[56] This active type of margin is in sharp contrast to the fixed type of passive margin of peninsular India and the Bengal Delta where the continent-ocean boundary is stable and devoid of earthquake or volcanic activity.

54 *Ibid.* at p. 5 and fig. 11.

55 Curray (2005), at p. 192. MB, Vol. III, Annex B72.

56 Pal et al. (2003), at pp. 289, 304. MB, Vol. III, Annex B68.

2.69 Along the Andaman margin, the effect of the collision has been to break off parts of the oceanic crust and mantle which then become mixed with scraped-off sediments to form a *mélange* of different rock types.[57] **Figure 2.9C** below is a schematic of the Andaman margin.

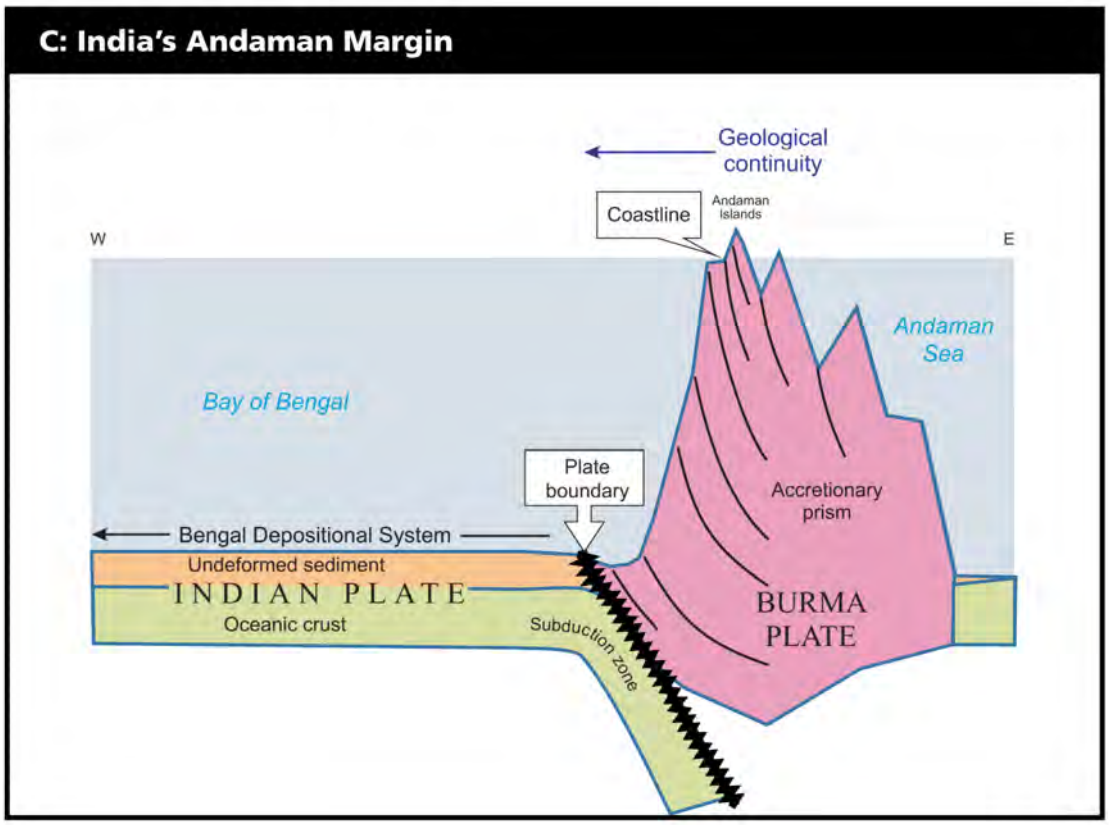

Figure 2.9C

2.70 The margin of the islands is limited to the lateral extent of the accretionary prism, which extends westwards only as far as the plate boundary. The Andaman margin can thus be readily traced by following the north-south trench that has been created by the Sunda Subduction Zone.[58]

2.71 Thus, while the seabed and subsoil of the Bay of Bengal constitute an obvious and direct extension of the landmass of the Bengal Delta into and under the sea, they do not constitute a comparable extension of peninsular India's landmass, and they are not at all a physical extension of the Andaman and Nicobar Islands.

57 Curray Expert Report (2011), at pp. 4-5. MB, Vol. IV, Annex B52.

58 *Ibid.* at p. 7.

Conclusions

2.72 The geographical, geological and geomorphological evidence establishes that:

(1) The Bangladesh coast is doubly concave. Not only is it sandwiched between the protruding coasts of India and Myanmar, but the middle portion of the Bangladesh coast (corresponding to the mouth of the Meghna Estuary) is itself deeply concave.

(2) Most of the Bangladesh coastline is deltaic, indented, and cut into, and subject to constant processes of erosion and accretion, rendering it among the most unstable coastlines in the world;

(3) The land territory of Bangladesh exhibits multiple, significant elements of physical continuity with the seabed and subsoil in the Bay of Bengal;

(4) The Bengal Depositional System has built up a continuous geological structure comprising the Bengal Delta and Bengal Fan which extends unbroken from the land territory of the Bengal Delta to the southern Bay of Bengal;

(5) In contrast, the continental margin of peninsular India is adjacent to the Bengal Depositional System but does not share the same physical continuity with it.

(6) The narrow margin of the Andaman Islands is separated from the main part of the Bay of Bengal by a subduction zone corresponding to the active tectonic plate boundary between the Indian and Burma Plates. There is no continuity between the Andaman margin and the Bengal Depositional System.

CHAPTER 3
HISTORY OF THE DISPUTE

3.1 This Chapter describes the origins and history of the dispute between Bangladesh and India concerning their maritime boundary in the Bay of Bengal. It is presented in four sections. **Section I** describes the historical origins of the modern States of India and Bangladesh, with a focus on the process by which the land boundary terminus between them was determined as the United Kingdom relinquished its empire in former British India. **Section II** summarizes the Parties' maritime legislation, which identifies the maritime zones they each claim and the baselines from which those zones are measured. **Section III** details the unsuccessful efforts of the Parties to negotiate a comprehensive maritime boundary agreement over the course of 35 years. And finally, **Section IV** describes the partially overlapping claims Bangladesh and India have each made in the continental shelf beyond 200 M in their respective Submissions to the CLCS.

I. Historical Origins

3.2 The origins of this dispute lie in the dissolution and partition of the British Indian Empire into what are now the independent States of Bangladesh, India, and Pakistan.[1] A brief overview of the process through which the United Kingdom liquidated its Indian Empire is necessary to understand how the formerly internal boundaries of the colonial era were transformed into the present-day international boundary between Bangladesh and India.

3.3 The legal instrument through which the United Kingdom brought the colonial era in India to an end was the Indian Independence Act of 1947[2], an Act of the U.K. Parliament that received Royal Assent on 18 July 1947. Section 1(1) of the Act fixed 15 August 1947 as the "appointed day" for the establishment of the new, independent Dominions of India and Pakistan, whilst Section 2(2)(a) specified that certain territories within British India, including a newly-formed "Province of East Bengal" – now Bangladesh – were to be transferred to Pakistan.

3.4 Prior to the passage of the Indian Independence Act, most of the land territory that now makes up Bangladesh and the neighboring Indian state of West Bengal was admin-

1 The territory of what is now Myanmar became a province of British India on 1 January 1886 but on 1 April 1937, Burma was detached from British India and made a separate Crown Colony. Burma achieved independence from the United Kingdom on 4 January 1948.

2 Indian Independence Act (U.K.), 1947 (10 & 11 Geo. 6. Ch. 30) (18 July 1947). MB, Vol. III, Annex B11.

istered by the British colonial authorities as a single, unified Province of Bengal.[3] Sections 3(1)(a) and (b) of the Act dissolved the existing Province of Bengal, and from it created the two new provinces of East Bengal and West Bengal. The Act provisionally assigned each of 28 districts to one or the other new province but provided that the permanent boundaries would be decided by a boundary commission established for that purpose. In particular, Section 3(3) of the Act provided that the final boundaries "of the new Provinces … shall be such as may be determined … by the award of a boundary commission appointed or to be appointed by the Governor-General in that behalf…".

3.5 The Bengal Boundary Commission was established by the Governor General of India, Earl Mountbatten of Burma, on 30 June 1947.[4] Its terms of reference gave it the task of "demarcat[ing] the boundaries of the two parts of Bengal". Sir Cyril Radcliffe, a prominent British lawyer, was selected to chair the Commission, whilst two High Court judges were appointed from each of the two halves of Bengal to act as representatives for their respective regions.

3.6 The Bengal Boundary Commission completed its Report, commonly known as the "Radcliffe Award", on 13 August 1947 (although it was not actually distributed to India and Pakistan until 16 August, the day *after* partition).[5] Paragraph 10 of the Report explains that:

> The demarcation of the boundary line is described in detail in the schedule which forms Annexure A to this award, and in the map attached thereto, Annexure B. The map is annexed for purposes of illustration, and if there should be any divergence between the boundary as described in Annexure A and as delineated on the map in Annexure B, the description in Annexure A is to prevail.[6]

3.7 Paragraph 2 of Annexure A provides a description of the boundary line between East and West Bengal, and thus the new Dominions of India and Pakistan. It states:

> A line shall then be drawn … *to the point where the boundary between the Districts of 24 Parganas* [in the west] *and Khulna* [in the east] *meets the Bay of Bengal.* This line shall follow the course indicated in the following

3 The one exception is the District of Sylhet in present-day Bangladesh, which used to belong to the colonial-era Province of Assam.

4 Governor General of India, Notification No. D 50/7/47-R (30 June 1947), reprinted in *The Gazette of India (extraordinary)* (30 June 1947), at pp. 13-14. MB, Vol. III, Annex B10.

5 Earl Mountbatten of Burma, *Mountbatten's Report on the Last Viceroyalty, 22 March-15 August 1947* (Lionel Carter ed., 2003), at p. 273, para. 158. MB, Vol. III, Annex B15.

6 Bengal Boundary Commission, Report to His Excellency the Governor General (12 August 1947) (hereinafter "Radcliffe Award"), at p. 5. MB, Vol. III, Annex B12.

paragraphs. So much of the Province of Bengal as lies to the west of it shall belong to West Bengal [India].[7]

3.8 The only subsequent paragraph relevant to these maritime boundary proceedings is Paragraph 8 of Annexure A, which follows the language of Paragraph 2 and specifies that the final segment of the boundary as it approaches the sea "shall then run southwards along the boundary between the Districts of Khulna and 24 Parganas, *to the point where that boundary meets the Bay of Bengal*".[8]

3.9 In the areas abutting the sea, the Radcliffe Award therefore adopted the pre-existing district boundary between Khulna and 24 Parganas in the unified Province of Bengal and converted it into the new international frontier between Pakistan and India.

3.10 The district boundary between Khulna and 24 Parganas was originally established in 1882 when the District of Khulna was first created.[9] The boundary was later revised pursuant to Notification 964 Jur. dated 24 January 1925, according to which the boundary between the two Districts followed the course of four different rivers, the Ichhamati in the north, the Kalindi and Raimangal in the middle, and the Hariabhanga in the south nearest the Bay of Bengal. In particular, the 1925 Notification provides that the district boundary was "the midstream of the main channel for the time being of the rivers Ichhamati and Kalindi, Raimangal and Hari[a]bhanga *till it* [*i.e.*, the boundary] *meets the Bay*".[10]

3.11 Accordingly, when Annexure A of the Radcliffe Award stated that the boundary between East and West Bengal would "run southwards along the boundary between the Districts of Khulna and 24 Parganas", it adopted the midstream of the main channel of "the rivers Ichhamati and Kalindi, Raimangal and Hari[a]bhanga till it meets the Bay" as the international boundary between Pakistan and India. The international land boundary terminus was that point where the midstream of the main channel of the southern-most boundary river, the Hariabhanga, met the Bay of Bengal.

3.12 In addition to the text of Annexure A, the Radcliffe Award also included as Annexure B a map depicting the line described in text. Bangladesh does not possess an original

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7 Radcliffe Award, Annexure A, p. 1 (emphasis added). MB, Vol. III, Annex B12.

8 *Ibid.* at p. 3 (emphasis added).

9 Specifically, Khulna District was formed by detaching the Subdivisions of Khulna and Bagirhat from the district of Jessore, and by detaching Sathkira Subdivision from 24-Parganas District. *See* Lieutenant Governor of Bengal, Notification of 4th July 1882, reprinted in *The Calcutta Gazette,* 5 July 1882, at p. 584., at p. 584. MB, Vol. III, Annex B8.

10 Government of Bengal, Notification 964 Jur. (24 January 1925), reprinted in *The Calcutta Gazette* (29 January 1925), at p. 178 (emphasis added). MB, Vol. III, Annex B9.

copy of Radcliffe's Annexure B. Included as Annex B12 to this Memorial is a version published in the official Gazette of Pakistan on 17 August 1947, two days after partition.[11] The circumstances under which this version of the map was created are not known. Whatever the case, paragraph 11 of the Radcliffe Award makes clear that the map appended as Annexure B is "for purposes for illustration" only and that, "should there be any divergence", the text is to prevail.

3.13 Precisely where the midstream of the main channel of the Hariabhanga River met the Bay of Bengal in 1925, the date the district boundary between Khulna and 24 Parganas was established, can be determined by reference to then-contemporaneous nautical charts covering the area in question. **Figure 3.1** (in Volume II only) is an annotated excerpt of Admiralty Chart 859 dated 1924, the year before Notification 964 Jur. was issued. As can be seen, then as now, the Hariabhanga River flowed into an estuary known as the Raimangal Estuary before it entered the Bay proper. As the chart clearly depicts, the Hariabhanga maintained its distinct flow following a separate channel until it entered the Bay of Bengal at the mouth of the estuary.

3.14 The facts that (1) the Hariabhanga maintained its separate flow through the Raimangal Estuary, and (2) that the mouth of the estuary was understood to mark the beginning of the Bay (*i.e.*, the sea) is confirmed by the description of the Raimangal Estuary appearing in the 1886 Imperial Gazetteer of India. It reads:

> Raimangal. — Estuary in the Sundarbans, Bengal. Its entrance is situated about 12 miles eastward of the Guasuba River; and *about 6 miles from the sea* it receives the united streams of three rivers — the Hariabhanga being the westernmost, the Raimangal proper the next, and the Jamuna the easternmost. The point of land on the west side of the entrance is situated in lat. 21° 37' N., with a depth of 5 or 6 fathoms in the channel close to it, and with from 10 to 12 fathoms inside towards the Hariabhanga river. From the point to seaward, the depth decreases gradually to 4 fathoms in the western channel, the outer part of which is separated from the Guasuba by a sandbank which stretches out from the land between them. The eastern channel leads directly to the entrance of the Raimangal and Jamuna rivers, having a sandbank between it and the western channel, with deep water inside.[12]

11 The Gazette of India published the same day contains the text of Annexure A but does not appear to have included a copy of Annexure B. *See* Government of India, Legislative Department, "Report of the Bengal Boundary Commission", Notification No. F 68/47-R, reprinted in *The Gazette of India (extraordinary)* (17 August 1947), at p. 1065. MB, Vol. III, Annex B14.

12 W. W. Hunter, ed., *The Imperial Gazetteer of India,* Vol. VII (1881), at p. 483. MB, Vol. III, Annex B37.

3.15 The version of Admiralty Chart 859 current as of the date of Partition in 1947 is identical to the 1924 version in its depiction of the Hariabhanga River and Raimangal Estuary. (An excerpt of that subsequent version is included as **Figure 3.2** to this Memorial (in Volume II only)). Accordingly, the land boundary terminus between India and Pakistan – now India and Bangladesh – was and is simply that point where the midstream of the main channel of the Hariabhanga River crossed the mouth of the Raimangal Estuary.

3.16 The precise location of that point as reflected on modern-day nautical charts is a matter addressed more fully in Chapter 5 concerning the delimitation of the territorial sea boundary between the two States. As shown therein, the location of the boundary terminus is at 21°38'14"N - 89°06'39"E (WGS84).

3.17 Owing to a number of "disputes arising out of the interpretation of the Radcliffe Award," the Governments of Pakistan and India concluded a Special Agreement dated December 1948 to establish an Indo-Pakistan Boundary Disputes Tribunal "for the adjudication and final settlement"[13] of disputes concerning the interpretation of the Radcliffe Award regarding two segments of the boundary between East and West Bengal.[14] The Decisions of the Tribunal, issued in January 1950, deal with segments of the boundary that are located more than 200 km inland.[15] For present purposes, the important point is that neither Party raised any issues concerning the location of the boundary in the areas nearest the Bay of Bengal.

3.18 On 26 March 1971, 23 years after the Indian Independence Act and the Radcliffe Award partitioned India and Pakistan, Bangladesh declared its own independence from Pakistan. When it did, it succeeded to the former boundaries of East Pakistan, including the land boundary terminus with India at the point where the midstream of the main channel of the Hariabhanga River meets the Bay of Bengal at the mouth of the Raimangal Estuary.

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13 Governments of Pakistan and India, *Special Agreement of 14 December 1948*, at para. 1. The text of the Special Agreement is reproduced in *Case concerning boundary disputes between India and Pakistan relating to the interpretation of the report of the Bengal Boundary Commission, 12 and 13 August 1947,* Decision, 26 January 1950, reprinted in 21 RIAA 1, at p. 9. MB, Vol. III, Annex B16.

14 The Tribunal was also asked to resolve disputes pertaining to two segments of the boundary between the Pakistani province of East Bengal and the Indian state of Assam. *Ibid.*

15 The two segments considered by the Tribunal are between (1) the Districts of Murshidabad (West Bengal) and Rajshahi (East Bengal) and (2) the origin of the river Mathabhanga and the Thanas of Daulatpur and Karimpur. *Ibid.*

II. Maritime Zones of the Parties

A. Bangladesh

3.19 In February 1974, three years after declaring its independence, and still in the process of recovering from the devastating war fought to achieve it, Bangladesh enacted its *Territorial Waters and Maritime Zones Act*.[16] It was the first South Asian country to enact a comprehensive instrument setting out the limits of its maritime zones. Section 3 of the 1974 Act, titled "Territorial waters", provided that:

> (1) The Government may, by notification in the official Gazette, declare the limits of the sea beyond the land territory and internal waters of Bangladesh which shall be the territorial waters of Bangladesh, specifying in the notification:
>
> (a) The baseline from which such limits shall be measured; and
>
> (b) The waters on the landwards side of which shall form part of the internal waters of Bangladesh.

3.20 The 1974 Act also proclaimed that "[t]he sovereignty of the Republic [of Bangladesh] extends to the territorial waters as well as to the airspace over and the bed and subsoil of such waters." Additionally, the Act established a contiguous zone extending 6 M measured from the outer limit of the territorial waters, a continental shelf extending to the outer limits of the continental margin and an "economic zone" and "conservation zone".

3.21 In April of the same year, Bangladesh issued the notification contemplated in the Act, and claimed a 12 M territorial sea and an economic zone extending to 200 M.[17] At the same time, it also declared a system of straight baselines consisting of lines connecting eight basepoints, all of which are located along the 10-fathom depth contour in the submerged delta.[18] In declaring these baselines eight years before the adoption of UNCLOS, Bangladesh relied on expert advice from the Commonwealth Secretariat and distinguished international lawyers, including Sir Robert Jennings and Professor D.P. O'Connell.

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16 Bangladesh Territorial Waters and Maritime Zones Act, 1974 (Act No. XXVI of 1974) (14 February 1974) (hereinafter "Bangladesh Territorial Waters and Maritime Zones Act, 1974"). MB, Vol. III, Annex B5.

17 Bangladesh Ministry of Foreign Affairs, *Notification No. LT-1-3-7* (13 April 1974) (hereinafter "*Bangladesh 1974 Baseline Notification*"). MB, Vol. III, Annex B6.

18 *Ibid*. The one exception is the eastern-most of the base points, Point No. 8, located west of Cox's Bazaar, where there is a deep landward indentation of the isobath.

3.22 Bangladesh's 1974 baselines were conceived as a functional solution to address the unique character of the Bangladesh coastline and were adopted at a time when the law concerning straight baselines was undergoing a process of active debate in the lead-up to UNCLOS. As described in Chapter 2, most of Bangladesh's territory is located within the Bengal Delta, the coast of which is in a perpetual state of flux. In addition to being continually inundated with the massive sediment loads transported by the Ganges–Brahmaputra river system, the near-shore areas are subject to other powerful natural conditions, including river flooding, heavy rainfall (especially during frequent cyclones), and continuous erosion. Shoals, islands, and low-tide elevations are constantly appearing, shifting, disappearing and reappearing. As a result, Bangladesh's coastline is highly unstable and changes year-to-year (sometimes even day-to-day).

3.23 Further complicating this already complex situation is the fact that the near-shore sea is extremely shallow and filled with sediment, rendering large portions of it entirely unnavigable to ocean-going ships and dangerous even to small vessels. In many respects, it is neither fully water nor land but composed of elements of both. The evanescent nature of the waterline is underscored also by the extraordinary tidal swings in the area. On any given day, Bangladesh's low tide and high tide lines can be 60 to 70 M apart. (In most other parts of the world, tidal swings are measured in metres rather than nautical miles.)

3.24 Under the circumstances, Bangladesh's 1974 baselines were adopted as a practical approach to a particularly difficult and unique geographic reality. As Bangladesh explained at the 1974 Caracas Session of the Third United Nations Conference on the Law of the Sea, it drew its baselines in the manner it did because:

> (1) The estuary of Bangladesh is such that no stable water line or demarcation of landward and seaward areas exists;
>
> (2) The continual process of alluvion and sedimentation forms mudbanks and the area is so shallow as to be non-navigable by other than small boats; [and]
>
> (3) The navigable channels of land through the aforesaid banks are contiuously changing their courses and requre soundings and demarcation so that they pertain to the character of the river mouths and inland waters.[19]

3.25 Having devised this approach, Bangladesh offered it for inclusion in UNCLOS, which was then in negotiation. Its proposals were only partially accepted, however. In

19 Renate Platzöder, ed., *Third United Nations Conference on the Law of the Sea: Documents,* Vol. IV (1982), at pp. 180-181. MB, Vol. III, Annex B32.

the end, Bangladesh was unable to persuade the delegates of all other States to sign on to the idea of permitting straight baselines to be drawn from points determined by a depth-based method. It did, however, succeed in obtaining the inclusion of a new subparagraph 7(2) in the 1982 Convention, which states:

> Where because of the presence of a delta and other natural conditions the coastline is highly unstable, the appropriate points may be selected along the furthest seaward extent of the low-water line and, notwithstanding subsequent regression of the low-water line, the straight baselines shall remain effective until changed by the coastal State in accordance with this Convention.

As Professors Reisman and Westerman have observed, this compromise provision "in effect, allows baselines to be established offshore, as Bangladesh had urged".[20]

3.26 Nevertheless, Bangladesh recognizes that because its 1974 baselines were drawn along the 10-fathom line, they do not conform to the terms of Article 7 of the later adopted 1982 Convention governing straight baselines. It therefore does not rely on them for purposes of this maritime delimitation with India. Instead, to the extent they may be relevant, it relies only on basepoints along its coast on the Bay of Bengal.

B. India

3.27 Nearly thirty years after achieving its independence in 1947, the Parliament of India enacted the *Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act* in May 1976. It remains in effect. India's 1976 Maritime Zones Act established a territorial sea of 12 M, a contiguous zone of 24 M, an EEZ of 200 M, and a continental shelf that extends "to the outer edge of the continental margin or to a distance of two hundred nautical miles … where the outer edge of the continental margin does not reach that distance."[21]

3.28 Section 9 of the 1976 Act governs India's maritime boundaries with its neighbors and provides:

> (1) The maritime boundaries between India and any State whose coast is opposite or adjacent to that of India in regard to their respective territorial waters, contiguous zones, continental shelves, exclusive economic zones

20 W. Michael Reisman & Gayl S. Westerman, *Straight Baselines in Maritime Boundary Delimitation* (1992), at p. 9. MB, Vol. III, Annex B41

21 India Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976 (Act No. 80 of 1976) (28 May 1976), at p. 214, s. 6(1). MB, Vol. III, Annex B7.

> and other maritime zones shall be as determined by agreement (whether entered into before or after the commencement of this section) between India and such State and pending such agreement between India and any such State, and unless any other provisional arrangements are agreed to between them, the maritime boundaries between India and such state shall not extend beyond the line every point of which is equidistant from the nearest point from which the breadth of the territorial waters of India and of such State are measured.

3.29 Acting pursuant to authority conferred by the 1976 Act, the Indian Ministry of External Affairs issued a Notification in January 1977 declaring the waters of Palk Bay, Palk Strait, and the Gulf of Mannar as historic waters, and establishing straight baselines enclosing these waters.[22] With the exception of these, India generally employed a system of normal baselines around its mainland and island coasts.[23]

3.30 More than 32 years later, in May 2009, India issued Notification S.O. 1197(E) purporting to establish straight baselines along all 7400 km of its coastline, including in the areas nearest Bangladesh. The segments of India's straight baselines system closest to Bangladesh are depicted in **Figure 3.3** (in Volume II only). Bangladesh expresses no view concerning India's declared baselines in other areas far from Bangladesh. For the reasons discussed in Chapter 5, however, it considers that in the areas closest to Bangladesh, India's straight baselines as depicted in Figure 3.3 are incompatible with the terms of Article 7 of UNCLOS. Accordingly, just as Bangladesh does not rely on its own straight baselines, India's straight baselines too should not be used for purposes of these delimitation proceedings.

III. The Parties' Efforts To Negotiate a Maritime Boundary Agreement

3.31 Between 1974 and 2009, Bangladesh and India held no less than eleven rounds of negotiations concerning the delimitation of their maritime boundary in the Bay of Bengal. Despite best efforts, the Parties have been unable to agree on the location of the boundary between them. Throughout the long negotiations, Bangladesh remained steadfast in its view that, due principally to the effect of the concavity of its coast, recourse to the equidistance method was incapable of producing an equitable result with India. This position was at all times met by an equally strong insistence on the part of India that the Parties' maritime boundary should be based on equidistance. After 35 years of similar exchanges,

22 *Ibid.* at pp. 222-25.

23 United States of America, Under Secretary of Defense for Policy, *Maritime Claims Reference Manual* (2005), at pp. 275-279. MB, Vol. III, Annex B20.

it was clear that recourse to these proceedings was the only practical means to bring an end to the stalemate.

3.32 The first round of bilateral negotiations took place between 29 November and 4 December 1974, just over three years after Bangladesh declared its independence from Pakistan. The talks were originally scheduled for June 1974 but were postponed so that the discussions could be informed by the results of the Caracas session of the Third United Nations Conference on the Law of the Sea, which took place in October that year.[24] A second, third, and fourth round of discussions was held at the Foreign Secretary level between January and March 1975.

3.33 During the third round of talks held in Dhaka in February 1975, the two Foreign Secretaries reached the only notable agreement the Parties achieved in 35 years of trying. In particular, they agreed that any future maritime boundary should be based on the following three general principles:

> (1) The maritime boundary between the two countries should be delineated by mutual agreement.
>
> (2) It should be demarcated in a manner which should be equitable to India and Bangladesh.
>
> (3) The line of demarcation should be drawn in a manner which should safeguard the interests of both countries.[25]

The Parties' subsequent inability to agree how to achieve the second and third goals prevented them from reaching the first.

3.34 A fifth round of talks was held between 29 March and 1 April 1975 at the Foreign Minister level. Although previously Indian officials had always insisted on the application of strict equidistance, India's then-Foreign Minister Y B Chavan for the first time proposed a very modest adjustment to the equidistance line so as to give Bangladesh an additional 1000 sq nautical miles (3430 sq km) of maritime space. This token concession, which actu-

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24 *Note Verbale* from the High Commission of India, Dacca to the Bangladesh Ministry of Foreign Affairs, No. DAC/POL/111/1/74 (31 October 1974), at p. 1. MB, Vol. III, Annex B17.

25 "Question in the Lok Sabha: 'Agreement with Bangladesh on offshore and land boundaries' (New Delhi, February 20, 1975", *in* Avtar Singh Bhasin, ed., *India-Bangladesh Relations: Documents 1971-2002*, Vol. IV, at p. 1908 fn 1. MB, Vol. III, Annex B19.

ally represented something of a "high point" in India's willingness to compromise, did not meaningfully address Bangladesh's concerns about the inequity of an equidistance line.

3.35 Follow-up talks were initially scheduled for the fall of 1975 but never took place. The sixth round of discussions did not occur until three years later, in March 1978. Again, nothing of substance was achieved; both sides reiterated their respective positions. Although they agreed that the principle of equity should guide the delimitation of the maritime boundary, India continued to insist on using equidistance, while Bangladesh maintained its position that equidistance could not yield an equitable solution.

3.36 The next round of talks, the seventh, took place between the Foreign Ministers of Bangladesh and India in Dhaka over three days during August 1980, during which a number of bilateral irritants were on the agenda.[26] Chief among these was the status of a patch of sedimentary mud known as South Talpatty Island[27] that had emerged just beyond the mouth of the Raimangal Estuary following a massive cyclone in 1970.

3.37 As previously described in Chapter 2, South Talpatty was engulfed by the sea almost as quickly as it arose. As early as 1989, it was no longer visible on satellite imagery. It thus ceased to be of any possible relevance to the delimitation of the maritime boundary. Nonetheless, a dispute as to the ownership of this "island" dominated not only the seventh but also the eighth and ninth rounds of negotiations, held in December 1980 and January 1982, respectively. Meaningful progress again proved impossible.

3.38 The January 1982 talks were followed by a 26-year lapse in negotiations. No further maritime delimitation talks took place until September 2008, when a technical delegation from India visited Dhaka for an exchange of views. India restated its official position that equidistance was the most commonly accepted "principle" for maritime delimitation and that it had demarcated maritime boundaries with six neighboring States using that principle. For its part, Bangladesh affirmed that equidistance was merely one method of delimitation among many, and that in this case it would fail to produce the equitable result international law requires.

3.39 An eleventh and final exchange of views was held in New Delhi on 17-18 March 2009. But after 35 years of futility, these last talks served only to highlight the absence of agreement in any respect.

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26 Joint Press Statement of Bangladesh Minister of Foreign Affairs and Indian Minister of External Affairs (18 August 1980). MB, Vol. III, Annex B18.

27 The island is known in India as New Moore Island or Purbasha Island. *Ibid.* at p. 2.

3.40 Following the failure of the March 2009 meetings, and especially as a result of India's unremitting insistence on equidistance as the basis for the delimitation of the maritime boundary, it was clear that the Parties were at an impasse. They were no closer to an agreement in 2009 than they had been in 1974. Bangladesh therefore came to the obvious conclusion that the only practical way forward to secure a resolution of the Parties' long-standing dispute was third-party resolution. It initiated these proceedings on 8 October 2009 by submitting to the Government of India a Statement of Claim together with a Notice of Arbitration under Annex VII of UNCLOS.

IV. The Parties' Claims in the Outer Continental Shelf

3.41 Both Bangladesh and India assert claims to an outer continental shelf beyond 200 M. India first made its claims on 11 May 2009 in its submission to the CLCS. In that submission, an executive summary of which is available on the CLCS website,[28] India claims entitlement to a continental shelf beyond 200 M in the Bay of Bengal from two different portions of its coast. In the west, it claims an area extending to 350 M from its straight baselines towards the centre of the Bay. In the east, it claims a separate but partially overlapping entitlement extending 350 M from the Andaman Islands. The extent of India's claims from the west and the east is depicted in **Figure 3.4** (in Volume II only).

3.42 On 29 October 2009, Bangladesh presented an objection to India's claim to the Secretary General of the United Nations in his capacity as depository for UNCLOS. Bangladesh's objection included a statement that because the maritime boundary between the two States – including the boundary in the outer continental shelf – is disputed, the CLCS may not consider India's claim until the dispute is resolved or Bangladesh gives its consent.[29] On 17 September 2010, the CLCS decided to defer further consideration of India's submission.[30]

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28 Government of India, *Partial submission to the Commission on the Limits of the Continental Shelf, pursuant to article 76, paragraph 8 of the United National Convention on the Law of the Sea: Part I, Executive Summary* (May 2009) (available at < http://www.un.org/Depts/los/clcs_new/submissions_files/ind48_09/ind2009executive_summary.pdf>). The Executive Summary explains that the submission is partial because India may submit additional data at a later time to establish the outer limits of its continental shelf in accordance with Annex II of the Final Act of the Third United Nations Conference on the Law of the Sea.

29 *Note Verbale* from the Permanent Mission of Bangladesh to the United Nations to the Secretary-General of the United Nations, No. PMBNY-UNCLOS/2009 (23 July 2009). MB, Vol. III, Annex B21

30 Commission on the Limits of the Continental Shelf, Twenty-sixth session, *Statement by the Chairman of the Commission on the Limits of the Continental Shelf on the Progress of Work in the Commission*, U.N. Doc. CLCS/68 (17 September 2010), at para. 36. MB, Vol. III, Annex B36.

3.43 For its part, Bangladesh made its submission to the CLCS in respect of the areas of continental shelf beyond 200 M it claims on 25 February 2011. As set forth in the Executive Summary,[31] Bangladesh claims entitlement to an area of the Bay of Bengal seafloor extending to approximately 390 M from its coast. The extent of Bangladesh's claim, which is limited by the 2500 metre isobath plus 100 M constraint line stated in UNCLOS Article 76, is depicted in **Figure 3.5** (in Volume II only).

3.44 The legal basis for Bangladesh's claim is set forth in detail in Chapter 7 of this Memorial. For present purposes, the operative points are two-fold. *First*, the claims of India and Bangladesh in the outer continental shelf partially overlap. As depicted in **Figure 3.6** (in Volume II only), except for an area in the northeast, a majority of Bangladesh's claim lies within the area India claims. India, on the other hand, claims a substantial area to the south that Bangladesh does not. The extent of India's claim lying beyond the limits of that of Bangladesh is nearly three times as large as the total area of outer shelf Bangladesh claims.[32]

3.45 *Second*, in addition to Bangladesh and India, Myanmar too claims an area of outer continental shelf beyond 200 M in the Bay of Bengal. Part of the area Myanmar claims is claimed also by both Bangladesh and India; other parts are claimed only by Bangladesh; and still others are claimed only by India. These areas of bilateral and trilateral overlap are depicted in **Figure 3.7** (in Volume II only).

3.46 The issues concerning the maritime boundary delimitation between Bangladesh and Myanmar, including in the outer continental shelf, are currently pending in a related proceeding before ITLOS. Oral proceedings are scheduled for September 2011. Bangladesh anticipates that ITLOS will deliver its final judgment in the case, including the boundary between Bangladesh and Myanmar in the continental shelf beyond 200 M, before India presents its Counter-Memorial in this case.

Conclusions

3.47 The history of the Parties' negotiations, claims, and practices leads to the following conclusions:

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31 Government of Bangladesh, *Submission by the People's Republic of Bangladesh to the Commission on the Limits of the Continental Shelf: Executive Summary* (February 2011). MB, Vol. III, Annex B25.

32 The Bangladesh outer continental shelf claim measures approximately 99,000 sq km. The part of India's claim that lies beyond the limits of Bangladesh's claim measures approximately 265,000 sq km.

(1) The Parties' land boundary terminus was determined by the 1947 Radcliffe Award partitioning Pakistan and India as that point where the midstream of the main channel of the Hariabhanga River meets the Bay of Bengal at the mouth of the Raimangal Estuary. This is the starting point for the maritime boundary between Bangladesh and India.

(2) Despite extensive negotiations extending over three decades, the Parties have been unable to reach agreement on a boundary with respect to their territorial seas, exclusive economic zones, or continental shelves; and

(3) Bangladesh and India have partially overlapping claims to the outer continental shelf beyond 200 M that also overlap in part with the claims of Myanmar.

CHAPTER 4
JURISDICTION

4.1 This Chapter establishes that the present dispute falls squarely within the jurisdiction of the Tribunal. *First*, both Parties have recognized the jurisdiction of an Annex VII Tribunal pursuant to UNCLOS Article 287(3). *Second*, the subject-matter of the dispute is exclusively concerned with the provisions of the 1982 Convention and thus falls entirely within the Tribunal's jurisdiction. In this regard, the jurisdiction of the Tribunal to delimit the maritime boundary between Bangladesh and India extends to all the areas of dispute, including the continental shelf beyond 200 M.

4.2 This Chapter also establishes that the claim by a third party (Myanmar) to a portion of the outer continental shelf that is the subject matter of this dispute does not constitute a bar to jurisdiction, or a reason to decline to exercise it. *First*, the anticipated delimitation of the disputed area between Bangladesh and Myanmar by ITLOS prior to an Award by this Tribunal may eliminate any potential overlap with the rights of Myanmar. *Second*, international courts and arbitral tribunals have consistently exercised jurisdiction in cases where third parties have actual or potential claims to all or part of the area to be delimited, based on the principle of *res inter alios acta*.

I. The Dispute Falls Within the Jurisdiction of an Annex VII Tribunal

4.3 Bangladesh and India are both States Parties to UNCLOS, having ratified the 1982 Convention on 27 July 2001 and 29 June 1995, respectively.[1] The Compulsory Procedures Entailing Binding Decisions under Part XV, Section 2, are applicable to both Parties without reservations. In particular, neither Party has made a declaration under Article 298 that it does not recognize these procedures with respect to one or more category of disputes under UNCLOS.

4.4 Part XV establishes a régime for the settlement of disputes concerning the interpretation and application of UNCLOS. In submitting its maritime boundary dispute with India for resolution by an Annex VII Tribunal, Bangladesh has fully met all the requirements of Part XV.

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1 United Nations, Division for Ocean Affairs and the Law of the Sea, *Chronological lists of ratifications of, accessions and successions to the Convention and the related Agreements as at 05 October 2010* (available at <http://www.un.org/depts/los/reference_files/chronological_lists_of_ratifications.htm>) (accessed 11 November 2010).

4.5 Article 279 requires parties to seek a solution by peaceful means in accordance with the UN Charter. Between 1974 and 2009, Bangladesh and India held no less than eleven rounds of negotiations to reach agreement on the delimitation of their maritime boundary.[2] These negotiations have ranged from talks at the Foreign Minister level[3] to exchanges of views at the technical level.[4] Despite these efforts, the Parties have not succeeded in resolving their dispute.

4.6 At the latest round of negotiations held in March 2009, India reiterated its long-standing position by insisting on a rigid application of the equidistance method even though Articles 74 and 83 of the 1982 Convention require States "to achieve an equitable solution". Considering India's unwillingness to arrive at an equitable solution, and in view of Bangladesh's inability to develop its offshore resources because of uncertainty over its maritime boundary, Bangladesh notified India on 8 October 2009 that it had initiated these proceedings by a Notice of Arbitration and Statement of Claim in accordance with the requirements of Article 287 and Annex VII, Article 1 of the 1982 Convention.

4.7 Article 283(1) provides that when a dispute arises between States Parties, the Parties should proceed expeditiously to an exchange of views regarding its settlement by negotiation or other peaceful means. As described in Chapter 3, there has been a full exchange of views by Bangladesh and India concerning the settlement of this dispute. Bangladesh has exhausted all possibilities of settlement by negotiations during a period extending from 1974 to 2009. By 2009, it had become abundantly clear that there was no possibility for the Parties to resolve their differences over the maritime boundary by further negotiation. Accordingly, Bangladesh exercised its right to invoke the compulsory dispute settlement procedures provided in Part XV, Section 2 of the 1982 Convention.

4.8 The jurisprudence of international courts and tribunals indicates that a State cannot be expected to wait endlessly before submitting a dispute to the compulsory procedures under Part XV, section 2. Thus, in the *Southern Bluefin Tuna Cases*, ITLOS held that "a State Party is not obliged to pursue procedures under Part XV, section 1, of the Convention when it concludes that the possibilities of settlement have been exhausted".[5] In the *MOX Plant Case*, ITLOS concluded that "a State Party is not obliged to continue with an exchange of views when it concludes that the possibilities of reaching agreement

2 Memorial of Bangladesh (hereinafter "MB"), at paras. 3.31-3.39.

3 *Ibid.* at paras. 3.34 and 3.36.

4 *Ibid.* at para. 3.38.

5 *Southern Bluefin Tuna Cases (New Zealand v. Japan; Australia v. Japan), Provisional Measures.* Order of 27 August 1999, at para 60. ITLOS Reports 1999.

have been exhausted."[6] Similarly, in the *Land Reclamation Case*, ITLOS established that in the circumstances of that case, "Malaysia was not obliged to continue with an exchange of views when it concluded that this exchange could not yield a positive result."[7]

4.9 Having failed to settle the dispute by negotiation, and not having chosen any other means for its settlement, the present dispute between Bangladesh and India plainly falls within the jurisdiction of an Annex VII Tribunal. Article 281(1) of the 1982 Convention allows recourse to procedures provided for in Part XV thereof, including compulsory procedures entailing binding decisions under Section 2 of that Part, where there has been no settlement and there is no agreement between the parties to exclude any further procedure.

4.10 Article 286 permits these compulsory procedures to be initiated by the submission of the dispute to the court or tribunal having jurisdiction under Section 2, and it permits any party to the dispute to make that submission.

4.11 Article 287 governs the choice of compulsory procedures. Article 287(1) permits a State Party, by way of a written declaration, to choose one or more of the means for the settlement of disputes listed in the paragraph, which include an arbitral tribunal established under Annex VII. Neither Bangladesh nor India has made a written declaration under Article 287(1). Pursuant to Article 287(3), both are deemed to have accepted arbitration in accordance with Annex VII.

4.12 Article 298 provides for optional exceptions to the applicability of Section 2 of Part XV. Article 298(1) expressly states that "[w]hen signing, ratifying or acceding to this Convention or at any time thereafter, a State may… declare in writing that it does not accept any one or more of the procedures provided for in section 2 with respect to… (a) (i) disputes concerning the interpretation or application of articles 15, 74 and 83 relating to sea boundary delimitation." Neither Bangladesh nor India has made any such declaration.

II. The Subject Matter of the Dispute Falls Within the 1982 Convention

4.13 The subject matter of this dispute concerns solely the interpretation and application of UNCLOS. It is thus clearly within the jurisdiction of an Annex VII Tribunal. As indicated in its Statement of Claim: "Bangladesh's claim is based on the provisions of UN-

6 *MOX Plant Case (Ireland v. United Kingdom), Provisional Measures*. Order of 3 December 2001, at para. 60. ITLOS Reports 2001.

7 *Case Concerning Land Reclamation by Singapore in and around the Straits of Johor (Malaysia v. Singapore), Order of 8 October 2003*, at para 48. ITLOS Reports 2003.

CLOS as applied to the relevant facts, including but not limited to UNCLOS Articles 15, 74, 76 and 83".[8] These provisions relate to the delimitation of the territorial sea, exclusive economic zone, and continental shelf, including the outer continental shelf beyond 200 M.

4.14 The Statement of Claim submitted by Bangladesh "requests the Tribunal to delimit, in accordance with the principles and rules set forth in UNCLOS, the maritime boundary between Bangladesh and India in the Bay of Bengal, in the territorial sea, the EEZ, and the continental shelf, including the portion of the continental shelf pertaining to Bangladesh that lies more than 200 nautical miles from the baselines from which its territorial sea is measured."[9] Since the dispute is concerned with delimitation of the boundary between the two States in the territorial sea, exclusive economic zone and continental shelf, it falls squarely within Articles 15, 74, 76 and 83 of the 1982 Convention and the jurisdiction of an Annex VII Tribunal.

4.15 The remainder of this Chapter addresses the jurisdiction of this Tribunal in regard to two particular aspects of the dispute between the Parties: (1) the delimitation of the boundary in the continental shelf beyond 200 M, and (2) the fact that a portion of the area beyond 200 M claimed by both Parties is also claimed by Myanmar.

A. Delimitation of the Outer Continental Shelf

4.16 The present dispute includes Bangladesh's claim to a continental shelf, including the portion lying beyond 200 M from Bangladesh. As set forth in its Statement of Claim:

> Bangladesh requests the Tribunal to delimit, in accordance with the principles and rules set forth in UNCLOS, the maritime boundary between Bangladesh and India in the Bay of Bengal, in the territorial sea, the EEZ, and the continental shelf, *including the portion of the continental shelf pertaining to Bangladesh that lies more than 200 nautical miles from the baselines from which its territorial sea is measured.* [10]

4.17 This Tribunal is expressly empowered by UNCLOS to arbitrate disputes between States arising under Articles 76 and 83 in regard to delimitation of the continental shelf.[11]

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8 Government of Bangladesh, Statement of Claim and Notification under UNCLOS Article 287 and Annex VII, Article 1 (8 October 2009), at para. 18. MB, Vol. III, Annex B26.

9 *Ibid.* at para. 21.

10 *Ibid.* at para. 21 (emphasis added).

11 Article 83 of the 1982 Convention confirms that "[i]f no agreement can be reached [on the delimitation of the continental shelf] within a reasonable period of time, the States concerned shall resort to the procedures provided for in Part XV". Part XV, Article 287, designates "an arbitral tribunal constituted in accordance with Annex VII" as one of the four bodies empowered to settle delimitation disputes, as referenced in Article 83 – the CLCS is, of course, not listed.

The 1982 Convention draws no distinction in this regard between jurisdiction over the portion of the continental shelf within 200M and the portion of the continental shelf beyond 200 M. Delimitation of the entire continental shelf is covered by Article 83 and this Tribunal plainly has jurisdiction to effect a delimitation beyond 200M.

4.18 In *Barbados/Trinidad and Tobago*, an UNCLOS Annex VII arbitral tribunal held that delimitation of the outer shelf formed part of the claim and that it had jurisdiction to delimit the maritime boundary extending beyond 200 M.[12] In that regard, the arbitral tribunal explained that "there is in law only a single 'continental shelf' rather than an inner continental shelf and a separate extended or outer continental shelf",[13] such that its jurisdiction under UNCLOS to effect a delimitation in the continental shelf necessarily includes delimitation of the shelf beyond 200 M.

4.19 The competence of this Tribunal to delimit the entire continental shelf, including the area beyond 200 M, does not conflict with, and is not qualified by, the advisory role of the CLCS as provided in Article 76(8) of the 1982 Convention. *First,* the CLCS has no authority either to render a final and binding decision, or to effect a delimitation of the outer continental shelf. Its role is limited to making *recommendations* regarding delineation of *the outer limits* of the continental shelf. Article 76(8) of the 1982 Convention provides that: "The Commission shall make *recommendations* to coastal States on matters related to the establishment of the *outer limits* of their continental shelf. The limits of the shelf established by a coastal State on the basis of these recommendations shall be final and binding".[14] It is evident that the CLCS is not empowered to act as a judicial body; its mandate is strictly limited to issuing *recommendations* that shall be "final and binding" *only* if the relevant coastal State consents. Underscoring the non-binding nature of the CLCS's findings, Article 8 of UNCLOS Annex II further stipulates that:

> *In the case of disagreement* by the coastal State with the recommendations of the Commission, the coastal State shall, within a reasonable time, make a revised or new submission to the Commission.

4.20 In addition to the non-binding character of CLCS recommendations, the 1982 Convention expressly provides that such recommendations are strictly limited to the delineation of the outer limit of the continental shelf and categorically excludes from the

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12 *Delimitation of Maritime Boundary between Barbados and Trinidad and Tobago,* Award, 11 April 2006, *reprinted in* 27 RIAA 147 (hereinafter "*Barbados/Trinidad and Tobago*"), at paras. 213-217. Reproduced in MB, Vol. V.

13 *Ibid.* at para. 213.

14 Emphasis added.

CLCS mandate any delimitation of the continental shelf between two States. In this regard, Article 76(10) provides that:

> The provisions of this article are without prejudice to the question of delimitation of the continental shelf between States with opposite or adjacent coasts.

Similarly, Article 9 of UNCLOS Annex II expressly states that:

> The actions of the Commission shall not prejudice matters relating to delimitation of boundaries between States with opposite or adjacent coasts.

4.21 *Second*, delimitation of a disputed portion of the outer continental shelf is a *prerequisite* to the exercise by the CLCS of its mandate. The Commission's Rules of Procedure expressly prohibit it from making recommendations with respect to the outer limits of the continental shelf where there is a delimitation dispute, unless the parties to the dispute agree otherwise. Annex I, paragraph 5(a) of the 2008 CLCS Rules of Procedure provides:

> In cases where a land or maritime dispute exists, the Commission shall not examine and qualify a submission made by any of the States concerned in the dispute. However, the Commission may examine one or more submissions in the areas under dispute with prior consent given by all States that are parties to such a dispute.

4.22 As indicated in Chapter 3, the Commission has already decided to refrain from acting on India's submission in light of Bangladesh's notification of the existence of a dispute and objection to further proceedings.[15] Thus, the CLCS will not issue recommendations on the outer limits of the continental shelf in this portion of the Bay of Bengal unless and until the dispute is resolved by this Tribunal. If the Tribunal does not exercise its jurisdiction, the dispute will be in indefinite limbo as each institution – the Tribunal and the CLCS respectively – waits for the other to act.

4.23 For the sake of completeness, it should be noted that in 1992 – fourteen years prior to the Award of the arbitral tribunal in *Barbados/Trinidad and Tobago* asserting jurisdiction under UNCLOS in regard to the outer continental shelf – the Court of Arbitration in the *St. Pierre & Miquelon* case declined to exercise jurisdiction to delimit the continental shelf between Canada and France beyond 200 M. It explained that:

15 CLCS, *Statement by the Chairman on the Progress of Work in the Commission,* U.N. Doc. CLCS/68 (17 September 2010), at para. 36. MB, Vol. III, Annex B36.

> Any decision by this Court recognizing or rejecting any rights of the Parties over the continental shelf beyond 200 nautical miles, would constitute a pronouncement involving a delimitation, not 'between the Parties' but between each one of them and the international community, represented by organs entrusted with the administration and protection of the international sea-bed Area (the sea-bed beyond national jurisdiction) that has been declared to be the common heritage of mankind…[16]

The Award further stated that:

> In this connection the Court notes that in accordance with Article 76, para. 8 and Annex II of the 1982 Convention on the Law of the Sea, a Commission is to be set up, under the title of "Commission on the Limits of the Continental Shelf", to consider the claims and data submitted by coastal States and issue recommendations to them".[17]

4.24 The decision of the Tribunal not to delimit the outer continental shelf was also based on the fact that the parties did not sufficiently elucidate their claims through scientific and technical data.[18]

4.25 The reasoning of the Court of Arbitration and its Award has been superseded by subsequent developments, and has no application or pertinence to the present proceedings. *First,* with respect to the functions of the then yet-to-be-established CLCS, it is evident that the Tribunal relied on the erroneous assumption that its mandate would include "recognizing or rejecting any rights of the Parties over the continental shelf beyond 200 nautical miles". This fundamental misapprehension of the CLCS's role may be attributed, at least in part, to the fact that the Tribunal, which was not constituted under Part XV of the 1982 Convention but by a *compromis* dated 30 March 1989, delivered its Award two years prior to the entry into force of UNCLOS (on 16 November 1994) and five years before the first CLCS was elected (on 13 March 1997).[19] As described above, it is now well established that the CLCS has no authority to delimit maritime boundaries in the outer continental shelf and has no competence even to make "recommendations" where boundaries are in dispute.

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16 *Case Concerning Delimitation of Maritime Areas between Canada and France (St. Pierre et Miquelon),* Decision, 10 June 1992, *reprinted in* 31 ILM 1149 (hereinafter "*St. Pierre & Miquelon*"), at para. 78. Reproduced in MB, Vol. V.

17 *Ibid.* at para. 79.

18 *Ibid.* at para. 81.

19 *See* UNCLOS, *Report of the Sixth Meeting of States Parties,* U.N. Doc SPLOS/20 (20 March 1997), at paras. 12-21. MB, Vol. III, Annex B34.

4.26 *Second*, in regard to the Court of Arbitration's refusal to delimit a boundary between the parties and the international community, the area to be delimited between Bangladesh and India does not extend to the portions of the seabed controlled by the International Seabed Authority. The submission of India to the CLCS confirms that the area in dispute with Bangladesh is well within the outer limits of the continental shelf. In fact, as discussed further below, there are significant portions of the continental shelf beyond Bangladesh's claim line which are claimed by India *and* Myanmar, and which are not in dispute in this case. Thus, there is no need for the Tribunal in this case to determine where the International Seabed Authority's jurisdiction might begin.

4.27 Furthermore, even if the outer limit of the continental shelf area in dispute adjoined the international seabed area, *quod non,* it is not clear that the Award in the *St. Pierre & Miquelon* case would have any relevance to the present proceedings. Unlike the Court of Arbitration in that case, this Tribunal was constituted under UNCLOS, so there can be no doubt that it is invested by the 1982 Convention with jurisdiction to effectuate a delimitation in the entire continental shelf, including up to its outer limits. Since awards by an Annex VII Tribunal are binding only on the parties before it, there can be no prejudice to the rights of third parties – whether States or the international community – with regard to either the area in dispute or to the international seabed area. As the arbitral tribunal in the *Newfoundland/Nova Scotia Phase II* case stated:

> there does not seem to be any difference in principle between the non-effect of a bilateral delimitation vis-à-vis a third state ... and its non-effect vis-à-vis the "international community" or third states generally.[20]

B. Delimitation of an Area That Is Also Claimed by Myanmar

4.28 As depicted in Figure 3.7 (in Volume II only), the claims of Bangladesh and India to the outer continental shelf overlap with each other and with the claims of Myanmar. The existence of such overlapping claims is neither a bar to delimitation of this area by this Tribunal, nor a reason for this Tribunal to decline to exercise jurisdiction in regard thereto.

4.29 It is settled in the jurisprudence of international courts and tribunals that a potential overlapping claim by a third State does not prevent the exercise of jurisdiction.[21] It is

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20 *Limits of the Offshore Areas between Newfoundland and Labrador and Nova Scotia,* Award, Second Phase, 26 March 2002, *available at* <http://lawlibrary.unbf.ca/boundaryarbitration/pdfs/Awards%20&%20Maps/PhaseII_Award_English[1]_opt.pdf>, at para. 2.31, fn. 90. Reproduced in MB, Vol. V.

21 *Land and Maritime Boundary between Cameroon and Nigeria,* Preliminary Objections, Judgment, I.C.J. Reports 1998, p. 275, at paras. 116-117; *Maritime Delimitation and Territorial Questions*

evident that the award of this Tribunal does not apply to third States. It is *res inter alios acta*, as reflected in Article 11 of Annex VII.

4.30 The approach adopted in the *Anglo/French Continental Shelf Case* is pertinent.[22] In that case, the Court of Arbitration had to delimit the continental shelf between France and the United Kingdom notwithstanding an overlap with the as-yet undefined boundary between the United Kingdom and Ireland. The United Kingdom informed the Court of Arbitration that it had addressed a Note to the Government of the Irish Republic accepting the latter's proposal to refer the delimitation of the continental shelf as between those two States to a compulsory dispute settlement procedure.[23] In determining that it could exercise jurisdiction to delimit the entirety of the continental shelf boundary between France and the United Kingdom, the Court of Arbitration observed that its award "will be binding only as between the Parties to the present arbitration and will neither be binding upon nor create any rights or obligations for any third State, and in particular for the Republic of Ireland, for which the Decision will be *res inter alios acta*". The Court of Arbitration further explained that:

> In so far as there may be a possibility that the two successive delimitations of continental shelf zones in this region, where the three States are neighbours abutting on the same continental shelf, may result in some overlapping of the zones, it is manifestly outside the competence of this Court to decide in advance and hypothetically the legal problem which may then arise. That problem would normally find its appropriate solution by negotiations directly between the three States concerned…[24]

4.31 Thus, the agreement to arbitrate between the United Kingdom and Ireland that covered part of the area also disputed by the UK and France did not deprive the Court of Arbitration of jurisdiction to delimit the area between the parties. The fact that there would be two "successive delimitations", even with potentially "overlapping zones", was not a bar to the exercise of jurisdiction in relation to that part of the area in dispute.

4.32 In the present case, there is even less reason for this Tribunal to decline jurisdiction because of overlapping claims of a third party. As set forth above, there is a separate proceeding before ITLOS between Bangladesh and Myanmar. Bangladesh instituted proceed-

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between Qatar and Bahrain, Merits, Judgment, I.C.J. Reports 2001, at para. 221; *Territorial and Maritime Dispute between Nicaragua and Honduras in the Caribbean Sea (Nicaragua v. Honduras)*, Judgment, I.C.J. Reports 2007, at para. 312.

22 *Delimitation of the Continental Shelf between France and the United Kingdom,* Decision, 30 June 1977, *reprinted in* 18 RIAA 3. Reproduced in MB, Vol. V.

23 *Ibid.* at para. 26.

24 *Ibid.* at para. 28.

ings against Myanmar at the same time as it commenced the present arbitration against India by a Statement of Claim dated 8 October 2009. Unlike India, Myanmar agreed to submit the dispute to ITLOS. That is why the proceedings before this Annex VII Tribunal are parallel to those before ITLOS. The combined exercise of jurisdiction by ITLOS and this Tribunal will result in a final settlement among all claimants to this northern portion of the Bay of Bengal.

5.33 The sequence of the proceedings before ITLOS greatly facilitates a comprehensive settlement of the disputes of the respective parties. Pursuant to Article 9 of the Rules of Procedure governing this arbitration, the written stage of these proceedings is scheduled to be completed on 31 May 2013. It is very likely that ITLOS will have issued its judgment in the case between Bangladesh and Myanmar by that date. The written stage of the proceedings before ITLOS will be completed on 1 July 2011 and the oral hearings will be completed on 24 September 2011. Even if ITLOS were to take as much as 20 months following the close of the oral hearings to issue its judgment, it would still arrive before the close of the written proceedings in the case between Bangladesh and India. Thus, it is reasonable to presume that this Tribunal will be delivering its decision on the overlapping claims of Bangladesh and India to the outer continental shelf in the Bay of Bengal *after* ITLOS has already issued its judgment on the overlapping claims of Bangladesh and Myanmar.

Conclusions

4.34 For the foregoing reasons, this Tribunal has jurisdiction over all of the claims presented in Bangladesh's Statement of Claim of 8 October 2009. Since neither Bangladesh nor India has made a declaration under Article 287 of the 1982 Convention, both States are "deemed to have accepted arbitration in accordance with Annex VII" pursuant to Article 287(3).

4.35 All of the claims made by Bangladesh – including those pertaining to the continental shelf beyond 200 M – fall under the jurisdiction of this Tribunal because they concern the interpretation and application of the 1982 Convention. The advisory role of the CLCS in delimiting the outer limits of the continental shelf does not conflict with the exercise of jurisdiction. To the contrary, delimitation of the boundary by this Tribunal is a pre-condition for the issuance of recommendations by the CLCS. Furthermore, the jurisdiction of this Tribunal is not affected by Myanmar's claim to a part of the disputed area beyond 200 M, since the award to be rendered in this case will not be binding on Myanmar and cannot affect its rights in the area beyond 200 M in the Bay of Bengal.

CHAPTER 5
DELIMITATION OF THE TERRITORIAL SEA

5.1 In this Chapter, Bangladesh sets forth its arguments concerning the delimitation of the territorial sea. The starting point is Article 15 of the 1982 Convention, which provides that, in the absence of agreement or any claim to historic title or "other special circumstances," the delimitation is to follow an equidistance line. This makes clear that equidistance is the governing principle but only in the absence of "historic title" or "other special circumstances".

5.2 The present case raises one of the situations envisaged by Article 15 and earlier rules – as well as judicial and arbitral practice – where an equidistance line delimiting the territorial sea boundary is inappropriate. This is due to the "special circumstances" pertaining to the coastlines of Bangladesh and, in the relevant sectors, of India. In particular, the highly unstable coastline and the marked deltaic features result in an area to be delimited that is characterized by a highly active morpho-dynamism, as addressed in detail in Chapter 2. Consequently, it is extremely difficult – if not impossible – to establish stable basepoints from which to construct any meaningful equidistance line. Given this and related special circumstances, this Chapter sets out why the delimitation between the two Parties should be effected on the basis of the angle-bisector methodology, a far more viable and equitable method of delimitation in light of the geographic facts in this case.

5.3 The Chapter is divided into three sections. **Section I** describes the location of the land boundary terminus – the starting point for the delimitation of the territorial sea – by reference to the Radcliffe Award of the Bengal Boundary Commission, as described in Chapter 3. **Section II** describes the methodology for delimiting the territorial sea from the land boundary terminus seaward for a distance of twelve nautical miles. It is divided into seven parts: parts (1) and (2) describe the law applicable to the delimitation of the territorial sea and set out the regime established by Article 12(1) of the 1958 Convention on the Territorial Sea and Contiguous Zone and Article 15 of UNCLOS; part (3) describes the impact of the coastal geography on basepoints and baselines in the area to be delimited; parts (4) and (5) address the special circumstances regime by reference to judicial and arbitral authorities that confirm that Article 15 of the 1982 Convention does not mandate that equidistance be employed as the only method for the delimitation of the territorial sea, and there is no one method that necessarily and mandatorily applies; part (6) provides a summary of the special circumstances that pertain to the relevant coastline in the area to be delimited; and finally, part (7) provides concluding remarks on the method of de-

limitation. **Section III** addresses the application of the angle-bisector methodology to the territorial sea, referring to the more detailed discussion in Chapter 6.[1]

I. Location of the Land Boundary Terminus

5.4 As noted in Chapter 3,[2] the Indian Independence Act of 1947 dissolved the Province of Bengal and tasked the Bengal Boundary Commission with demarcating the boundary between the newly formed provinces of "East Bengal", which was to be transferred to the Dominion of Pakistan, and "West Bengal", which would be administered by the Dominion of India. The Radcliffe Award was completed on 12 August 1947; it established the entirety of the land boundary between India and East Pakistan, including the terminus of the boundary where it meets the Bay of Bengal.

5.5 Paragraph 10 of the Radcliffe Award states that "the boundary line is described in detail in the schedule which forms Annexure A to this award, and in the map attached thereto, Annexure B." The second paragraph of Annexure A describes the boundary line between East and West Bengal, providing that a line

> shall then be drawn from the point where the boundary between the Thanas of Haripur and Raiganj in the District of Dinajpur meets the border of the Province of Bihar *to the point where the boundary between the Districts of 24 Parganas and Khulna meets the Bay of Bengal*… (emphasis added)

The course of the boundary line is described in the following five paragraphs, the last one of which states:

> "The line *shall then run southwards* along the boundary between the Districts of Khulna and 24 Parganas, *to the point where that boundary meets the Bay of Bengal*."[3]

5.6 The Radcliffe Award thus determined that the terminus of the land boundary between India and Pakistan was located at the point where "the boundary between the Districts of Khulna and 24 Parganas … meets the Bay of Bengal". Bangladesh submits that the land boundary terminus established in 1947 has remained unchanged since that date, and is the land boundary terminus today. It is from this point that the delimitation of the maritime boundary is to begin.

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1 Memorial of Bangladesh (hereinafter "MB"), at paras. 6.84-6.128.

2 MB at paras. 3.3-3.8.

3 Bengal Boundary Commission, Report to His Excellency the Governor General (12 August 1947) (hereinafter "Radcliffe Award"), at Annexure A, para. 8. MB, Vol. III, Annex B12.

5.7 The Radcliffe Award included a map at Annexure B, stating however that "[t]he map is annexed for purposes of illustration, and if there should be any divergence between the boundary as described in Annexure A and as delineated in Annexure B, the description in Annexure A is to prevail".[4] As noted in Chapter 3, a certified copy of the original map annexed to the Radcliffe Award has not been available to Bangladesh, and different versions of the Radcliffe map are in existence.

- The Gazette of Pakistan of 17 August 1947 includes a Document entitled "Annexure 'B'", a "Map Showing the Boundaries between East and West Bengal & Sylhet District of Assam";[5] this is reproduced at **Figure 5.1** (in Volume II only). This depicts by means of a red line the course of the land boundary between India and Pakistan, including the boundary between the Districts of Khulna and 24 Parganas. However, the scale of the map is 1:2 million (or 1.014 inches/32 miles), which means that it cannot depict the course of the boundary with precision.

- An alternative map showing "Partition Boundaries in Bengal and Assam" produced by the British Foreign Office was obtained from the British Library and is reproduced at **Figure 5.2** (in Volume II only). This shows a thicker red line depicting the course of the land boundary between India and Pakistan, including the boundary between the Districts of Khulna and 24 Parganas, and then drawn into the sea running in a "southwards" direction, as set out in the Radcliffe Award.

- The reports of the Bengal Boundary Commission were also published in the Gazette of India; however, the map referred to in Annexure B is not published in that Gazette.[6]

5.8 In the absence of an authoritative map – one that is certified to be a true copy of the original prepared by the Radcliffe Commission – these maps are to be treated as illustrative. Nevertheless, the two maps identify the same boundary as described in the text of the Award. The Tribunal will note that in both maps the boundary as it approaches the sea is shown hugging the left (Indian) bank of the Raimangal Estuary.

5.9 The present-day land boundary between Bangladesh and India in the southwestern sector is "the boundary between the Districts of Khulna and 24 Parganas". As described

4 *Ibid.* at para. 7.

5 "Report by the Chairman of the Bengal Boundary Commission", reprinted in *The Gazette of Pakistan (extraordinary)* (17 August 1947), at Annexure B. MB, Vol. III, Annex B13.

6 Government of India, Legislative Department, "Report of the Bengal Boundary Commission", Notification No. F 68/47-R, reprinted in *The Gazette of India (extraordinary)* (17 August 1947), at p. 1065. MB, Vol. III, Annex B14.

in Chapter 3, the boundary between the District of Khulna (in Pakistan from 1947 to 1971 and in Bangladesh since 1971) and the District of 24 Parganas (India) was first established in 1882 and revised in 1925.[7] In the relevant southern-most sector, the district boundary is formed by "the midstream of the main channel for the time being of the rivers Ichhamati and Kalindi, Raimangal *and Hari[a]bhanga till it meets the Bay*".[8] As noted in Chapter 3, these rivers are sequential, and the channel of the Hariabhanga River extended beyond the river banks and retained an identified existence all the way through to the Raimangal Estuary and – for a distance of about six miles – up to the Bay of Bengal. This is confirmed by contemporaneous nautical charts showing the Hariabhanga channel to the west as being distinct from the Raimangal channel to the east, and by the description of the Raimangal Estuary in the 1886 Imperial Gazetteer of India.[9] Taking these elements, the land boundary described by the Radcliffe Award is depicted at **Figure 5.3** (in Volume II only) on the 1931 edition of the 1924 Admiralty Chart 859, which was current as at 15 August 1947.

5.10 The issue that remains to be determined is the point at which the land boundary drawn along this line "meets the Bay of Bengal". The channel of the Hariabhanga River runs into the Raimangal Estuary, which was considered internal waters under the *intra fauces terrae* ("enclosed by the jaws of land") doctrine.[10] In accordance with established practise at that time, as at 1947 the line dividing British India's internal waters from the sea was the closing line across the mouth of the Raimangal Estuary.[11] On the 1931 edition of the 1924 Admiralty Chart 859, an east-west closing line is depicted at **Figure 5.4A** (in Volume II only).

5.11 Taking these two elements together – (1) the mid-point of the Hariabhanga channel, and (2) the closing line across the mouth of the Raimangal Estuary – it is possible to identify the point where the land boundary meets the Bay of Bengal. Plotted on Indian

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7 Lieutenant Governor of Bengal, Notification of 4th July 1882, reprinted in *The Calcutta Gazette,* 5 July 1882, at p. 584. MB, Vol. III, Annex B8. *See also* MB at paras. 3.7-3.10.

8 Government of Bengal, Notification 964 Jur. (24 January 1925), reprinted in *The Calcutta Gazette* (29 January 1925), at p. 178 (emphasis added). MB, Vol. III, Annex B9.

9 W. W. Hunter, ed., *The Imperial Gazetteer of India,* Vol. VII (1881), at p. 483. MB, Vol. III, Annex B37. *See also* MB, chap. 3.

10 In *Annakumaru Pillai v. Muthupayal & ors.,* (1904) 27 I.L.R. Madras 551, the Madras High Court ruled that the Head Assistant Magistrate of the District of Ramnad had jurisdiction to try a number of individuals accused of stealing conch shells from the waters of Palk Bay. Although the thefts occurred in waters that were several miles from the shore, the Court ruled that the waters were the offence occurred were part of the District of Ramnad, because the waters in question were intra fauces terrae. See also *Reference re Ownership of Georgia Strait,* [1984] 1 S.C.R. 388 at 427 et seq. (Wilson J. dissenting, discussing the intra fauces terrae doctrine in historical context).

11 *Ibid*.

datum, this point is located at 21°38'09.8"N and 89°06'45.2"E. This is depicted on a modern chart at **Figure 5.4B** (in Volume II only). Referred to in WGS84, the point is located at 21°38'14"N and 89°06'39"E. Bangladesh submits that this is the land boundary terminus, and the starting point for the delimitation of the territorial sea.[12]

II. The Law Governing the Delimitation of the Territorial Sea

5.12 The legal regime of the territorial sea is long-established. It was not until the first United Nations Conference on the Law of the Sea, held in Geneva in 1958, that the rules were codified through the adoption of four conventions, including the Convention on the Territorial Sea and the Contiguous Zone, which Pakistan signed on 31 October 1958 but, like Bangladesh after 1971, never ratified. India did not sign or become a party to this 1958 Convention or the other three.

A. The 1958 Convention

5.13 The 1958 Territorial Sea Convention established that the "sovereignty of a State extends, beyond its land territory and its internal waters, to a belt of sea adjacent to its coast, described as the territorial sea."[13] The 1958 Convention also stated for the first time the principles applicable in the delimitation of the territorial sea between States. Article 12(1) established what is commonly referred to as the equidistance/special circumstances rule according to which, failing agreement to the contrary, the territorial sea boundary between two States is "the median line every point of which is equidistant from the nearest points on the baselines from which the breadth of the territorial seas of each of the two States is measured".[14] However, Article 12 contains an important exception to the equidistance method of delimitation: the provision is inapplicable "where it is necessary by reason of historic title *or other special circumstances* to delimit the territorial seas of the two States in a way which is at variance with this provision."[15]

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12 Lucius Caflisch, "Règles générales du droit des cours d'eau internationaux", *Recueil des Cours: Collected Courses of the Hague Academy of International Law,* Vol. 219 (1989), at p. 88 (stating that "as a matter of principle, the end point of the river boundary is the starting point of the sea boundary" (translated from French)). MB, Vol. III, Annex B40.

13 Convention on the Territorial Sea and the Contiguous Zone, 516 UNTS 205 (29 April 1958), entered into force on 10 September 1964, Art. 1(1). MB, Vol. III, Annex B2.

14 *Ibid.,* Art. 12(1).

15 *Ibid*. (emphasis added).

B. The 1982 Convention

5.14 The 1982 Convention further codified international law and developed a comprehensive and integrated regime of the law of the sea within a single instrument. For purposes of the delimitation of the territorial sea, Article 15 of UNCLOS is virtually identical to Article 12(1) of the 1958 Territorial Sea Convention, save for "minor editorial changes".[16] Article 15 states:

> Where the coasts of two States are opposite or adjacent to each other, neither of the two States is entitled, failing agreement between them to the contrary, to extend its territorial sea beyond the median line every point of which is equidistant from the nearest points on the baselines from which the breadth of the territorial seas of each of the two States is measured. The above provision does not apply, however, where it is necessary by reason of historic title or other special circumstances to delimit the territorial seas of the two States in a way which is at variance therewith.

This provision was adopted without substantive discussion as regards the method of delimitation to be utilized in the territorial sea.[17]

5.15 Bangladesh and India signed UNCLOS on 10 December 1982 and both have since ratified the Convention.[18] UNCLOS entered into force on 15 November 1994 and has been in force as between Bangladesh and India since 27 July 2001.

5.16 The delimitation of the territorial sea between Bangladesh and India therefore falls to be effected on the basis of the principles set out in Article 15. The provision makes clear that in the absence of agreement, historic title or special circumstances the boundary line will follow a median (or equidistance) line. Between 1947 and 1971 there was no agreement between Bangladesh and Pakistan on the delimitation of their territorial seas. Since 1971, despite continuing efforts at negotiation described in Chapter 3, there has been no agreement between Bangladesh and India. This distinguishes the situation in the present dispute from that pertaining between Bangladesh and Myanmar. Neither party claims a historic title over the relevant area to be delimited.[19]

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16 *Territorial and Maritime Dispute between Nicaragua and Honduras in the Caribbean Sea (Nicaragua v. Honduras)*, Judgment, I.C.J. Reports 2007 (hereinafter "*Nicaragua v. Honduras*"), at para. 280. See also *Maritime Delimitation and Territorial Questions between Qatar and Bahrain (Qatar v. Bahrain)*, Merits, Judgment, I.C.J. Reports 2001, p. 40 (hereinafter "*Qatar v. Bahrain*"), at para. 176.

17 *Nicaragua v. Honduras* at para. 280.

18 Ratification was effected on 27 July 2001 for Bangladesh and 29 June 1995 for India.

19 MB at para. 5.2.

C. The Impact of Coastal Geography on Basepoints and Baselines

5.17 It is clear from the wording of Article 15 that in the absence of agreement, special circumstances or historic title, UNCLOS places primacy on the median line method of delimitation in the territorial sea.[20] In this case, however, there is a special circumstance: the transient nature of the coastal geography that is due in large part to the very active morpho-dynamism of the area. It is the rapid pace of coastal migration throughout the Bengal Delta that makes it a unique area to be delimited. This area is contained within the world's largest river delta formed by an extensive river system, which transports almost one thousand million tons of Himalayan sediments towards the Bay of Bengal annually.[21] The depositing of sediment has resulted in the land territory of Bangladesh being extended 100 km seawards into the Bay of Bengal since the end of the last ice age.[22] However, the western two-thirds of the Delta is slowly eroding.[23] Annual cyclones that often spawn the emergence of silty islets, or wash them away, further aggravate the situation, resulting in a uniquely unstable coastline.

5.18 The unique deltaic features of the coastal have a number of significant consequences for the delimitation of the maritime boundary between Bangladesh and India. *First*, the transient coastal features make it impossible to rely on normal baselines as described in Article 5 of the 1982 Convention. Neither Bangladesh nor India has sought to claim such baselines.

5.19 *Second*, having regard to "the very active morpho-dynamism", as the ICJ put it in the *Nicaragua* v. *Honduras* case, it is not possible to establish viable basepoints on normal baselines. It is therefore not possible to draw a provisional equidistance line based on normal baselines.[24]

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20 *Delimitation of Maritime Boundary between Guyana and Suriname*, Award, 17 September 2007, *available at* <http://www.pca-cpa.org/upload/files/Guyana-Suriname%20Award.pdf>, at para. 296. Reproduced in MB, Vol. V.

21 MB at para. 2.13; S. Kuehl et al., "The Ganges-Brahmaputra Delta", in *River Deltas – Concepts, Models, and Examples* (L. Giosan & J. Bhattacharya eds., 2005) (hereinafter "Kuehl et al. (2005)"), at p. 413. MB, Vol. IV, Annex B71; Joseph R. Curray, "The Bay of Bengal: Tectonics, Stratigraphy and History of Formation" (26 May 2011). MB, Vol. IV, Annex B52.

22 S. Kuehl et al., "Subaqueous Delta of the Ganges-Brahmaputra River System", *Marine Geology,* Vol. 144, No. 1 (1997) (hereinafter "Kuehl et al. (1997)"), at p. 84. MB, Vol. IV, Annex B57.

23 Mead A. Allison, "Historical Changes in the Ganges-Brahmaputra Delta Front", *Journal of Coastal Research,* Vol. 14, No. 4 (1998) (hereinafter "Allison (1998a)"), at p. 1270. MB, Vol. IV, Annex B61.

24 *Nicaragua v. Honduras* at paras. 277-78.

5.20 Against this background, and as noted in Chapter 3, Bangladesh and India have both drawn straight baselines. As in its case with Myanmar, Bangladesh does not rely on the straight baselines it adopted in 1974.[25]

5.21 As regards the straight baselines declared by India in May 2009, Bangladesh submits that they cannot be relied upon in these delimitation proceedings. Without prejudice to areas beyond the delimitation at issue in this case, India's purported straight baselines adopted in 2009 by Notification S.O. 1197(E) – as depicted in Figure 3.3 – do not conform to the requirements of Article 7 of the 1982 Convention.

5.22 Under Article 7, straight baselines are appropriate in only two circumstances: (1) if the coastline is deeply indented and cut into, or (2) if there is a fringe of islands along the coast in its immediate vicinity. India's Bengal Delta coast, extending from the land boundary terminus with Bangladesh to the west for approximately 150 km satisfies both of these conditions: it is indented and characterized by a large number of islands. In contrast, however, India's coast in areas eastward of this limited area satisfies *neither* of the Article 7 requirements. As noted in Chapter 2, west and south of the Hooghly River the character of India's coast changes dramatically as the Bengal Delta gives way to the coast of peninsular India.[26] Here, the coast is regular and unremarkable and there are few islands present. Within the shallow curvature that dominates the coast up to Maipura Point, there are long stretches of sandy beaches interspersed by occasional mangrove stands.

5.23 As shown in Figure 3.3, India fails to address the significant differences between its Bengal Delta coast and its coastline between the Hooghly River and Maipura Point: it purports to encompass the entire length of the coast within a single straight baseline segment running from a purported "basepoint 86" at Maipura Point through to "basepoint 87" on "West Spit", near the land boundary terminus with Bangladesh. This single segment covers a distance of approximately 100 M and encloses an expanse of sea measuring more than 8,000 sq km. Beyond "basepoint 87", India also claims two additional basepoints, namely "basepoint 88" and "basepoint 89": both are located in maritime areas claimed by Bangladesh. In any event, India is not entitled to use its coastal frontage on the Bengal Delta to claim straight baselines that connect this deltaic coast to its wholly unremarkable peninsular coast, all the more so where the direction of the straight baselines in question depart substantially – nearly 20° – from the generally east-west orientation of the Bengal Delta.

25 MB at paras. 3.21-3.26.

26 MB at para. 2.28.

5.24 Even beyond this evident defect, India's straight baselines in the area to be delimited have other flaws that render them inconsistent with the requirements of Article 7. Article 7(3) requires that "the sea areas lying within the lines be sufficiently closely linked to the land domain to be subject to the regime of internal waters". Yet the "internal" waters on the landward side of India's purported straight baselines connecting basepoints 86-89 measure nearly 8000 sq km and are located as far as 40 M from the nearest land territory. This area cannot therefore be considered "closely linked to the land domain".

5.25 Article 7(4) provides that

> Straight baselines shall not be drawn to and from low-tide elevations, unless lighthouses or similar installations which are permanently above sea level have been built on them or except in instances where the drawing of baselines to and from such elevations has received general international recognition.

In the area to be delimited there are no lighthouses or similar installations as referred to in Article 7(4), and India's straight baselines have not received general international recognition. Nevertheless, India has purported to place the three basepoints closest to Bangladesh (numbers 87, 88, and 89) on low-tide elevations, all of which are situated at a considerable distance from the nearest high-tide coast. Thus, "basepoint 87" lies 11 M offshore well into the Bay of Bengal. In making use of these purported low-tide elevations, India appears to have been motivated only by the desire to maximize its maritime claim: there is no principled approach, nor consistency with the requirements of the 1982 Convention.

5.26 Moreover, even if it could be justified to draw straight baselines on the basis of low-tide elevations, it is apparent that these basepoints are not now located on such elevations. **Figure 5.5** (in Volume II only) is a Landsat image of the Ganges-Brahmaputra delta showing the location of the easternmost portion of India's straight baselines claim. The bottom image removes the claim line to show that there are no low tide features or lighthouses apparent in the location of India's claim line. It is apparent that acting in May 2009, India purported to rely on low-tide elevations where none actually existed at that date. In any event, there are certainly no lighthouses or other types of installations present.

5.27 For these reasons, Bangladesh has objected to India's baselines. In response to India's May 2009 Notification, for instance, Bangladesh sent a Note Verbale dated 25 October 2009 to the Indian Foreign Ministry, in which it stated:

> The Government of Bangladesh believes that neither of the circumstances exists to justify the straight baseline claims of India along its east coast. In addition, some of the base points for these straight baselines are completely at sea, (i) without reference to any low water mark of any proximate area of terra firma and (ii) not grounded on some form of coastline.[27]

5.28 For these reasons, India's straight baselines are not justified by reference to the 1982 Convention and cannot be used in this delimitation.

D. Special Circumstances under Article 15

5.29 As noted, Article 15 of UNCLOS recognises exceptions to the equidistance method of maritime delimitation within the territorial sea. The equidistance/special circumstances rule set out in Article 15 is a principle of customary international law,[28] and must be understood in light of the equitable principles applicable in the delimitation of maritime areas. The primary objective and indeed the very *raison d'être* of the equidistance/special circumstances rule is the achievement of an equitable result.

5.30 The concept of special circumstances in Article 15 is drawn directly from the text of Article 6 of the 1958 Convention on the Continental Shelf[29] in which it is established that in the absence of agreement "and unless another boundary line is justified by special circumstances" the boundary of the continental shelf between two States whose coasts are opposite each other is to be a median line "every point of which is equidistant from the nearest points of the baselines from which the breadth of the territorial sea of each State is measured". Paragraph 2 of Article 6 sets out a virtually identical rule in relation to adjacent States but uses "equidistance" rather than a "median line". In the *Qatar v. Bahrain* case, the ICJ ruled that the equidistance/special circumstances rule is "closely interrelated" to the equitable principles/relevant circumstance rule with regard to the delimitation of the EEZ and continental shelf.[30]

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27 *Note Verbale* from the Bangladesh Ministry of Foreign Affairs to the Indian Ministry of Foreign Affairs, No. MOFA/UNCLOS/320/1/187 (25 October 2009) at p. 1. MB, Vol. III, Annex B22.

28 *Qatar v. Bahrain* at para. 176 (explaining that "Article 15 of the 1982 Convention is virtually identical to Article 12, paragraph 1, of the 1958 Convention on the Territorial Sea and the Contiguous Zone, and is to be regarded as having customary character").

29 Convention on the Continental Shelf, 499 UNTS 311 (29 April 1958), entered into force 10 June 1964. MB, Vol. III, Annex B1.

30 *Ibid*. at para. 231.

5.31 The concept of special circumstances was addressed by the Court of Arbitration in the *Anglo/French Continental Shelf Case*.[31] The Court of Arbitration noted that the *travaux préparatoires* of Article 6 of the Continental Shelf Convention showed that the "special circumstances" principle was introduced to address a situation where "owing to particular geographical features or configurations, application of the equidistance principle might not infrequently result in an unreasonable or inequitable delimitation of the continental shelf."[32] The Court of Arbitration went on to find:

> the role of the "special circumstances" condition in Article 6 is to ensure an equitable delimitation; and the combined "equidistance-special circumstances rule", in effect, gives particular expression to a general norm that, failing agreement, the boundary between States abutting on the same continental shelf is to be determined on equitable principles. In addition, Article 6 neither defines "special circumstances" nor lays down the criterion by which it is to be assessed whether any given circumstances justify a boundary line other than the equidistance line. Consequently, even under Article 6 the question whether the use of the equidistance principle or some other method is appropriate for achieving an equitable delimitation is very much a matter of appreciation in the light of the geographical and other circumstances. In other words, even under Article 6 it is the geographical and other circumstances of any given case which indicate and justify the use of the equidistance method as the means of achieving an equitable solution rather than the inherent quality of the method as a legal norm of delimitation.[33]

5.32 The reasoning of the Court of Arbitration in the *Anglo/French Continental Shelf Case* – which related to Article 6 of the 1958 Continental Shelf Convention – is equally germane to the equidistance/special circumstances rule in Article 15 of UNCLOS, where the language is the same. The equidistance method is to be applied in cases where it would lead to an equitable solution but in cases such as the present where owing to particular special circumstances (set out at paragraphs 5.40 – 5.46 below) an alternative method of delimitation is to be utilized.

5.33 The equidistance/special circumstances rule is intended to reflect an element of flexibility in the delimitation of the territorial sea owing to the particular circumstances of individual cases. This is clear from the International Law Commission's commentary to draft Article 14 (which was to become Article 12 of the 1958 Territorial Sea Convention),

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31 *Delimitation of the Continental Shelf between France and the United Kingdom,* Decision, 30 June 1977, *reprinted in* 18 RIAA 3 (hereinafter "*Anglo/French Continental Shelf Case*"). Reproduced in MB, Vol, V.

32 *Ibid*. at para. 70.

33 *Ibid*.

which recognizes that the Commission considered that the equidistance/special circumstances rule should be "very flexibly applied".[34] In a similar fashion, the commentary to draft Article 72 (which would eventually become Article 6 of the 1958 Continental Shelf Convention) states:

> For the determination of the limits of the continental shelf the Commission adopted the same principles as for the articles 12 and 14 concerning the delimitation of the territorial sea. As in the case of the boundaries of the territorial sea, provision must be made for departures necessitated by any exceptional configuration of the coast, as well as the presence of islands or of navigable channels. This case may arise fairly often, so that the rule adopted is fairly elastic.[35]

5.34 One feature of the present case is that the coastlines of Bangladesh and India are adjacent, not opposite. In the ICJ case law relating to maritime delimitation, a distinction has been made between adjacent and opposite coastlines. In the *North Sea Cases*, for example, the Court held that "whereas a median line divides equally between the two opposite countries areas that can be regarded as being the natural prolongation of the territory of each of them, a lateral equidistance line often leaves to one of the States concerned areas that are a natural prolongation of the territory of the other."[36] This point was reiterated by the Court in the *Libya/Malta* case:

> [i]t is well to recall the precise reason why the Court in its 1969 Judgment [in the *North Sea Cases*] contrasted the effect of an equidistance line between opposite coasts and the effect between adjacent coasts. In the latter situation, any distorting effect of a salient feature might well extend and increase through the entire course of the boundary; whilst in the former situation, the influence of one feature is normally quickly succeeded and corrected by the influence of another, as the course of the line proceeds between more or less parallel coasts.[37]

E. Equidistance is Not Mandatory in the Territorial Sea

5.35 The equidistance/special circumstances rule set out in Article 15 of the 1982 Convention does not comprise two separate rules but rather forms one combined rule. In the delimitation of the territorial sea, international practice provides clear evidence that the

34 *Yearbook of the International Law Commission* (1956), Vol. II, at 272. MB, Vol. III, Annex B29.

35 *Ibid.* at p. 300.

36 *North Sea Continental Shelf (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands)*, Judgment, I.C.J. Reports 1969, p. 3 (hereinafter "*North Sea Cases*"), at para. 58.

37 *Continental Shelf (Libyan Arab Jamahiriya/Malta)*, Judgment, I.C.J. Reports 1985, p. 13 (hereinafter "*Libya/Malta*"), at para. 70.

equidistance method of delimitation is not to be applied mechanically: equidistance does not have an automatic *a priori* character requiring a provisional equidistance line to be drawn and then adjusted to take special circumstances into consideration.

5.36 A number of judicial pronouncements have clearly rejected the mandatory application of equidistance in the delimitation of the territorial sea and the approach was recently confirmed by the ICJ in the *Nicaragua v. Honduras* case. The Court noted that, in relation to all maritime spaces, "the equidistance method does not automatically have priority over other methods of delimitation and, in particular circumstances, there may be factors which make the application of the equidistance method inappropriate".[38] The Court in that case concluded that it "finds itself within the exception provided for in Article 15 of UNCLOS, namely facing special circumstances in which it cannot apply the equidistance principle".[39]

5.37 The special circumstances included the "geographical configuration" of the area to be delimited, including the fact that a "pair of base points to be identified … would assume a considerable dominance in constructing an equidistance line, especially as it travels out from the coast".[40] The Court recognised that "given the close proximity of these base points to each other, any variation or error in situating them would become disproportionately magnified in the resulting equidistance line", and noted also that "the sediment carried to and deposited at sea by the River Coco have caused its delta, as well as the coastline to the north and south of the Cape, to exhibit a very active morpho-dynamism", with the consequence that any equidistance line constructed today might be rendered "arbitrary and unreasonable in the near future".[41] The Court noted that these particular geographical and geological difficulties were "further exacerbated by the absence of viable base points claimed or accepted by the Parties themselves", and that there was a "difficulty in identifying reliable base points".[42]

5.38 Taking together all these factors, the Court concluded that it was "impossible … to identify base points and construct a provisional equidistance line for the single maritime boundary delimiting maritime areas off the Parties' mainland coasts".[43] This finding applied also to the territorial sea, having regard to the fact that "[n]othing in the word-

38 *Nicaragu*a v. *Honduras* at para. 272.

39 *Ibid.* at para. 281.

40 *Ibid*. at para. 277.

41 *Ibid*.

42 *Ibid*. at paras. 278-9.

43 *Ibid.* at para. 280.

ing of Article 15 suggests that geomorphological problems are *per se* precluded from being 'special circumstances'" within the meaning of the exception, nor that such "special circumstances" may only be used as a corrective element to a line already drawn.[44] The Court finally concluded that its approach was supported by "the wording of the exception described in Article 15", by the text of Article 12 of the 1958 Convention on which it was based and which "envisaged that a special configuration of the coast might require a different method of delimitation", and by its jurisprudence. [45]

5.39 This recent judgment therefore confirms that geographical and geomorphological factors can and do give rise to special circumstances within the meaning of Article 15, and that Article 15 does not mandate the drawing of an equidistance line. These factors are equally applicable in the present case, which is characterized by the unique circumstances of the coastal geography in this part of the Bay of Bengal.

F. Special Circumstances in the Bay of Bengal in the Area to be Delimited

1. Coastal Instability

5.40 As described in Chapter 2, Bangladesh's coastline is highly unstable, due largely to the vast quantities of sediment that are continually being deposited in the Bengal Delta. Bangladesh is widely recognized to have a unique coastal geography: it is characterised by a low mean elevation, and the combined effect of tropical cyclones, annual monsoon rains, tidal streams and sea-level rise has resulted in a delta which is in a perpetual state of flux. The deltaic nature of the coastline has resulted in the creation, disappearance, and reappearance of a great number of islands and low-tide elevations in close proximity offshore. Accretion is a particularly dominant physical process at work in the eastern third of the Delta near the mouth of Meghna River, whereas the western two-thirds are eroding.[46]

5.41 In *Nicaragua v. Honduras*, with regard to the boundary in the territorial sea, the ICJ identified a similar yet less extensive coastal instability giving rise to the presence of "geomorphological changes" that were found to constitute a "special circumstance" within the meaning of Article 15. Nicaragua argued, *inter alia*, that the instability of the mouth of the River Coco made it "unduly problematic" to construct a provisional equidistance line and instead proposed the construction of a "bisector of two lines representing the

44 *Ibid.*

45 *Ibid*. at para. 281.

46 *See* MB at para. 2.17; Allison (1998a) at p. 1270. MB, Vol. IV, Annex B61.

entire coastal front of both states…"[47] The Court acknowledged that "neither Party has as its main argument a call for a provisional equidistance line as the most suitable method of delimitation."[48] It ruled:

> The Parties agree, moreover, that the sediment carried to and deposited at sea by the River Coco have caused its delta, as well as the coastline to the north and south of the Cape, to exhibit a very active morpho-dynamism. Thus continued accretion at the Cape might render any equidistance line so constructed today arbitrary and unreasonable in the near future.[49]

5.42 The factors identified by the Court in the passage above pertaining to the coastal geography demonstrated that there was an absence of viable basepoints from which an equidistance line could be drawn. The reasoning of the Court was that UNCLOS explicitly envisages an exception to the drawing of median line, and that nothing in the wording of Article 15 "suggests that geomorphological problems are *per se* precluded from being 'special circumstances' within the meaning of the exception…"[50] The extreme and unique character of Bangladesh's coastline in this case necessarily means that the Annex VII Tribunal finds itself in the same situation as that the ICJ faced in *Nicaragua v. Honduras*: the circumstances are so special that the Tribunal is in a situation that is "within the exception provided for in Article 15 of UNCLOS, namely facing special circumstances in which it cannot apply the equidistance principle."[51]

5.43 In *Nicaragua v. Honduras,* the *travaux préparatoires* of the text of Article 12 of the 1958 Convention on the Territorial Sea were found to envisage that "a special configuration of the coast might require a different method of delimitation" and the jurisprudence of the Court itself was held not to be "at variance with the ordinary meaning of the terms of Article 15 of UNCLOS."[52]

5.44 As outlined above and in Chapter 2, the Tribunal faces a comparable set of circumstances in the present case. The coastline of Bangladesh is among the most unstable in the world. This makes it impossible to identify stable basepoints for the purpose of drawing an equidistance line. The instability of the coastline is reflected in the rationale adopted to justify Bangladesh's 1974 straight baselines; although not relied upon for the purposes of this maritime delimitation, they were adopted precisely because of the complex task Ban-

47 *Nicaragua v. Honduras* at para. 273.

48 *Ibid*. at para. 275.

49 *Ibid*. at para. 277.

50 *Ibid*. at para. 280.

51 *Ibid*. at para. 281.

52 *Ibid*.

gladesh faced in the establishment of fixed basepoints.[53] An equidistance line to delimit the territorial sea is not feasible in light of highly pronounced deltaic features and the very active morpho-dyanamism present along Bangladesh's coastline.

2. The Concave Nature of Bangladesh's coastline

5.45 A further predominant feature that comes into play in this case is the concave nature of the relevant coastlines, which is especially pronounced in the northeastern corner of the Bay of Bengal. Because of this feature, India's proposed equidistance line imposes a distinct cut-off effect highly prejudicial to Bangladesh: this is evident from Figure 1.1.

5.46 As described in paragraph 2.2 above, Bangladesh's entire coast is generally concave, but the middle third of its coastline is characterized by a second, even deeper concavity.[54] As a result, the combined effect of the equidistance boundary lines proposed by India and Myanmar is to produce a severe cut-off effect, depriving Bangladesh of large areas of maritime space to which it is otherwise entitled.[55] A similar situation pertained to the coastline of Germany. In the *North Sea Cases,* the ICJ found that the combined effect of the equidistance lines drawn from the land boundary termini between Germany and Denmark, and Germany and the Netherlands was to "pull the line of the boundary inwards, in the direction of the concavity."[56] As such, in a case where the curvature is pronounced, as is the case in the present proceedings, two equidistance lines meet a short distance from the coast of the middle State, resulting in an inequitable solution. The inequitableness of a boundary based on equidistance in these geographical circumstances is more fully demonstrated in Chapter 6.[57] To avoid repetition, that discussion is incorporated by reference here.

5.47 On this basis the Tribunal finds itself in a situation which is analogous to that of the ICJ in *Nicaragua v. Honduras,* as well as in the *North Sea Cases*, in both of which the Court was precluded from applying equidistance by reason of special circumstances. As such, Bangladesh submits that the Tribunal should apply an alternative method for the delimitation of the territorial sea between Bangladesh and India.

53 MB at paras. 3.22-3.26.

54 *See* MB, figures 1.1 and 6.5.

55 *See* MB, figure 1.1.

56 *North Sea Cases* at para. 8.

57 MB at paras. 6.37-6.83.

III. The Application of the Angle Bisector Methodology

5.48 This is a case in which highly unstable coastlines coupled with their concave nature make any reference to a provisional equidistance line inappropriate if not impossible. In such circumstances, having regard to the case-law of the ICJ and of international arbitral tribunals, the most appropriate method of delimitation in this case is that of an angle-bisector line as was adopted in the *Nicaragua v. Honduras*, *Guinea/Guinea-Bissau*, and *Gulf of Maine* cases. The basis for drawing an angle bisector line is addressed in the following Chapter.

Conclusions

5.49 In summary, eight points may be drawn from this Chapter:

- *First,* the Radcliffe Award determines the land boundary between India and Bangladesh, and provides that the land boundary terminus is located at the point where the boundary line following the main channel of the Hariabhanga River meets the Bay of Bengal;

- *Second*, the land-boundary terminus is located at 21°38'14"N and 89°06'39"E when referenced to the WGS84 datum, as shown in Figure. 5.4B;

- *Third*, the law applicable to the delimitation of the territorial sea between Bangladesh and India is Article 15 of UNCLOS;

- *Fourth,* Article 15 of UNCLOS provides that the equidistance method does not apply to the delimitation of the territorial sea when there are special circumstances;

- *Fifth,* there is no agreement between the Parties as to the delimitation of the territorial sea, nor is the area subject to historic rights;

- *Sixth,* the relevant coastline of Bangladesh and India is characterised by a very active morpho-dynamism that makes the use of equidistance inappropriate;

- *Seventh,* in the circumstances, it is not possible to establish clearly identifiable and acceptable baselines and basepoints, as a result of which it is not possible to draw a provisional equidistance line, and the equidistance line proposed by India is not justifiable by reference to the requirements of the 1982 Convention.

- *Eighth,* in all the circumstances, India's use of equidistance is manifestly inappropriate and inequitable to Bangladesh.

5.50 For these reasons, Bangladesh submits that the maritime boundary of the territorial sea should be delimited by application of an angle-bisector, using as its starting point the terminus of the land boundary located at coordinates 21°38'14"N and 89°06'39"E. As Bangladesh has requested the Tribunal to construct a single maritime boundary encompassing all maritime zones, the precise bearing of the bisector line is set out in the following Chapter, which addresses the delimitation of the EEZ and the continental shelf within 200 M. Bangladesh notes that the ICJ has on occasion drawn a line of maritime delimitation that has "worked backwards" from a line drawn initially from beyond the territorial sea.[58]

58 *Nicaragua v. Honduras* at para. 280.

CHAPTER 6
DELIMITATION OF THE CONTINENTAL SHELF WITHIN 200 M AND THE EEZ

6.1 This Chapter sets forth Bangladesh's arguments concerning the delimitation of the continental shelf up to 200 M and the EEZ. Bangladesh's claims concerning the continental shelf in the area beyond 200 M are addressed in Chapter 7.

6.2 Bangladesh submits that the continental shelf within 200 M and the EEZ should be delimited by means of a line following a geodesic azimuth of N180°E, beginning at the outer limit of the territorial sea boundary as described in Chapter 5 and extending up to the 200 M limit. This line is depicted in **Figure 6.1** (following the next page). The end point of the 180° line[1] would serve as both the outer limit of the EEZ and the starting point for the delimitation of the outer continental shelf as discussed in Chapter 7.

6.3 **Section I** of this Chapter reviews the applicable law, and discusses the origins and content of the juridical regime of the continental shelf and EEZ. It also addresses the most pertinent aspects of the international judicial and arbitral case law concerning the delimitation of the continental shelf and EEZ that has been developed by the ICJ and international arbitral tribunals over the past four decades.

6.4 **Section II** addresses the delimitation of the continental shelf within 200 M and the EEZ in this case. Bangladesh will show that in the context of the unusual geographic circumstances prevailing in the Bay of Bengal, the equidistance method does not produce the equitable solution required by the 1982 Convention. Accordingly, the relevant circumstances call for an alternative delimitation methodology. In conformity with established jurisprudence, Bangladesh submits that the angle-bisector method is the most appropriate alternative. As will be seen, the angle-bisector method leads to a result that is both consistent with the prevailing geographic realities and equitable to both Parties.

I. The Applicable Law

A. The Regime of the Continental Shelf and the EEZ

6.5 The regime of the continental shelf is governed by Part VI of the 1982 Convention (comprising Articles 76 through 85). Article 76(1) defines the continental shelf of a coastal State as

1 18°18'18" N – 89°06'39" E (WGS84).

> the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.

6.6 Coastal States are thus entitled to a continental shelf extending either (1) to a distance of 200 M from their baselines, or (2) to the outer edge of the continental margin when that margin extends beyond 200 M. As noted in Chapter 7, Articles 76(4) and (5) impose limits beyond which a State's continental shelf may not extend.

6.7 Article 77(1) provides that a coastal State "exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources". Article 77(3) reaffirms Article 2(3) of the 1958 Continental Shelf Convention and makes clear that a coastal State's rights over the continental shelf are inherent; they "do not depend on occupation, effective or notional, or on any express proclamation".

6.8 Unlike the territorial sea regime, the roots of which are long-established, the regime of the continental shelf is of more recent provenance, emerging in its modern form with the Truman Proclamation of 28 September 1945. It was first codified thirteen years later in the 1958 Convention on the Continental Shelf.

6.9 From the outset, the idea that the continental shelf was – in the words of the Truman Proclamation – "an extension of the land-mass of the coastal nation" has formed an essential element of the governing legal regime.[2] In its 1969 Judgment in the *North Sea Continental Shelf* cases, the ICJ gave expression to this concept as the "natural prolongation" of the land territory of the coastal State "into and under the high seas."[3] According to the Court:

> There are various ways of formulating this principle, but the underlying idea, namely of an extension of something already possessed, is the same, and it is this idea of extension which is, in the Court's opinion, determinant. … What confers the ipso jure title which international law attributes to the coastal State in respect of its continental shelf, is the fact that *the*

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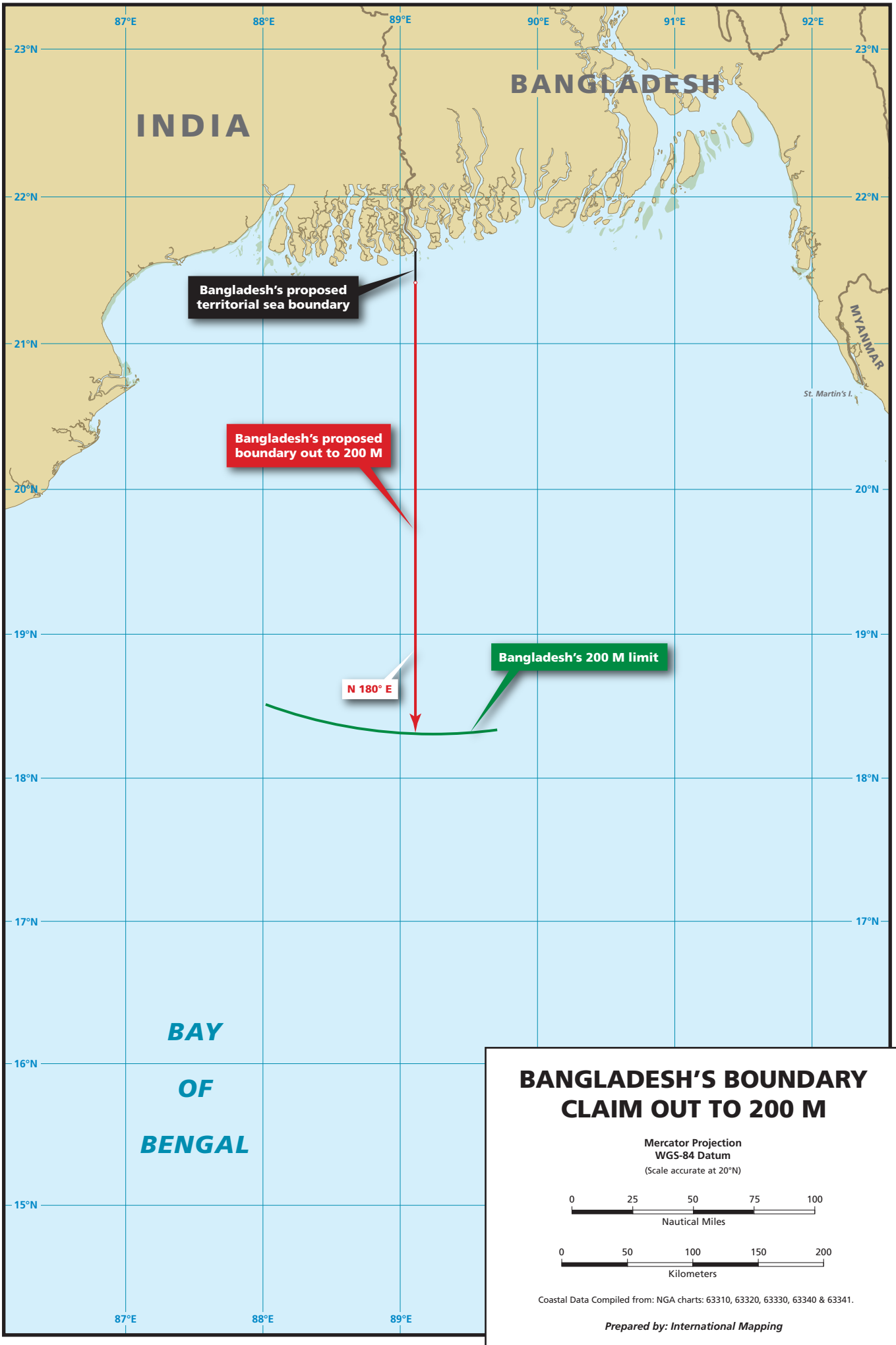
2 Presidential Proclamation 2667, "Policy of the United States With Respect to the Natural Resources of the Subsoil and Sea Bed of the Continental Shelf" (1 October 2003), reprinted in *U.S. Federal Register,* Vol. 10, p. 12,303 (2 October 1945) (hereinafter "Truman Proclamation (1945)"). MB, Vol. III, Annex B4.

3 *North Sea Continental Shelf (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands)*, Judgment, I.C.J. Reports 1969 at p. 3 (hereinafter "*North Sea Cases*"), at para. 43.


87°E
88°E
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92°E
23°N
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21°N
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18°N
17°N
16°N
15°N
INDIA
BANGLADESH
MYANMAR
St. Martin's I.
Bangladesh's proposed territorial sea boundary
Bangladesh's proposed boundary out to 200 M
Bangladesh's 200 M limit
N 180° E
BAY
OF
BENGAL
BANGLADESH'S BOUNDARY CLAIM OUT TO 200 M
Mercator Projection
WGS-84 Datum
(Scale accurate at 20°N)
0 25 50 75 100
Nautical Miles
0 50 100 150 200
Kilometers
Coastal Data Compiled from: NGA charts: 63310, 63320, 63330, 63340 & 63341.
Prepared by: International Mapping

Figure 6.1

> *submarine areas concerned may be deemed to be actually part of the territory over which the coastal States already has dominion*, – in the sense that, although covered with water, *they are a prolongation or continuation of that territory, an extension of it under the sea*.[4]

6.10 This concept of "natural prolongation" was subsequently incorporated into Article 76 of the 1982 Convention, paragraph 1 of which provides that the continental shelf of a coastal State extends "throughout the natural prolongation of its land territory".[5]

6.11 Natural prolongation as such is no longer relevant to a coastal State's title over the continental shelf *within* 200M. Article 76(1), as interpreted in the jurisprudence, gives coastal States a presumptive entitlement to a 200 M continental shelf regardless of whether or not they have a natural prolongation extending to that distance. The ICJ confirmed this in its 1985 Judgment in the *Libya/Malta* case.[6] Nonetheless, as elaborated in Chapter 7, natural prolongation remains the basis of entitlement in the area *beyond* 200 M.

6.12 The exclusive economic zone is of even more recent provenance than the continental shelf and is governed by UNCLOS Part V (comprising Articles 55 to 74). Article 55 defines the exclusive economic zone as

> an area beyond and adjacent to the territorial sea, subject to the specific legal regime established in this Part, under which the rights and jurisdiction of the coastal State and the rights and freedoms of other States are governed by the relevant provisions of this Convention.

6.13 Unlike a coastal State's rights in the continental shelf which exist *ipso facto* and *ab initio*, an EEZ must be affirmatively claimed. When the coastal State does so, Article 57 provides that "The exclusive economic zone shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured".

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4 *Ibid.* (emphasis added).

5 M. Nordquist et al., eds., *United Nations Convention on the Law of the Sea 1982: A Commentary,* Vol. II (1993) (hereinafter "*Virginia Commentary,* Vol. II (1993)"), at p. 843. MB, Vol. III, Annex B42.

6 Specifically, the Court stated:

> The Court however considers that since the development of the law enables a State to claim that the continental shelf appertaining to it extends up to as far as 200 miles from its coast, whatever the geological characteristics of the corresponding sea-bed and subsoil, there is no reason to ascribe any role to geological or geophysical factors within that distance either in verifying the legal title of the States concerned or in proceeding to a delimitation as between their claims.

Continental Shelf (Libyan Arab Jamahiriya/Malta), Judgment, I.C.J. Reports 1985, p. 13 (hereinafter "*Libya/Malta*"), at para. 39.

6.14 Under the 1982 Convention, the principles governing the delimitation of the continental shelf and the EEZ are the same. In respect of the continental shelf, Article 83(1) provides: "The delimitation of the continental shelf between States with opposite or adjacent coasts shall be effected by agreement on the basis of international law, as referred to in Article 38 of the Statute of the International Court of Justice, in order to achieve *an equitable solution*".[7] Article 74(1) provides for the same principles to be applied in relation to the delimitation of the EEZ.

6.15 The provisions of Article 83 of the 1982 Convention concerning the delimitation of the continental shelf represent a clear break from the 1958 Convention on the Continental Shelf, Article 6 of which gave the equidistance method an express role:

> the boundary of the continental shelf shall be determined by agreement between [the coastal States]. In the absence of agreement, and unless another boundary line is justified by special circumstances, the boundary shall be determined by application of the principle of equidistance from the nearest points of the baselines from which the breadth of the territorial sea of each State is measured.[8]

By contrast, Article 83 (and Article 74) of the 1982 Convention give equidistance no special or prominent role. Instead, they provide only that the goal of any delimitation should be an "equitable solution".

6.16 The reason for the change is clear. In the negotiations leading to the 1982 Convention, it was not possible to reach consensus on a text that gave equidistance an express role. Many coastal States disagreed with giving equidistance such prominence.[9] It was felt that the circumstances are too many and too varied in which equidistance does not yield an equitable result.[10] Consequently, consensus was only possible around the broader "equitable solution" provision.

6.17 The fact that UNCLOS makes an equitable solution the aim of the delimitation process does *not* mean that disputed cases can be decided *ex aequo et bono*. A solution that is equitable under the law of the sea need not be the same as a result that comports with generalized conceptions of fairness. As the ICJ long ago stated,

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7 Emphasis added.

8 Convention on the Continental Shelf, 499 UNTS 311 (29 April 1958), entered into force 10 June 1964. MB, Vol. III, Annex B1.

9 *Virginia Commentary,* Vol. II (1993), at p. 954. MB, Vol. III, Annex B42.

10 *Ibid.* at pp. 957, 959, 964, 977.

> it is not a question of applying equity simply as a matter of abstract justice, but applying a rule of law which itself requires the application of equitable principles, in accordance with the ideas which have always underlain the development of the legal régime of the continental shelf in this field.[11]

B. International Judicial and Arbitral Practice

6.18 Since the late 1960s, a body of international judicial and arbitral practice has developed concerning first, the delimitation of the continental shelf and later, the delimitation of the EEZ. This jurisprudence, and in particular that of the ICJ, has led to the development of a consistent and coherent set of principles applicable to the delimitation of the EEZ and continental shelf – at least within 200 M. As of the date of this submission, no international court or tribunal has delimitated competing claims in the outer continental shelf.[12] The issue has been presented to ITLOS in the parallel proceeding between Bangladesh and Myanmar concerning their maritime boundaries in the Bay of Bengal. Bangladesh expects that ITLOS will decide the issue in that case before the close of the written pleadings in this case.

6.19 Before turning to the question of how the principles developed in the jurisprudence apply to the delimitation between Bangladesh and India in the Bay of Bengal, five general points should be emphasized.

6.20 *First*, in accordance with the international judicial practice, Bangladesh submits that the Tribunal should identify a single line to delimit the seabed and subsoil, and the superjacent water column out to 200 M from its coast. Although the 1982 Convention contains separate provisions relating to the delimitation of the EEZ and the continental shelf, international practice has largely converged around the drawing of a "single maritime boundary" to delimit both zones within 200M. As the ICJ observed in its Judgment in the *Qatar v. Bahrain* case:

> [T]he concept of a single maritime boundary does not stem from multilateral treaty law but from State practice, and finds its explanation in the wish of States to establish one uninterrupted boundary line delimiting the various – partially coincident – zones of maritime jurisdiction appertaining to them.[13]

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11 *North Sea Cases* at para. 85.

12 Issues concerning the delimitation of the outer continental shelf have been presented to the International Court of Justice in the *Case Concerning Territorial and Maritime Dispute* (*Nicaragua v. Colombia*). Whether the Court reaches those issues and, if so, when, are currently unknown.

13 *Maritime Delimitation and Territorial Questions between Qatar and Bahrain (Qatar v. Bahrain)*, Merits, Judgment, I.C.J. Reports 2001, p. 40 (hereinafter "*Qatar v. Bahrain*"), at para. 173.

In *Guyana/Suriname*, the Annex VII Tribunal noted that a single maritime boundary serves "to avoid the difficult practical problems that could arise were one Party to have rights over the water column and the other rights over the seabed and subsoil below that water column".[14] These considerations apply in this case.

6.21 *Second,* although the jurisprudence recognises a formal distinction between the approaches for delimiting the territorial sea, on the one hand, and the EEZ/continental shelf within 200 M, on the other, those approaches are, in fact, "closely interrelated".[15] As discussed in Chapter 5, Article 15 of the 1982 Convention establishes the "equidistance/special circumstances" rule for delimiting the territorial sea. By contrast, Articles 74 and 83 state nothing more than that the delimitation must effect an "equitable solution". As developed in the case law, this has given rise to what is now commonly referred to as the "equitable principles/relevant circumstances rule" applicable to delimitation of the EEZ and continental shelf within 200 M. In practice, the two rules are substantially the same. In both cases, the standard approach is now to begin by provisionally drawing an equidistance line and then consider whether there are "special" (in the case of the territorial sea) or "relevant" (in the case of the EEZ/continental shelf) circumstances which require an adjustment to – or abandonment of – that line.[16] Virtually all of the most recent cases, whether before the ICJ or international arbitral tribunals, have adopted this approach.[17]

6.22 A *third* and related general point is that notwithstanding the now-common use of a provisional equidistance line at the outset of the delimitation process, there is no presumption in favour of equidistance. It is merely the starting point for analysis, not the end point. As the ICJ recently stated in *Nicaragua v. Honduras*:

> [T]he equidistance method does not automatically have priority over other methods of delimitation and, in particular circumstances, there may be

14 *Delimitation of Maritime Boundary between Guyana and Suriname*, Award, 17 September 2007, *available at* (available at <http://www.pca-cpa.org/upload/files/Guyana-Suriname%20Award.pdf>) (hereinafter "*Guyana/Suriname*"), at para. 334. Reproduced in MB, Vol. V.

15 *Qatar v. Bahrain* at para. 231. The Court again described the two methods as "very similar" in the *Cameroon v. Nigeria* case the following year. *Land and Maritime Boundary between Cameroon and Nigeria (Cameroon v. Nigeria: Equatorial Guinea Intervening)*, Merits, Judgment, I.C.J. Reports 2002 at p. 303 (hereinafter "*Cameroon v. Nigeria*"), at para. 288.

16 *Qatar v. Bahrain* at para. 230.

17 See, e.g., *Cameroon v. Nigeria*; *Delimitation of Maritime Boundary between Barbados and Trinidad & Tobago,* Award, 11 April 2006, *reprinted in* 27 RIAA 147 (hereinafter "*Barbados/Trinidad and Tobago*"). Reproduced in MB, Vol. V; *Guyana/Suriname*; and *Maritime Delimitation in the Black Sea (Romania v. Ukraine)*, Judgment, I.C.J. Reports 2009 (hereinafter "*Romania v. Ukraine*" or "the *Black Sea* case").

> factors which make the application of the equidistance method inappropriate.[18]

Similarly, in the *Libya/Malta* case, the Court observed:

> [T]he equidistance method is not the only method applicable to the present dispute and does not even have the benefit of a presumption in its favour. Thus, under existing law, it must be demonstrated that the equidistance method leads to an equitable result in the case in question.[19]
>
> "[I]f not, other methods should be employed."[20]

6.23 This is as it must be. Any other approach would be inconsistent with the provisions of Articles 74 and 83 of the 1982 Convention, and their mandate that the goal of the delimitation process is an "equitable solution". As the Chamber of the ICJ observed in the *Gulf of Maine* case:

> [T]he advantages and disadvantages of a particular criterion and a particular method cannot be assessed and judged in the abstract but only with reference to their application to a specific situation.[21]

6.24 The purpose of using equidistance as the first step in the analytical process is pragmatic. Because it is essentially a mathematical construct, an equidistance line is

> capable of being employed in almost all circumstances, however singular the results might sometimes be, and has the virtue that if necessary – if for instance, the Parties are unable to enter into negotiations, – any cartographer can de facto trace such a boundary on the appropriate maps and charts, and those traced by competent cartographers will for all practical purposes agree.[22]

In appropriate circumstances, therefore, it combines a "practical convenience" and "certainty of application" that make it a useful point of departure.[23]

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18 *Territorial and Maritime Dispute between Nicaragua and Honduras in the Caribbean Sea (Nicaragua v. Honduras)*, Judgment, I.C.J. Reports 2007 (hereinafter "*Nicaragua v. Honduras*"), at para. 272; see also Libya/Malta at para. 223.

19 *Libya/Malta* at para. 63; see also *Qatar v. Bahrain* at para. 223 (citing *Continental Shelf (Tunisia/Libyan Arab Jamahiriya),* Judgment, I.C.J. Reports 1982, p. 18 (hereinafter "*Tunisia/Libya*"), at para. 63).

20 *Tunisia/Libya* at para. 109.

21 *Delimitation of the Maritime Boundary in the Gulf of Maine Area (Canada/United States of America)*, Judgment I.C.J. Reports 1984, p. 246 (hereinafter " *Gulf of Maine*"), at para. 174.

22 *North Sea Cases* at para. 22.

23 *Ibid*. at para. 23.

6.25 Nonetheless, equidistance's pitfalls and its propensity to produce unfair results have long been recognized. As the ICJ noted in 1969: "It would however be ignoring realities if it were not noted at the same time that the use of this method [*i.e.*, equidistance] … can under certain circumstances produce results that appear on the face of them to be extraordinary, unnatural or unreasonable."[24] The Court stated:

> [I]n certain geographical circumstances which are quite frequently met with, the equidistance method, despite its known advantages, leads unquestionably to inequity, in the following sense:
>
> (a) The slightest irregularity in a coastline is automatically magnified by the equidistance line as regards the consequences for the delimitation of the continental shelf. Thus it has been seen in the case of concave or convex coastlines that if the equidistance method is employed, then the greater the irregularity and the further from the coastline the area to be delimited, the more unreasonable are the results produced.[25]

6.26 The ICJ later echoed these concerns in *Libya/Malta*:

> since an equidistance line is based on a principle of proximity and is therefore controlled only by salient coastal points, it may yield a disproportionate result where a coast is markedly irregular or markedly concave or convex. In such cases, the raw equidistance method may leave out of the calculation appreciable lengths of coast, whilst at the same time giving undue influence to others merely because of the shape of coastal relationships.[26]

6.27 In the *Gulf of Maine* case, the Chamber of the ICJ noted further inadequacies in the equidistance method where small rocks and islands were involved:

> [T]he Chamber likewise would point out the potential disadvantages inherent in any method which takes tiny islands, uninhabited rocks or low-tide elevations, sometimes lying at a considerable distance from terra firma, as basepoint [sic] for the drawing of a line intended to effect an equal division of a given area. If any of these geographical features possess some degree of importance, there is nothing to prevent their subsequently being assigned whatever limited corrective effect may equitably be ascribed to them, but that is an altogether different operation from making a series of such minor features the very basis for the determination of the dividing line…[27]

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24 *Ibid*. at para. 24.

25 *Ibid*. at para. 89.

26 *Libya/Malta* at para. 56.

27 *Gulf of Maine* at para 201.

6.28 The Court has recently confirmed in a particularly emphatic way that equidistance does not enjoy a privileged status by discarding it altogether. In its 2007 Judgment in *Nicaragua v. Honduras*, the Court found it useless to construct even a provisional equidistance line due to the unstable geography at the delta of the river that formed the two States' land boundary terminus.[28] It therefore eschewed equidistance in favour of an altogether different approach. In particular, the Court used the angle-bisector method: it first depicted the general direction of each party's coast by means of a straight line, and then bisected the angle formed by the two lines to determine the course of their maritime boundary.[29] This same method had previously been used to delimit the maritime boundaries in the *Tunisia/Libya* and the *Gulf of Maine* cases (decided by the ICJ) and in the *Guinea/Guinea Bissau* case (decided by an arbitral tribunal comprised of three sitting members of the ICJ).[30]

6.29 The *fourth* general point is that there is no fixed set of circumstances which may qualify as the necessary "relevant circumstances" for purposes of justifying a departure from equidistance in any given case. As the Annex VII Tribunal in *Guyana/Suriname* stated: "International courts and tribunals are not constrained by a finite list of special circumstances".[31] ICJ jurisprudence is to the same effect. In the *North Sea Continental Shelf* cases, for instance, the Court observed:

> In fact, there is no legal limit to the considerations which States may take account of for the purpose of making sure that they apply equitable procedures, and more often than not it is the balancing-up of al1 such considerations that will produce this result rather than reliance on one to the exclusion of all others. The problem of the relative weight to be accorded to different considerations naturally varies with the circumstances of the case.[32]

6.30 In *Libya/Malta*, the Court confirmed that there is "assuredly no closed list of considerations" which may be evaluated under the rubric of relevant circumstances.[33] And

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28 *Nicaragua v. Honduras* at para. 311.

29 *Ibid.* at paras. 295-298, 320.

30 *Gulf of Maine* at paras. 213, 223, 243; *Delimitation of Maritime Boundary between Guinea and Guinea-Bissau,* Award, 14 February 1985, *reprinted in* 25 ILM 252 (hereinafter "*Guinea/Guinea-Bissau*"), at para. 130. Reproduced in MB, Vol. V.

31 *Guyana/Suriname* at para. 302.

32 *North Sea Cases* at para. 93; *see also Gulf of Maine* at para 158 ("With regard to these and other possible criteria, the Chamber does not think it would be useful to undertake a more or less complete enumeration in the abstract of the criteria that are theoretically conceivable, or an evaluation, also in the abstract, of their greater or lesser degree of equitableness. As the Chamber has emphasized a number of times, their equitableness or otherwise can only be assessed in relation to the circumstances of each case …").

33 *Libya/Malta* at para. 48.

in the *Jan Mayen* case, after having found that it was appropriate "to begin the process of delimitation by a median line provisionally drawn",[34] the ICJ stated that it was "now called upon to examine *every particular factor of the case* which might suggest an adjustment or shifting of [that] line".[35] Precisely because the goal of the delimitation process is an equitable solution, and equity can only be determined contextually, every case must be judged according to its own circumstances.

6.31 Since the ICJ's 1969 Judgment in the *North Sea Cases,* 15 judgments regarding delimitation of maritime boundaries have been handed down by the Court and international arbitral tribunals. Only two of these cases (*Cameroon v. Nigeria* and *Guyana/Suriname*) resulted in a maritime boundary made up of a strict equidistance line in the continental shelf and EEZ. In all the other 13 cases, the maritime boundary fixed by the Court or arbitral tribunal was either determined by reference to a different methodology altogether, or an equidistance line adjusted to take account of the particular circumstances of the case.

6.32 *Fifth*, the jurisprudence has established that in any delimitation the final step in the process is to confirm that the proposed delimitation line does not lead to a disproportionate result. In the words of the ICJ in its most recent maritime delimitation Judgment (in the *Black Sea* case), the purpose of this disproportionality test is to "check that the result thus far arrived at, so far as the envisaged delimitation line is concerned, does not lead to any significant disproportionality by reference to the respective coastal lengths and the apportionment of areas that ensue".[36] In this respect, the ICJ and arbitral tribunals alike have made it clear that:

> the law does not require a delimitation based upon an endeavour to share out an area of overlap on the basis of comparative figures for the length of the coastal fronts and the areas generated by them. The task of a tribunal is to define the boundary line between the areas under the maritime jurisdiction of two States; the sharing-out of the area is therefore the consequence of the delimitation, not vice versa.[37]

Accordingly, "it is disproportion rather than any general principle of proportionality which is the relevant criterion or factor ... there can never be a question of completely

34 *Maritime Delimitation in the Area between Greenland and Jan Mayen (Denmark v. Norway)*, Judgment, I.C.J. Reports 1993, p. 38 (hereinafter "Jan Mayen"), at paras. 48 and 53.

35 *Ibid*. at para. 54 (emphasis added).

36 *Romania v. Ukraine* at para. 210.

37 *Jan Mayen* at para. 64.

refashioning nature ... it is rather a question of remedying the disproportionality and inequitable effects produced by particular geographical configurations or features".[38]

II. The Delimitation of the Maritime Boundary between Bangladesh and India

A. The Equidistance Line Claimed by India

6.33 Against this background, Bangladesh addresses the delimitation of the EEZ and continental shelf within 200 M between Bangladesh and India in the Bay of Bengal.

6.34 In accordance with the jurisprudence, the first step is provisionally to identify an equidistance line. As discussed in Chapter 3, ever since bilateral negotiations began in 1974, India has insisted that the maritime boundary with Bangladesh should be based on equidistance.[39] It has, however, never proposed a specific line, much less identified the basepoints on which such a line should be constructed.

6.35 Only in 2010, nearly a year after Bangladesh initiated this arbitration, did India communicate coordinates from which Bangladeshi ships should steer clear. In particular, while conducting routine patrols in the Bay of Bengal in September 2010, the Bangladesh Naval Ship *Anushandhan* was approached by an aircraft of the Indian navy. The Indian aircraft warned the *Anushandhan* to steer clear along a set of designated coordinates extending from the vicinity of the two States' land boundary terminus out well beyond 200 M.[40] Bangladesh protested India's actions in an Aide Memoire dated 10 October 2010.[41] To date, India has not responded.

6.36 Faced with India's silence, Bangladesh is left to presume that the line corresponding to the identified coordinates constitutes an equidistance line identified by India as appropriate. That is depicted in **Figure 6.2** (following page 94).

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38 *Delimitation of the Continental Shelf between France and the United Kingdom, Decision*, 30 June 1977, reprinted in 18 RIAA 3 (hereinafter "*Anglo/French Continental Shelf Case*"), at para 101 (cited with approval in, inter alia, *Romania/Ukraine* at para. 210). Reproduced in MB, Vol. V.

39 Memorial of Bangladesh (hereinafter "MB"), at para. 3.31.

40 They are:
Lat 21 Deg 38 Min N - Long 089 Deg 10 Min E;
Lat 20 Deg 00 Min N - Long 089 Deg 55 Min E;
Lat 19 Deg 00 Min N - Long 090 Deg 04 Min E; and
Lat 17 Deg 37 Min N - Long 089 Deg 36 Min E.

41 *Aide Memoire* from the Government of Bangladesh to the Government of India (10 October 2010). MB, Vol. III, Annex B24.

B. The Inequity of the Equidistance Line

1. The Cut-Off Effect

6.37 In Figure 6.2, India's claimed equidistance line is shown together with the equidistance line Myanmar currently claims in the parallel proceeding before ITLOS. As can be seen, the two lines form a rapidly narrowing wedge that truncates Bangladesh's maritime entitlement well before it reaches the 200 M limit, let alone Bangladesh's indisputable entitlement in the continental shelf beyond 200 M (discussed further below and in Chapter 7). Bangladesh is, in a word, cut off and dramatically so.

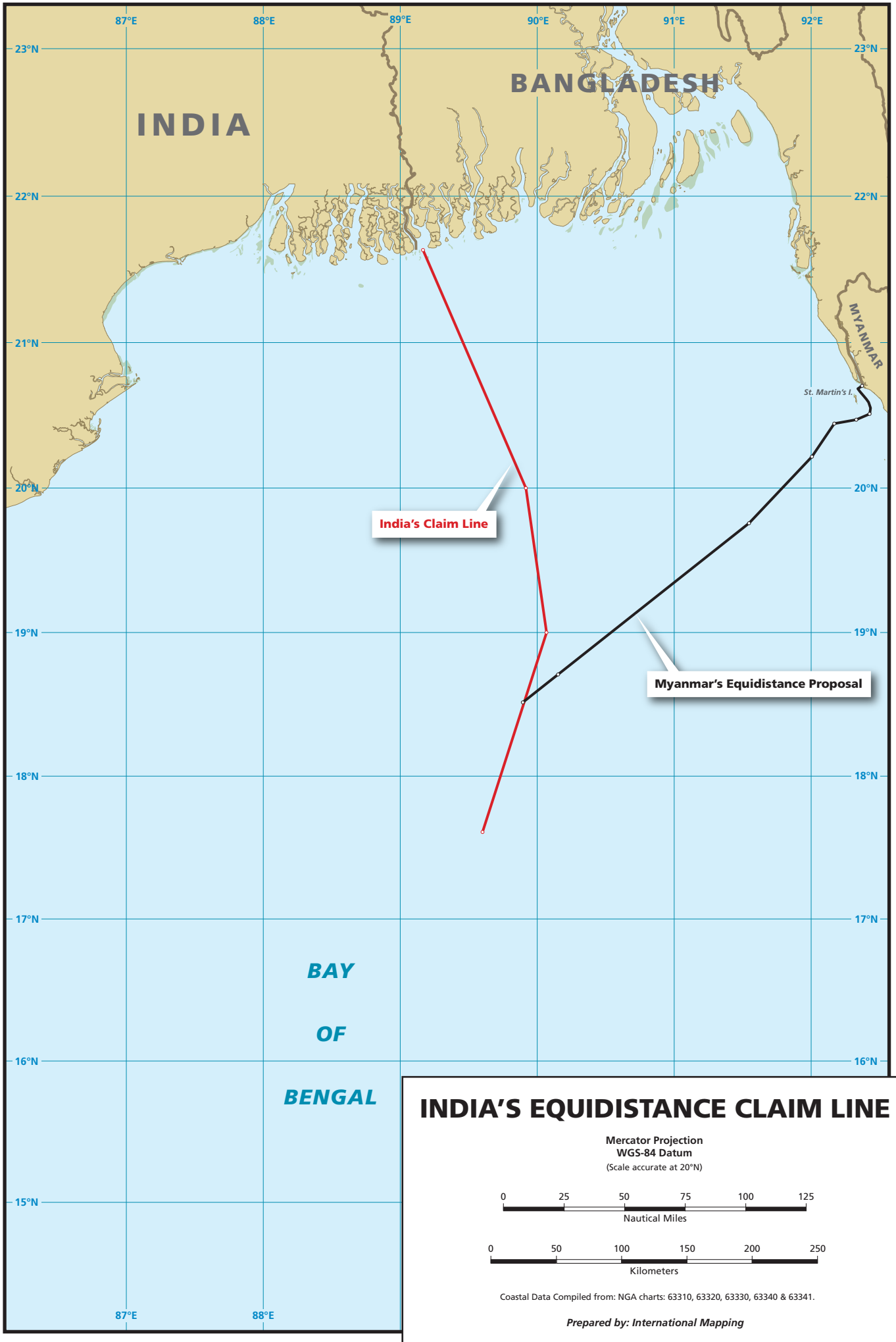
6.38 This cut-off effect is the result of the concave configuration of the Bangladesh coast. As noted in Chapter 2, Bangladesh sits on the Bay of Bengal's north coast in a broad and deep concavity with India to the west and Myanmar to the east. Inside this general concavity, there is also a further concavity formed by the mouth of the Meghna River in the middle of the Bangladesh coast. These mutually reinforcing concavities have the effect of driving the two equidistance lines together a short distance in front of the Bangladesh coast.

6.39 Measured by means of segmented straight lines, the Bangladesh coastline is approximately 421 km in length. This substantial coastline generates a correspondingly substantial maritime entitlement in the continental shelf within 200M and the EEZ. Yet, because of the effects of the "double concavity", equidistance lines would deprive it of the overwhelming majority of that entitlement.

6.40 Bangladesh's predicament is not unique. To the contrary, coastal irregularities like the concavities in the Bay of Bengal's north coast are among the recognized circumstances where equidistance does not lead to the equitable solution international law requires. The problem has even been noted and depicted in the *Handbook on the Delimitation of Maritime Boundaries*, published by the United Nations Office for Legal Affairs, Division for Ocean Affairs and the Law of the Sea ("DOALOS"). In pertinent part it reads:

> The relevance of convexity or concavity of the relevant coastline was highlighted by the International Court of Justice in the 1969 North Sea Continental Shelf cases. The distorting effects of the equidistance method in the presence of a concave or convex coastline is shown in the following illustration:[42]

42 United Nations. Division for Ocean Affairs and the Law of the Sea, *Handbook on the Delimitation of Maritime Boundaries* (2000), p. 30, para. 143. MB, Vol. III, Annex B35.



INDIA'S EQUIDISTANCE CLAIM LINE

Mercator Projection
WGS-84 Datum
(Scale accurate at 20°N)

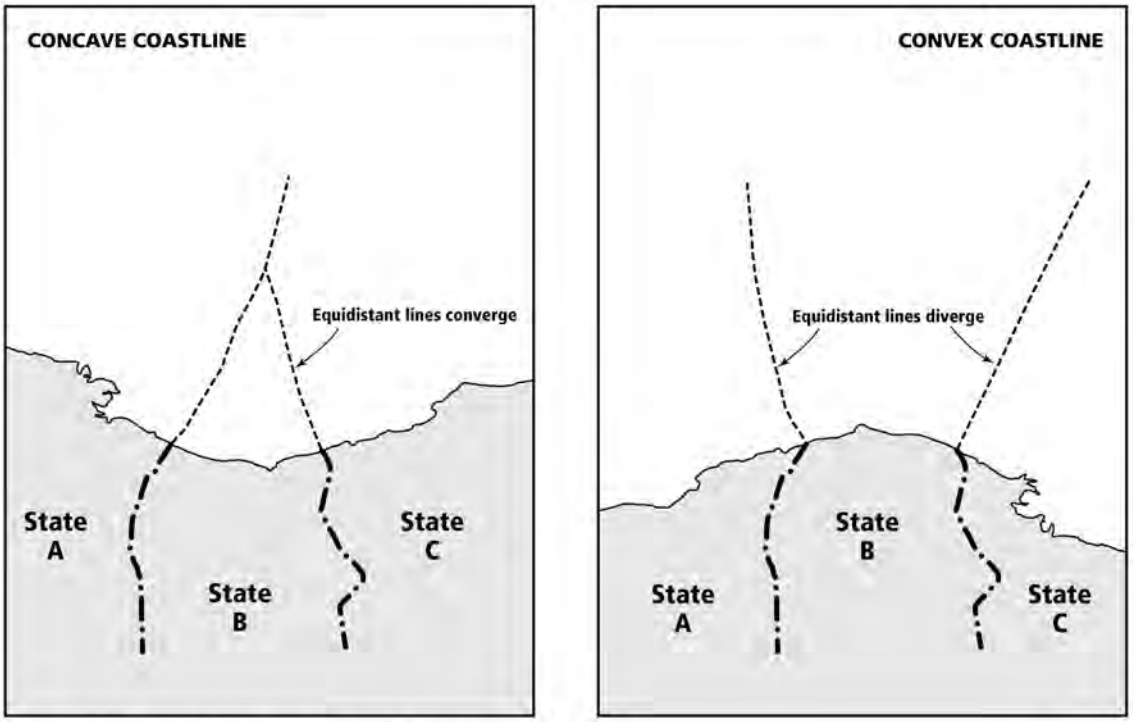
0 25 50 75 100 125
Nautical Miles

0 50 100 150 200 250
Kilometers

Coastal Data Compiled from: NGA charts: 63310, 63320, 63330, 63340 & 63341.

Prepared by: International Mapping

Figure 6.2



Adapted from UN Office of Legal Affairs, Division for Ocean Affairs and the Law of the Sea, Handbook on Delimitation of Maritime Boundaries (2000), at p. 30.

Figure 6.3

6.41 In the depiction on the left, notwithstanding the fact that State B has a coastline roughly equal in size to States A and C, its maritime space narrows rapidly and terminates prematurely because it is located entirely within a concavity that quickly pulls the two equidistance lines together in front of its coast.

6.42 To this extent, Bangladesh's predicament is similar to that of the Federal Republic of Germany in the *North Sea Continental Shelf* cases, decided by the ICJ in 1969. Those cases involved the delimitation of the continental shelf boundaries among Germany, on the one hand, and the Kingdoms of Denmark and the Netherlands, on the other. Much like Bangladesh, Germany is situated in a concavity on the southeast coast of the North Sea where it is pinched between the Netherlands (to the west) and Denmark (to the north). Because of this concavity, equidistance lines drawn between Germany and its two neighbours converged in front of its coast, leaving it with a narrow triangle of maritime space, as depicted in **Figure 6.4** (in Volume II only).

6.43 Notably, Germany specifically used the example of Bangladesh (then East Pakistan) to make its case to the ICJ. In particular, in arguing that "by making the distance from the nearest coastal points the absolute criterion, [equidistance] necessarily attributes undue weight to projecting parts of the coast, and so not infrequently leads to inequitable

solutions",[43] Germany cited the Bay of Bengal as a model and even presented a figure depicting the cut-off equidistance would work on what was then East Pakistan. That figure appears in Chapter 1 of this Memorial as Figure 1.2.

6.44 The ICJ largely accepted Germany's arguments against equidistance, concluding that "equity excludes the use of the equidistance method in the present instance".[44] The Court's reasoning is significant:

> Equity does not necessarily imply equality. There can never be any question of completely refashioning nature, and equity does not require that a State without access to the sea should be allotted an area of continental shelf, any more than there could be a question of rendering the situation of a State with an extensive coastline similar to that of a State with a restricted coastline. Equality is to be reckoned within the same plane, and it is not such natural inequalities as these that equity could remedy. But *in the present case there are three States whose North Sea coastlines are in fact comparable in length and which, therefore, have been given broadly equal treatment by nature except that the configuration of one of the coastlines would, if the equidistance method is used, deny to one of these States treatment equal or comparable to that given the other two.* Here indeed is a case where, in a theoretical situation of equality within the same order, an inequity is created. *What is unacceptable in this instance is that a State should enjoy continental shelf rights considerably different from those of its neighbours merely because in the one case the coastline is roughly convex in form and in the other it is markedly concave, although those coastlines are comparable in length.* It is therefore not a question of totally refashioning geography whatever the facts of the situation but, given a geographical situation of quasi-equality as between a number of States, of abating the effects of an incidental special feature from which an unjustifiable difference of treatment could result.[45]

6.45 The Court's reasoning applies *mutatis mutandi* to the Bay of Bengal. Bangladesh and India have, in the words of the ICJ, "been given broadly equal treatment by nature except that the configuration of one of the coastlines would, if the equidistance method is used, deny to one of these States treatment equal or comparable to that given the other". Such a result would be no more equitable for Bangladesh today than it was for Germany in 1969.

6.46 It is no answer to say that this case is different because India has a longer total coastline than Bangladesh. The fact that India may have a longer total coast is immaterial.

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43 Memorial of the Federal Republic of Germany (21 August 1967), at para. 44 (available from the ICJ website).

44 *North Sea Cases* at para. 90.

45 *Ibid.* at para. 91 (emphasis added).

What matters for these purposes are the comparative lengths of the Parties' *relevant* coasts. Both Denmark and the Netherlands, for instance, have longer total coasts than Germany but significant portions of those coasts were not relevant to the delimitation in the *North Sea Cases*. The same is true here. As discussed further in Section C below, Bangladesh's and India's relevant coasts are generally comparable. In all pertinent respects, they have therefore been given broadly equal treatment by nature.

6.47 In its Judgment in the *North Sea Cases*, the ICJ presented a schematic diagram intended to depict the effects of coastal concavities on the course of an equidistance line.[46] That schematic is reproduced as **Figure 6.5A** appearing on the following page. In presenting this diagram, the Court observed that in the case of a concave coast, "the effect of the use of the equidistance method is to pull the line of the boundary inwards, in the direction of the concavity".[47]

6.48 Although the diagram aptly captures the effect of a concavity in the abstract, it actually *understates* the problem in the case of Bangladesh. As discussed, in addition to being located at the apex of the general concavity formed by the Bay of Bengal's north coast, the central portion of the coast of Bangladesh is itself deeply concave at the mouth of the Meghna River. This concavity within a concavity dramatically exacerbates the distortion of the equidistance line, causing it to be pulled even more sharply in the direction of the concavity. This intensified cut-off effect is depicted graphically in **Figure 6.5B**, next to the diagram presented by the ICJ.

6.49 As adjacent coastal States with broadly comparable relevant coasts facing onto the high seas, there is no reason in principle why Bangladesh and India should not have broadly comparable access to the 200 M limit in the area. Yet, solely by virtue of the concavity of the coasts, equidistance would limit Bangladesh to an area well short of 200 M, while simultaneously permitting India an extensive outlet to the high seas.

6.50 **Figure 6.6** (in Volume II only) graphically depicts this anomaly. The coastlines of Bangladesh, India and Myanmar in the northern Bay of Bengal are presented, along with the 200 M limits drawn from the coasts. The portions of the 200 M limit facing north towards Bangladesh are highlighted, as are the sections of the India and Myanmar coastlines that control these portions of the 200 M limit. In this view, the coastlines of all three States are described by means of broad arcs that correspond to the pertinent portions of the concavity that is so central to this case. As the Tribunal can see, the coasts of all three

46 *Ibid.* at para. 5.

47 *Ibid.* at para. 8.

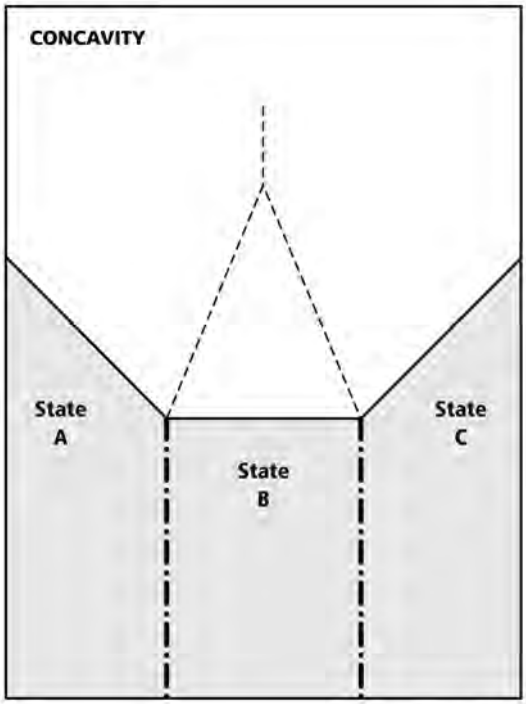

Figure 6.5A

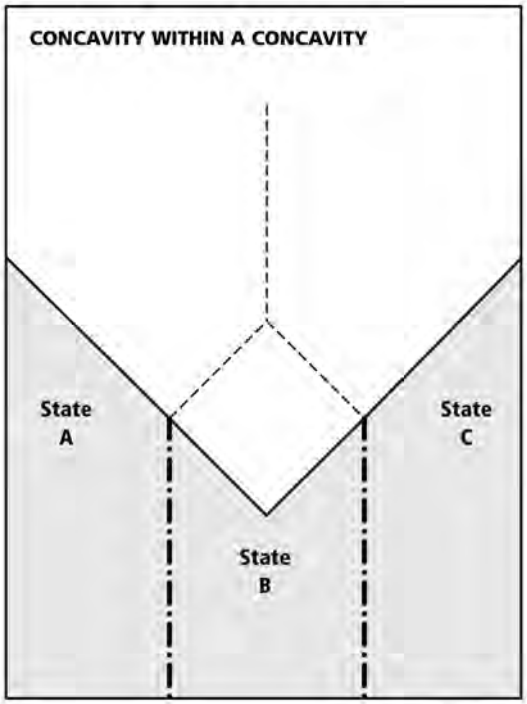

Figure 6.5B

States so depicted are virtually identical in length. Yet, Bangladesh alone does not reach any portion of the 200 M limit. In contrast, India has access to a full 62% of the 200 M limit, while Myanmar has access to 38% of the 200 M limit. Again, Bangladesh gets zero. The inequitableness of this result is evident.

6.51 Bangladesh does not contend that there is a "right" as such to extend one's maritime jurisdiction to the 200 M limit. It does, however, consider it inequitable to prevent a State with hundreds of kilometres of coastline that otherwise faces onto international waters from reaching any part of its 200 M limit. The jurisprudence and State practice support Bangladesh's views.

6.52 Professor Charney has observed that international courts and tribunals have sought "to delimit maritime boundaries so that all disputants are allotted some access to the areas approaching the maximum distance from the coast permitted for each one."[48] Perhaps the clearest example apart from the *North Sea Cases* is the *Guinea/Guinea-Bissau*

48 Jonathan I. Charney, "Progress in International Maritime Boundary Delimitation Law," *American Journal of International Law,* Vol. 88, No. 227 (1994) (hereinafter "Charney (1994)"), at pp. 247 et seq. MB, Vol. III, Annex B43. In support of this view, Charney cites the following cases: North Sea Cases at para. 81; Land, Island and Maritime Frontier Dispute (El Salvador/Honduras: Nicaragua Intervening), Judgment, I.C.J. Reports 1993, p. 351 (hereinafter "*Gulf of Fonseca*"), at paras. 415-420; and Case Concerning Delimitation of Maritime Areas between Canada and France (St. Pierre and Miquelon), Decision, 10 June 1992, reprinted in 31 ILM 1149 (hereinafter "*St. Pierre & Miquelon*"), at paras. 66-74. Reproduced in MB, Vol. V..

arbitration. There, just as the ICJ did in the *North Sea Cases*, the arbitral tribunal rejected equidistance as an appropriate delimitation methodology. It explained its decision to do so in the following terms:

> When in fact – as is the case here, if Sierra Leone is taken into consideration – there are three adjacent States along a concave coastline, *the equidistance method has the other drawback of resulting in the middle country being enclaved by the other two and thus prevented from extending its maritime territory as far seaward as international law permits.* In the present case, this is what would happen to Guinea, which is situated between Guinea-Bissau and Sierra Leone. Both equidistance lines envisioned arrive too soon at the parallel of latitude drawn from the land boundary between Guinea and Sierra Leone which Guinea has unilaterally taken as its maritime boundary.[49]

The boundary ultimately adopted by the arbitral tribunal – which, as discussed further below, was based on an angle-bisector – remedied this problem and is depicted in **Figure 6.7** (in Volume II only).

6.53 Similarly, in the *St. Pierre & Miquelon*, the Court of Arbitration gave the two modest French islands which are otherwise completely surrounded by Canadian land and maritime territory a 200 M corridor into the Atlantic equal in width to the maritime front of the islands. The boundary adopted by the Court of Arbitration is depicted on **Figure 6.8** (in Volume II only).

6.54 Professor Charney's principle of "maximum reach" has also been recognized in State practice from Africa, Europe, and the Caribbean. The 1975 delimitation agreement between Senegal and The Gambia is a prime example. The Gambia's relatively narrow, 32 M coastal front is situated in a mild concavity in which it is completely surrounded by Senegal. As described in Charney & Alexander: "If the equidistant line were used, the coastal configuration of the two adjacent states would have dictated a delimitation that was bound to cut off the maritime area of The Gambia close to shore."[50] In fact, the two equidistance lines ran together approximately 130 M in front of The Gambia's coast. To avoid this result, "[t]he parties deliberately chose to use [an alternative] delimitation method instead of the equidistance method".[51] In particular, they agreed to accord The Gambia a 32 M-wide mar-

49 *Guinea/Guinea-Bissau* at para. 104 (emphasis added).

50 J.I. Charney and L.M. Alexander (eds.), *International Maritime Boundaries*, Vol. I (1996), at. p. 850. MB, Vol. III, Annex B46.

51 Ibid. at. p. 849.

itime corridor extending a full 200 M into the Atlantic. The agreed boundaries between Senegal and The Gambia are depicted on **Figure 6.9** (in Volume II only).

6.55 France and Dominica came to a similar result in their 1987 agreement delimiting the maritime boundaries between the French insular territories of Guadalupe and Martinique, on the one hand, and Dominica, on the other. Because Guadalupe and Martinique are located slightly east of it, Dominica sits in what is for all practical purposes a concavity facing onto the open Atlantic. The consequence is predictable. According to Charney & Alexander:

> The equidistance line would enclose Dominica's economic zone within a triangle whose seaward extension would lie less than 55 n.m. east of the island. In the North Sea Continental Shelf cases, this result was found to have been inequitable.
>
> The Dominica-France Agreement avoided such an inequitable result by directing the Atlantic sector of each boundary line northeastwards in a quasi-parallel formation seaward to points 8 and 9, in order to allow each party to have a full 200-mile jurisdiction in the ocean.[52]

The boundary as agreed is depicted on **Figure 6.10** (in Volume II only).

6.56 Significantly, the France-Dominica treaty expressly invokes the rules and principles embodied in the 1982 Convention. Again according to Charney & Alexander: "Equity predominated as the basis for the drawing of the line. … In the Atlantic sector, the line had to be guided in such a way as to avoid having Dominica suffer from the same enclosure effect which led the Federal Republic of Germany to the ICJ in the late 1960s."[53]

6.57 Two additional examples can be found in State practice from Europe. The 1984 maritime delimitation agreement between Monaco and France creates a maritime corridor for Monaco that extends 48 M into the Mediterranean to the location of the median line between the European mainland and Corsica. Charney & Alexander state:

> The very short Monegasque coastline is located in a concavity enclosed by the coasts of France and, to a minor extent, of Italy. After the territorial seas of the parties were enlarged from 3 to 12 n.m., an equidistant boundary would have resulted in converging boundary lines that intersect less than 12 n.m. from Monaco. This would have meant cutting off the Monegasque territorial sea from the high sea. Such a disadvantaged situation, which however is not explicitly prohibited by international law, prompted Mo-

52 *Ibid.* at p. 709.

53 *Ibid.* at pp. 711-712.

> naco to seek the negotiation of the Convention in order to avoid a situation that was regarded also by France as 'uncomfortable'.[54]

The boundary agreed between France and Monaco is depicted on **Figure 6.11** (in Volume II only).

6.58 Unlike the agreements between Senegal and The Gambia, and France and Dominica, this agreement does not accord Monaco access to the 200 M limit. There are two reasons. *First*, in the enclosed setting of the Mediterranean no State anywhere reaches the 200 M limit. *Second*, the large island of Corsica sits opposite Monaco and thus the median line between the two represents the natural limit of Monaco's maritime jurisdiction. In this sense, the France-Monaco agreement permits Monaco to extend its maritime jurisdiction as far seaward as international law permits.

6.59 The France-Monaco case represents something of a real-world *reductio ad absurdum*. Monaco's Mediterranean coast measures barely over three km in length. France's coast in the immediate vicinity of the delimitation measures approximately 140 km, more than 45 times longer. Nonetheless, the agreement permits Monaco to extend its maritime territory out to the location of the Monaco-Corsica median line.

6.60 Returning full circle, a final example from the State practice is found in the 1971 agreements between Germany and the Netherlands, and Germany and Denmark concerning their maritime boundary in the North Sea. Following the ICJ's 1969 judgment in the *North Sea Cases*, the parties proceeded to delimit their continental shelf boundaries by agreement. Those agreements gave Germany access to the mid-sea median line with the United Kingdom. In their comments about the agreements, Charney & Alexander specifically note that Germany "succeeded in its contention that its shelf extended to the center of the North Sea in such a way as to meet that of the UK …."[55] The agreed boundaries are depicted on **Figure 6.12** (in Volume II only).

6.61 Denmark's agreement to accord Germany access to the median line with the U.K. is particularly notable since it represents a significant sacrifice for Denmark. Because of the configuration of the eastern littoral of the North Sea, the maritime entitlements of four States – Germany, Denmark, the Netherlands plus Norway – come together in very close proximity near the mid-line with the UK. In 1965, Denmark had already agreed with Norway to delimit their continental shelf boundary by means of a strict equidistance line

54 J.I. Charney and L.M. Alexander (eds.), *International Maritime Boundaries,* Vol. II (1996), at. p. 1584. MB, Vol. III, Annex B47.

55 *Ibid.* at p. 1805.

to the middle of the North Sea. Due to the location of that line, there was very little room to accommodate Germany's demand for access to the centre of the North Sea. Denmark's own access to the mid-sea median line was already severely limited. Nonetheless, in the end, Denmark accepted the force of the German argument and agreed to cede a full one-third of its potential access to Germany.

6.62 India faces no competing concerns in this case. Whatever line is ultimately adopted, it will retain the overwhelming majority of its access to the 200 M limit in the northern Bay of Bengal and elsewhere. As discussed above, India enjoys a disproportionate access to the 200 M limit in the area. Equitable principles recognized in the jurisprudence, the State practice and the doctrine require that Bangladesh too be given meaningful access to its own 200 M limit.

6.63 The inequity of limiting Bangladesh to the narrow wedge of maritime space equidistance would give it is exacerbated by the fact that fish from the Bay of Bengal are a key component of the national diet. Fish are the main source of animal protein and other vital nutrients for poor, rural households, where malnutrition remains an ever-present threat.[56] Given the density of the country's population, large-scale animal husbandry is simply not a practicable alternative. Fishing is also a major source of employment. It provides full-time work for at least two million people, and another 10 million are involved in the fishing trade part-time.[57] Many Bangladeshis, for example, fish part-time simply to meet their subsistence needs.[58] To deny Bangladesh an equitable apportionment of the waters of the Bay of Bengal is to deny its people a fair share of a resource on which they depend heavily.

6.64 Although the geographical circumstances in which Bangladesh finds itself are broadly similar to those of Germany in 1969, its case against equidistance is even stronger. *First*, the law has evolved in the intervening four decades. At the time of the *North Sea Cases*, international law gave equidistance a dominant role. In particular, Article 6(2) of the 1958 Convention on the Continental Shelf gave equidistance a leading role, providing that but for "special circumstances" the boundary "*shall be* determined by application of

56 Nanna Roos et al., "Small Indigenous Fish Species in Bangladesh: Contribution to Vitamin A, Calcium and Iron Intakes, Animal Source Foods to Improve Micronutrient Nutrition and Human Function in Developing Countries", *Journal of Nutrition*, Vol. 133, No. 11 (2003) (hereinafter "Roos et al. (2003)"). MB, Vol. IV, Annex B67.

57 Md. Ferdous Alam and Kenneth J. Thompson, "Current Constraints and Future Possibilities for Bangladesh Fisheries", *Food Policy,* Vol. 26, No. 3 (2001), at p. 298. MB, Vol. IV, Annex B64.

58 *Ibid.*

the principle of equidistance".[59] By contrast, Articles 74 and 83 of the 1982 Convention do not give equidistance an express role of any kind. Instead, they state only that delimitations shall be effected in order to achieve "an equitable solution". The change is material. As stated, in negotiations leading up to the adoption of UNCLOS in 1982, it was impossible to achieve consensus on any text expressly mentioning equidistance. Like the ICJ and like DOALOS, there were too many States that recognized that equidistance can and frequently does produce inequitable results.

6.65 *Second*, equidistance would work a substantially more pronounced inequity on Bangladesh than it did on Germany. Due to the presence of the United Kingdom on the opposite side of the North Sea, Germany's continental shelf entitlement could extend no further than some 170 M from its coast before running up against the median line drawn between continental Europe and the U.K. The two provisional equidistance lines drawn between Germany and the Netherlands and Denmark, respectively, cut Germany off 94 M short of that limit.

6.66 The cut-off effect that equidistance would have on Bangladesh is more extreme. Based on the controlling geological and geomorphological circumstances described in Chapter 2 and applied in Chapter 7, Bangladesh has a claim to a substantial area of continental shelf beyond 200 M. Indeed, because the outer limits of Bangladesh's claim are defined by a line drawn 100 M beyond the 2,500m isobath, approximately 390 M from its coastline (as described in Chapters 3 and 7), the equidistance lines claimed by India and Myanmar would truncate Bangladesh's sovereign rights fully 200 M short of the limit permitted by the 1982 Convention. The comparative inequity of equidistance to Germany and Bangladesh is depicted graphically in **Figure 6.13** (in Volume II only).

6.67 The *North Sea Cases* remain the touchstone of all subsequent jurisprudence. The ICJ's 1969 Judgment has been cited in literally every subsequent maritime boundary decision – a total of 15 – including, of course, the ICJ's most recent maritime boundary decision: 2009's *Black Sea* case.[60] In fact, no other case has been cited nearly so often. A detailed analysis of the jurisprudence shows that the *North Sea Cases* have been cited a total of 128 times in the subsequent case law, an average of 8.5 times per case. Moreover, the now-dominant "equitable principles/relevant circumstances" approach followed in the jurisprudence is drawn directly from the *dispositif* of the Court's 1969 judgment, paragraph

59 Emphasis added.

60 *Black Sea* case at paras. 77, 99, 111, 155, 163.

(C)(1) of which provides that "delimitation is to be effected by agreement in accordance with equitable principles, and taking account of all the relevant circumstances".[61]

6.68 The ICJ's judgment in the *North Sea Cases* featured prominently in the negotiations leading to the adoption of the 1982 Convention. The *travaux préparatoires* confirm that the Court's Judgment was the inspiration for Articles 74 and 83.[62] For example, at the very first session of the Second Committee, which was responsible, *inter alia,* for drafting Parts V and VI of the 1982 Convention, Ireland proposed a draft article on the delimitation of the continental shelf that enshrined equitable principles as the relevant rule of law. An explanatory note attached to the Irish proposal referred to the *North Sea Cases* in the following manner:

> In formulating the draft, special regard has been had to the principles laid down in the North Sea Continental Shelf case where the International Court of Justice held that the rights of a coastal State over the continental shelf arose by virtue of its sovereignty over the land and that the primary rule of international law was that delimitation should be effected by agreement in accordance with equitable principles.[63]

6.69 Other States invoked the principles set forth in the case in a similar manner.[64] Commenting on the final versions of Articles 74 and 83 at the Signing Session for the 1982 Convention, Ireland observed that:

> Finally … the vast majority of the interested delegations … endorsed the provision which now appears in the Convention. This provides that the delimitation shall be affected in the basis of international law as referred to in Article 38 of the Statute of the International Court of Justice. We are satisfied that the *relevant principles of international law thus referred to are as identified by the International Court of Justice in its decision on the North Sea Cases in 1969* and as confirmed by subsequent judicial and arbitral decisions.[65]

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61 *North Sea Cases* at para. 90.

62 *Virginia Commentary,* Vol. II (1993), at pp. 953 *et seq.* MB, Vol. III, Annex B42.

63 *Ibid.* at pp. 958-959.

64 *See* Third United Nations Conference on the Law of the Sea, *Summary records of plenary meetings, 36th meeting*, U.N. Doc. A/CONF.62/SR.36 (10 July 1974), at para. 2. MB, Vol. III, Annex B30. *See also* Third United Nations Conference on the Law of the Sea, *Summary records of plenary meetings, 37th meeting,* U.N. Doc. A/CONF.62/SR.37 (11 July 1974), at para. 18. MB, Vol. III, Annex B31.

65 Third United Nations Conference on the Law of the Sea, *Verbatim records of plenary meetings, 186th meeting,* U.N. Doc. A/CONF.62/PV.186 (6 December 1982), at paras. 9-10. MB, Vol. III, Annex B33.

6.70 The similarity between this case and the *North Sea Cases* is no less apparent today than it was when Germany itself first made the comparison in its Memorial to the International Court of Justice in 1967.[66]

2. It Would Not Be an Equitable Solution To Prevent Bangladesh from Exercising Sovereign Rights in the Continental Shelf Beyond 200 M

6.71 Bangladesh's need for access to its entitlement in the outer continental shelf constitutes an independent "relevant circumstance" that warrants application of a methodology other than equidistance. Although related to the cut-off effect described just above, it is also analytically distinct from it and constitutes a separate reason for rejecting equidistance as inequitable.

6.72 As described in Section I in relation to the applicable law, there is no closed set of considerations that judicial and arbitral tribunals acting under the 1982 Convention may take into account in identifying the requisite "relevant circumstances" that merit a departure from equidistance.[67] Since the aim of any delimitation is an equitable solution, and equity can only be judged in context, a court or tribunal is free to assess the entirety of the case before determining what circumstances may be deemed sufficiently relevant to merit alternatives to equidistance.[68] Here, for the reasons that are described below and also in Chapter 7 relating to the delimitation of the outer continental shelf, Bangladesh's indisputable entitlement in the continental shelf beyond 200 M is a relevant circumstance that, by itself, warrants a departure from equidistance.

6.73 What makes denial of Bangladesh's sovereign rights in the outer continental shelf so inequitable is that the area plainly constitutes the "natural prolongation" of the Bangladesh landmass. To deny Bangladesh any access to this area – and leave it all to neighbouring States whose natural prolongation it is not – would constitute a manifestly inequitable solution.

6.74 Bangladesh's case relating to the delimitation of the outer continental shelf is fully presented in Chapter 7. The essential point for present purposes is that, as described in Chapter 2, the physical connection between the land territory of Bangladesh and the continental shelf beyond 200M is so strong that it more than any other State can claim the seabed in that area as its "natural prolongation" in precisely the sense articulated by the

66 MB at paras. 1.15-1.17.

67 *North Sea Cases* at para. 93; *Guyana/Suriname* at para. 302; *Libya/Malta* at para. 48; *Jan Mayen* at paras. 48, 53, 54.

68 *Guyana/Suriname* at paras 302-303.

ICJ in the *North Sea Cases*; that is, it quite literally constitutes the physical extension of the Bangladesh land mass into and under the sea.[69] By contrast, as more fully explained in Chapter 7, India's arguments that it too has a natural prolongation into the Bay of Bengal beyond 200M are far less compelling. Yet, perversely, an equidistance-based boundary would give India access to the outer continental shelf while denying it to Bangladesh.

3. Equidistance Is Inherently Unreliable Given the Geographic Characteristics of the Bengal Delta

6.75 As stated, although India has always insisted that its maritime boundary with Bangladesh be based on equidistance, it never proposed a specific line in bilateral negotiations with Bangladesh. Even when its military eventually communicated the coordinates of a putative boundary line to the Bangladesh navy in 2010, no information concerning the basepoints India used to draw its line was provided.

6.76 Nevertheless, since the Parties' land boundary terminus is located in the heart of the Bengal Delta, it would appear safe to presume that India's equidistance line is drawn from basepoints located on the two States' deltaic coasts. In Bangladesh's view, the very nature of the Bengal Delta constitutes another powerful reason why equidistance is not the appropriate delimitation methodology in this case.

6.77 As described in Chapter 2, the coast of the Bengal Delta is among the most unstable anywhere in the world. The forces of accretion and erosion resulting from massive sediment flows, low-elevations, large and frequent storms and, increasingly, climate change-induced sea level rise constantly reshape the Delta. As a result, the basepoints used to plot an equidistance line – and thus the line itself – this year might be very different from next year. Indeed, today's coastal basepoints may be under water tomorrow.

6.78 In its 2007 Judgment in *Nicaragua v. Honduras*, the ICJ rejected equidistance as an appropriate delimitation methodology where there was a similarly unstable coastline. The Court described the coast in the vicinity of the parties' land boundary terminus in the River Coco as follows:

> the sediment carried to and deposited at sea by the River Coco have caused its delta, as well as the coastline to the north and south of the Cape, to exhibit a very active morpho-dynamism. Thus continued accretion at the

69 MB at paras. 7.24-7.30.

> Cape might render any equidistance line so constructed today arbitrary and unreasonable in the near future.[70]

6.79 These words apply with even greater force to the coasts of Bangladesh and India along the Bengal Delta, the "morpho-dynamism" of which is second to none. "The establishment of a permanent maritime boundary is a matter of grave importance".[71] To delimit such a boundary by means of an equidistance line drawn from a coast that is by nature subject to frequent change would be irrational.

6.80 This is all the more true because the forces of change are affecting the coasts of the Bengal Delta on either side of the land frontier differently in two key respects. *First*, as discussed in Chapter 2, the active portion of the Bengal Delta has migrated progressively eastward over geologic time. Today, the western two-thirds of the Delta, including the entirety of India's Bengal Delta coast, constitute moribund delta. There, the forces of erosion have the upper hand; each year the sea reclaims more and more of the coast. In contrast, the eastern third of the Delta, all of which is located in Bangladesh, remains extremely active. Here, the forces of accretion have the upper hand; each year the Delta extends its land territory ever further south.

6.81 *Second*, global climate change will affect the two sides of the Bengal Delta coast differently. The average height above sea-level of the moribund delta is lower than the average height above sea-level of the active delta. The consequence is that more of India's deltaic coast will be submerged below future sea levels than Bangladesh's. According to a recent commentary published in the journal *Nature Geoscience*, based on current predictions the face of the Bengal Delta less than 90 years into the future will look considerably different than it does now.[72] The predicted contours of the Bengal Delta coast in 2100 as depicted in *Nature Geoscience* appear on the next page in **Figure 6.14**. (Areas in blue are those currently above sea-level that are expected to be below sea-level in 90 years).

6.82 Both these sets of facts, individually and in combination, mean that in the foreseeable future the equidistance line will migrate west in the direction of India, thus opening more and more maritime space to Bangladesh.

6.83 To base a boundary that is intended to affect a permanent delimitation of the maritime areas appertaining to the Parties on basepoints located on a coast that is guaranteed

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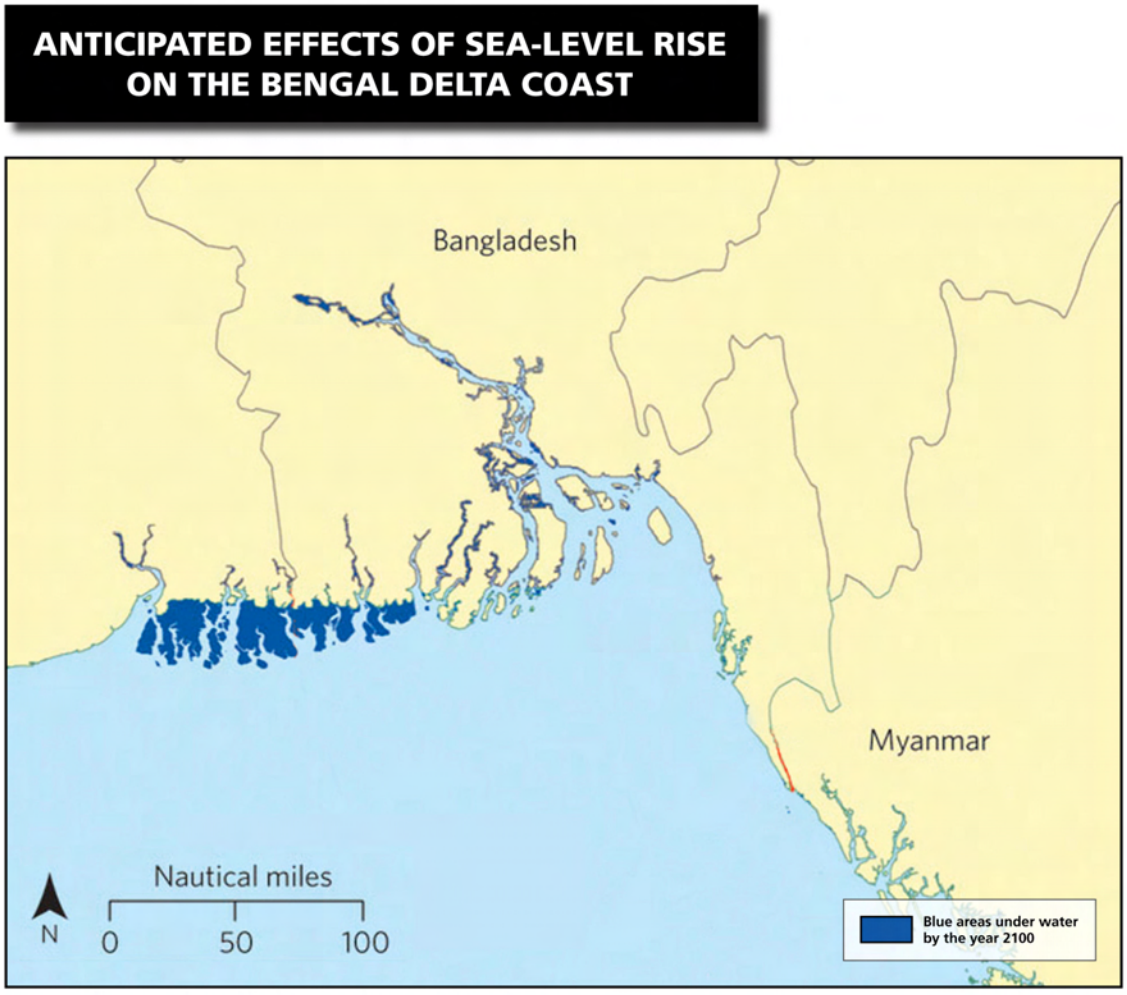
70 *Nicaragua v. Honduras* at para. 277.

71 *Ibid.* at para. 253.

72 Katherine J. Houghton et al., "Maritime boundaries in a rising sea", *Nature Geoscience,* Vol. 3, No. 12 (2010). MB, Vol. IV, Annex B79.



Source: Maritime Boundaries in a Rising Sea, Nature Geoscience, 30 November 2010

Figure 6.14

to look very different in the future than it does today would be inconsistent with the dictates not only of equity but common sense.

C. The Angle-Bisector Method

1. Use of the Method by the ICJ and Arbitral Tribunals

6.84 As stated, concave coasts like that in the northern Bay of Bengal have long been recognised as situations where equidistance produces inequitable results. The ICJ's decision in the *North Sea Cases* has already been addressed. In its 1985 Judgment in *Libya/Malta*, the Court echoed its prior observations, noting that "since an equidistance line is based on a principle of proximity and is therefore controlled only by salient coastal points, it may yield a disproportionate result where a coast is markedly irregular or markedly concave or convex".[73]

73 *Libya/Malta* at para. 56.

6.85 The central feature of this case is exactly the sort of marked concavity identified by the ICJ. Although nature endowed Bangladesh with a substantial coastline, its concave configuration means that equidistance boundaries between it and India and Myanmar "produce results that appear on the face of them to be extraordinary, unnatural or unreasonable."[74]

6.86 In circumstances like this, international courts and tribunals have turned to the angle-bisector methodology. As the ICJ observed in its 2007 Judgment in the *Nicaragua v. Honduras* case: "The use of a bisector … has proved to be a viable substitute method in certain circumstances where equidistance is not possible or appropriate".[75] The Court said:

> Like equidistance, the bisector method is a geometrical approach that can be used to give legal effect to the 'criterion long held to be as equitable as it is simple, namely that in principle, while having regard to the special circumstances of the case, one should aim at an equal division of areas where the maritime projections of the coasts of the States ... converge and overlap'.[76]

6.87 The bisector method involves two steps. *First*, the Parties' relevant coasts are rendered as straight lines depicting their general direction; *second*, the angle formed by the intersection of these straight lines is bisected to yield the direction of the delimitation line. Due to its reliance on straight-line coastal façades rather than actual coastlines, the angle-bisector method avoids equidistance's excessive focus on micro-geographic features, and thus generally produces results that are more faithful to the dominant geographic circumstances of a given case. In the words of the ICJ: "The bisector method … seeks to approximate the relevant coastal relationships but does so on the basis of the macro-geography of a coastline as represented by a line drawn between two lines on the coast".[77]

6.88 The ICJ first utilized angle bisectors in 1982 in *Tunisia/Libya*,[78] and has relied on them several times since, most recently in *Nicaragua v. Honduras* in 2007. The Chamber's decision in the 1984 *Gulf of Maine* case between Canada and the United States of America is perhaps the best-known example. The coasts of the parties were characterized by a considerable number of "tiny islands, uninhabited rocks or low-tide elevations, sometimes

74 *North Sea Cases* at para. 24.

75 *Nicaragua v. Honduras* at para. 287.

76 *Ibid*. at para. 287 (quoting *Gulf of Maine* at para. 195).

77 *Ibid*. at para. 289.

78 *Tunisia/Libya* at para. 129.

lying at a considerable distance from terra firma",[79] many of which exerted a significant effect on an equidistance line. The Chamber concluded that it would not be appropriate to make "such minor features the very basis for the determination of the dividing line"[80]. It thus opted for the angle-bisector approach, explaining:

> [T]he Chamber considers that the practical method to be applied must be a geometrical one based on respect for the geographical situation of the coasts between which the delimitation is to be effected, and at the same time suitable for producing a result satisfying the repeatedly mentioned criterion for the division of disputed areas [*i.e.*, the equal division of the areas of overlap].[81]

6.89 In its Judgment, the Chamber used different bisectors to delimit separate segments of the maritime boundary. To determine the course of the boundary in the first segment, where the coasts of the parties were adjacent, the Chamber constructed straight-line coastal fronts running from the land boundary terminus to Cape Elizabeth (in the case of the United States) and Cape Sable (in the case of Canada). The bisector of the angle created by these two lines was then shifted, or transposed, to the agreed off-shore starting point for the maritime boundary, Point A, and adopted as the maritime boundary. The Chamber's methodology is depicted graphically in **Figure 6.15** (in Volume II only).

6.90 To determine the course of the boundary in the second segment, where the coasts of the parties were opposite to one another, the Chamber similarly established two coastal front lines to depict the general direction of each party's coast, in this regard employing straight lines joining Cape Ann and Cape Cod (in the United States) and Brier Island and Cape Sable (in Canada). The bisector of these nearly parallel lines was then applied to the second segment of the maritime boundary, except only that the line was adjusted slightly to the northeast to take account of the longer relevant coast of the United States.[82]

6.91 The most recent occasion in which the ICJ deployed the angle-bisector approach was, as stated, the *Nicaragua v. Honduras* case. There, the Court was faced with two coastlines that roughly formed a right triangle pointing towards the sea. Cape Gracias a Dios, at the delta of the River Coco, was characterized by a "very active morpho-dynamism", causing the river mouth to change its shape on a regular basis.[83] In these circumstances, the Court decided that equidistance, which would have depended on the use of shifting

79 *Gulf of Maine* at para 201.

80 *Ibid*. at para 201.

81 *Ibid*. at para. 212.

82 *Ibid*. at para. 218.

83 *Nicaragua v. Honduras* at para. 32.

basepoints determined by reference to an unstable coast, was an inappropriate method of delimitation. It opted instead to use the angle-bisector method which, because it takes account of the coastal relationship between the parties "on the basis of the macro-geography", offered a practical solution to the difficulties presented by unstable coastlines in the vicinity of the land boundary terminus.[84] The Court thus drew two straight-line coastal fronts and then bisected the angle formed by their intersection to form the foundation of the maritime boundary between Nicaragua and Honduras in the Caribbean Sea.[85] This is depicted in **Figure 6.16** (in Volume II only).

6.92 The ICJ has not been alone in using the angle-bisector method when "equidistance is not possible or appropriate".[86] International arbitral tribunals have adopted the approach where the geographical circumstances require. Thus, the arbitral tribunal in *Guinea/Guinea-Bissau*, which was comprised of three sitting ICJ judges, and chaired by former ICJ President Manfred Lachs, relied on an angle-bisector to delimit the maritime boundary at issue in that case. The *Guinea/Guinea-Bissau* arbitral tribunal's approach is instructive in the circumstances of this case for at least two reasons.

6.93 *First*, the tribunal did not view its task solely from a bilateral perspective. Instead, it adopted a broader, regional perspective and sought a solution that not only (1) "would take overall account of the shape of [the West African] coastline"[87], but also (2) would produce a delimitation that would "be suitable for equitable integration into the existing delimitations of the West African region, as well as future delimitations which would be reasonable to imagine from a consideration of equitable principles and the most likely assumptions".[88]

6.94 *Second*, the arbitral tribunal rejected equidistance in part for precisely the same reasons that make recourse to that method inappropriate in the Bay of Bengal. In particular, the tribunal discarded equidistance because of the concave configuration of the West

84 *Ibid*. at para. 289.

85 *Ibid*. at para. 298. A graphical depiction of the Court's approach can be found after para. 320 of its Judgment.

86 *Ibid*. at para. 287.

87 *Guinea/Guinea-Bissau* at para. 108.

88 *Ibid*. at para. 109 (In order to do so, "it is necessary to consider how all these delimitations fit in with the general configuration of the West African coastline, and what deductions should be drawn from this in relation to the precise area concerned in the present delimitation."). In the *Libya/Malta* case, the ICJ similarly took a regional perspective, stating that it "has to look beyond the area concerned in the case, and consider the general geographical context in which the delimitation will have to be effected" (para. 69).

African coast in the vicinity of the Guinea/Guinea-Bissau boundary. In the words of the tribunal:

> When in fact – as is the case here, if Sierra Leone is taken into consideration – there are three adjacent States along a concave coastline, *the equidistance method has the other drawback of resulting in the middle country being enclaved by the other two and thus prevented from extending its maritime territory as far seaward as international law permits.* In the present case, this is what would happen to Guinea, which is situated between Guinea-Bissau and Sierra Leone. Both equidistance lines envisioned arrive too soon at the parallel of latitude drawn from the land boundary between Guinea and Sierra Leone which Guinea has unilaterally taken as its maritime boundary.[89]

These words – and the approach they reflect - are applicable *mutatis mutandis* to Bangladesh and India (and Myanmar).

6.95 Having rejected equidistance, the arbitral tribunal asked whether it would be possible "to find a method which does not have the drawbacks of the line of equidistance".[90] The tribunal answered this question by employing an angle-bisector. Specifically, it first drew a single straight line across the coastal fronts of the five States in the region from Almadies Point (in Senegal) to Cape Shilling (in Sierra Leone) to approximate the "maritime façade" of the coast of "the whole of West Africa".[91] It then drew a perpendicular – the bisector of a 180° angle – to this straight line façade and adopted it as the maritime boundary. The tribunal's methodology is shown in Figure 6.7.

6.96 The arbitral tribunal explained that employing this straight-line coastal front "would give more weight to the general direction of the coastline"[92]. As Figure 6.7 reflects, the coastal façade drawn by the tribunal cut across significant portions of Guinea-Bissau's land territory, while at the same time crossed maritime areas in front of Guinea's coast. The Tribunal considered and rejected a more limited coastal front that would have connected Guinea-Bissau's land boundary terminus with Senegal in the north to Guinea's land boundary terminus with Sierra Leone in the south.[93] It avoided this approach because the perpendicular to that coastal front would have insufficiently abated "the risk of enclavement" to Guinea created by the concavity in which it is located, and thus done little

89 *Ibid*. at para. 104 (emphasis added).

90 *Ibid*. at para. 107.

91 *Ibid*. at paras. 108, 110.

92 *Ibid*. at para. 110.

93 *Ibid*. at para. 110.

to remedy the very problem that led to the use of the angle-bisector method in the first place.[94]

* * *

6.97 Each of the conditions that justified recourse to the angle-bisector approach in previous cases applies in this case. *First*, as in *Gulf of Maine*, the coast in the area is highly irregular. The Bengal Delta coast is characterized by deep indentations and numerous offshore islands and low-tide elevations.

6.98 *Second*, as in *Guinea/Guinea-Bissau*, the coast in the region is concave in shape. The middle country – Bangladesh – would be enclaved by equidistance lines plotted with its neighbours, India and Myanmar. As a result, equidistance lines prevent it "from extending its maritime territory as far seaward as international law permits"[95].

6.99 And *third*, as in *Nicaragua v. Honduras*, the coast of the Bengal Delta is characterized by an "active morpho-dynamism" that renders it profoundly and uniquely unstable. These conditions "might render any equidistance line so constructed today arbitrary and unreasonable in the near future".[96]

6.100 Reliance on the angle-bisector method is therefore entirely justified in the unique circumstances of this case. And most importantly, an angle-bisector in this case leads to the equitable solution the 1982 Convention requires for the reasons explained below.

2. Application to the Delimitation of the Bangladesh-India Boundary

6.101 Consistent with the judicial and arbitral case law discussed above, the first step in the application of the angle-bisector method is to render the Parties' coasts as straight-line coastal fronts depicting the general direction of the coastline.[97]

6.102 In its 2007 Judgment in *Nicaragua v. Honduras*, the ICJ made clear that, like any delimitation method, the angle-bisector approach "should seek a solution by reference first to the States' 'relevant coasts'".[98] It also made clear, however, that "[i]dentifying the relevant

94 *Ibid.* at para. 111(b).

95 *Guinea/Guinea-Bissau* at para. 104.

96 *Nicaragua v. Honduras* at para. 277.

97 *Ibid.* at paras. 295-298, 320.

98 *Ibid.* at para. 289.

coastal geography calls for the exercise of judgment in assessing the coastal geography".[99] As in the *Guinea/Guinea-Bissau* case, that judgment must be exercised with a view to ameliorating the problems that warranted recourse to the angle-bisector method in the first place – in this case, the instability and irregularity of the Bengal Delta coast, as well as the effects of the concavity in the Bay of Bengal's north coast. Any other approach would convert the angle-bisector method from the solution it is intended to be into a perpetuation of the problem.

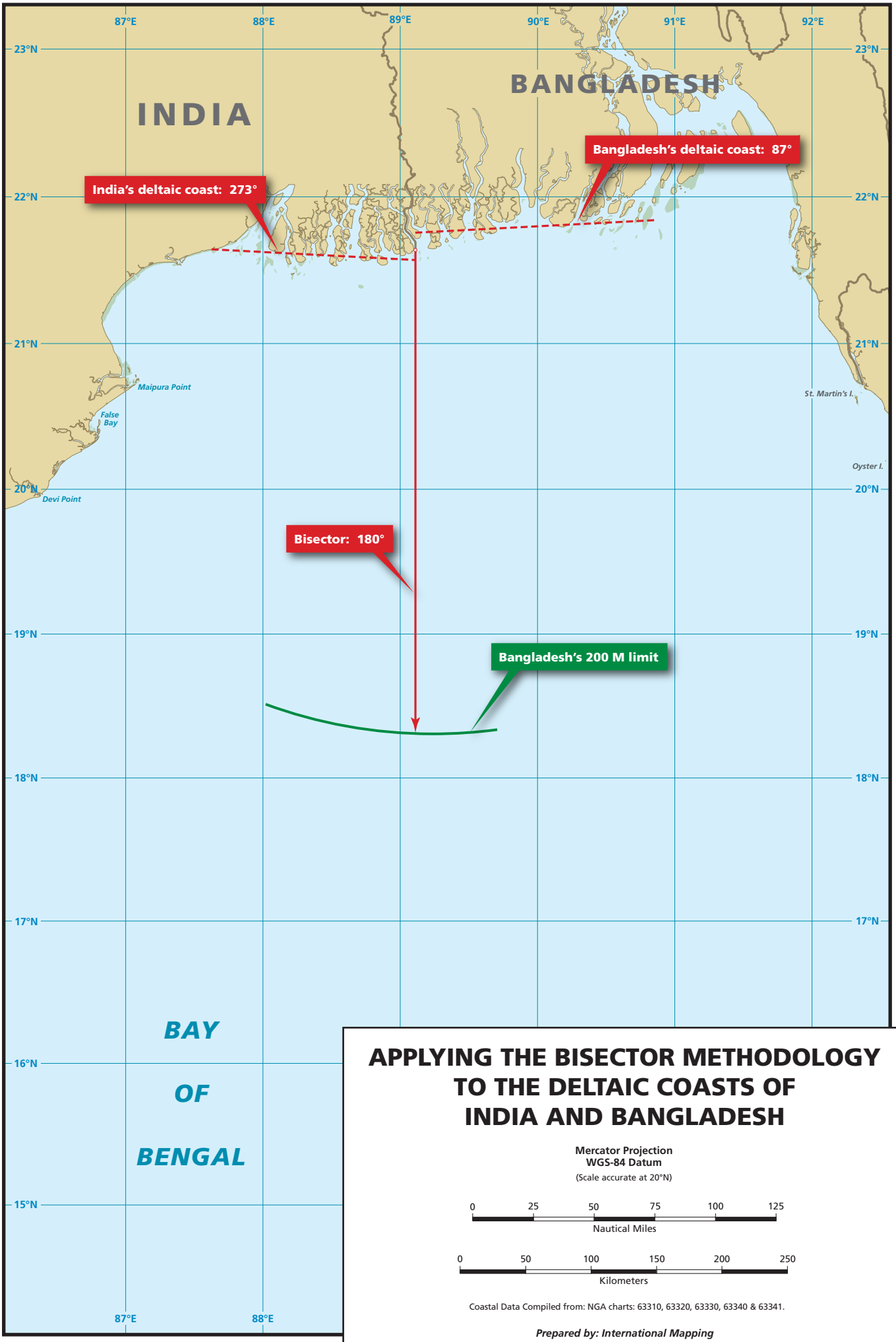
6.103 As indicated, in *Nicaragua v. Honduras*, the ICJ drew two straight lines to depict the general direction of the parties' respective coastlines, and then bisected the angle formed by those two lines at or near their intersection in the vicinity of the land boundary terminus. This approach was also followed by the Chamber in the *Gulf of Maine* case. Applying the same methodology to the deltaic coasts of Bangladesh and India in the area of the land boundary terminus, the coastal fronts of the Parties are shown in **Figure 6.17** (on the next page).

6.104 In Bangladesh's view, these are the relevant coasts for purposes of these delimitation proceedings. Together, they cover the entire coastal front of the Bengal Delta. By rendering the coasts as straight lines, they overcome the problems associated with morphodynamics, ever-changing coastlines, the frequent emergence and disappearance of islands, and the distorting effects of the dual concavity at the northern end of the Bay of Bengal.

6.105 Thus depicted, India's coastal front is a straight line extending from the vicinity of the Parties' land boundary terminus in the Hariabhanga River to the west bank of the Hooghly River**.** The direction of this coastal front is N273°E. Bangladesh's coastal front is a straight line that runs from the area of the land boundary terminus to the western margins of the mouth of the Meghna Estuary. The direction of this line is N87°E degrees. The bisector of the angle formed by the two lines is therefore a 180° meridian of longitude extending due south from the land boundary terminus, as also reflected in Figure 6.17.

6.106 An alternative way to employ the angle bisector method is to draw a perpendicular to a single straight line that depicts the general direction of the coast as viewed from a more regional perspective, as the arbitral tribunal did in the *Guinea/Guinea-Bissau* case. As indicated, the tribunal in that case drew a single coastal front along the west-facing coast of West Africa, extending from Almadies Point in Senegal to Cape Shilling in Sierra Leone, a distance of some 865 km. As the tribunal explained, it determined that a regional

99 *Ibid.* at para. 289.



APPLYING THE BISECTOR METHODOLOGY TO THE DELTAIC COASTS OF INDIA AND BANGLADESH

Mercator Projection
WGS-84 Datum
(Scale accurate at 20°N)

0 25 50 75 100 125
Nautical Miles

0 50 100 150 200 250
Kilometers

Coastal Data Compiled from: NGA charts: 63310, 63320, 63330, 63340 & 63341.

Prepared by: International Mapping

Figure 6.17

approach to the elaboration of a straight line coastal façade would more accurately capture the general direction of the relevant coastline.[100]

6.107 If that approach were applied here, the south-facing coast at the northern extremity of the Bay of Bengal in the area of the Bengal Delta would be depicted as a single coastal façade running east-west along the parallel of latitude that passes through the land boundary terminus located at the mouth of the Raimangal Estuary. The coastal front would connect the west bank of the Hooghly River in India and the east bank of the Meghna Estuary in Bangladesh (that is, from one end of the Bengal Delta to the other). That single coastal front is portrayed in **Figure 6.18** (in Volume II only).

6.108 The perpendicular bisector of this east-west line is the meridian of longitude extending seaward from the land boundary terminus at an azimuth of 180°. The bisector is depicted in Figure 6.18.

6.109 Thus, whether two separate coastal façades are used to depict the relevant coasts of India and Bangladesh (as in *Nicaragua v. Honduras* and *Gulf of Maine*) or as a single coastal front depicting the general direction of the coast on a broader, region-wide scale is used (as in *Guinea/Guinea-Bissau)*, the result is the same: an angle bisector of 180° extending due south from the land boundary terminus.

6.110 The east-west façade across the entire coastal front of the Bengal Delta (*i.e.,* the *Guinea/Guinea Bissau* approach), and the 180° boundary it yields, achieve an equitable solution and recommend themselves for several reasons. *First*, a single coastal façade across both sides of the Parties' deltaic coastal front respects the geographic reality of the Bengal Delta. As discussed in Chapter 2, the Bengal Delta is a unitary entity created by the same geological processes of sedimentary deposition that have been operating in this region for millions of years. The land boundary between Bangladesh and India in the Delta is a wholly political construct; it does not correspond to any meaningful geographic discontinuity. Given this, it would seem most appropriate to define the Bengal Delta's coastal front by means of a single line.

6.111 *Second*, this single façade fully respects the prevailing geographic relationship between the Parties in the areas closest to the sea. The land territories of Bangladesh and India meet in the middle of the Bengal Delta, and their land boundary passes south through the mouth of the Raimangal Estuary and out into the Bay of Bengal. Both States have extensive deltaic coasts on either side of their land boundary. As a result, any delimita-

100 *Guinea/Guinea-Bissau* at para. 109.

tion line, no matter how it might be drawn, would be dominated by the Parties' respective Bengal Delta coasts.

6.112 *Third*, adopting this single east-west coastal front is consistent with macro-geography of the northern Bay of Bengal. Any regional map demonstrates the generally south-facing orientation of the Bengal Delta balanced on either side of Bangladesh and India by coasts extending to the southeast and southwest, respectively. Any apparent departures from this general orientation are due largely to the sort of unstable, transitory features that define the Delta as a whole. Moreover, as discussed, the combination of (1) the pre-existing natural forces of accretion and erosion[101], and climate change induced sea-level rise[102] are affecting the eastern and western halves of the Delta differently. The eastern half (corresponding to Bangladesh's portion of the Delta) is progressively extending seaward, while the western half (corresponding to India's portion of the Delta) is retreating landward.

6.113 *Fourth,* although the east-west coastal front inevitably cuts across some Indian land territory and some maritime territory on the Bangladesh side of the land boundary terminus, this does not detract from the fact that the line accurately depicts the general direction of the coast in this region; it is an artefact of forcing the single line through the land boundary terminus. As noted above, drawing distinct coastal fronts to depict each State's coastal front separately yields identical results. Moreover, as depicted in **Figure 6.19** (in Volume II only), a comparison with the straight-line coastal façade drawn by the arbitral tribunal in *Guinea/Guinea Bissau* shows that, if anything, the façade along the coasts of India and Bangladesh offers a truer picture of the coasts in question than the façade in *Guinea/Guinea-Bissau,* in the sense that the Bay of Bengal façade leaves less land on its seaward side and less sea on its landward side than the corresponding façade along the coast of West Africa.

6.114 *Fifth*, the east-west coastal front, and the 180° bisector it produces, "would reduce the risk of enclavement [of Bangladesh] to a minimum and, in this respect, would be more satisfactory than any line drawn perpendicular to the other lines"[103] that might be envisaged. In particular, and in contrast to India's equidistance line, the 180° line would abate the cutoff of Bangladesh's maritime space.

6.115 *Sixth*, and related to the previous point, this approach as here applied would give Bangladesh a degree of access to its 200 M limit, and from there to its entitlement in

101 MB at para. 2.17.

102 MB at paras. 2.14-2.15.

103 *Guinea/Guinea-Bissau* at para. 111(b).

the outer continental shelf. In this way, the 180° line equitably minimizes the effects of the double concavity in which Bangladesh sits. An alternative approach would deprive Bangladesh of any access to the outer continental shelf, a result that would be manifestly inequitable.

6.116 That said, the effects of the concavity remain evident. Even with the 180° bisector, Bangladesh is left with a tapering wedge of maritime space that continues to narrow dramatically from north to south as a result of the general concavity in the northern Bay of Bengal.

6.117 The modest nature of the abatement Bangladesh claims can be appreciated graphically. **Figure 6.20A** (following page 122) is a regional map of South Asia showing the maritime space appurtenant to India (in blue), Myanmar (in red), Sri Lanka (in violet) and Bangladesh (in green). Bangladesh's maritime space reflects the combined effects of India's warning line with the line Myanmar has claimed in proceedings before ITLOS. **Figure 6.20B** (following page 122) is identical in all respects except only that Bangladesh's maritime space has been adjusted to reflect Bangladesh's proposed 180° degree line. The difference is scarcely noticeable. Bangladesh's maritime area continues to narrow dramatically from north to south as a result of the effects of the concavity, while India's maritime space is scarcely diminished.

3. The Equitableness of the 180° Line

6.118 The equitable nature of the solution that Bangladesh proposes with India in this case can also be seen in **Figure 6.21** (in Volume II only). Depicted there is the 180° line Bangladesh claims in this case with the line it has claimed in the parallel ITLOS proceedings with Myanmar. In those proceedings, Bangladesh has proposed a boundary following an azimuth of N215°E that is also based on the angle-bisector methodology. As reflected in Figure 6.21, the combination of the 180° line with India and the 215° line with Myanmar would give Bangladesh a modest but meaningful 86 M wide outlet to the 200 M limit, and from there access to its entitlement in the outer continental shelf. The inequitable effects of the concavity would have been partly abated, although not eliminated. Bangladesh's maritime space would still taper significantly from north to south as a result of the concavity of the Bay of Bengal coastline. At the same time, the effects of the 180° line on India are *de minimis*. It is left with the overwhelming majority of both its overall maritime space as well as its outlet to its 200 M limit. This is true regardless of the outcome of the delimitation between Bangladesh and Myanmar within 200 M, which can have no effects on India.

6.119 In short, the 180° line Bangladesh proposes as its boundary with India – in the continental shelf within 200 M, the EEZ and the territorial sea – constitutes an equitable solution that not only "would take overall account of the shape of coastline"[104] in the region, but also produce a delimitation that would "be suitable for equitable integration into the existing delimitations of the [] region, as well as future delimitations which would be reasonable to imagine from a consideration of equitable principles and the most likely assumptions".[105] This is fully consistent with – and required by – Articles 74 and 83 of the 1982 Convention.

6.120 It is important to note too another aspect of the 180° line that underscores it equitable character: its ease of implementation. As discussed, fishing is an important component of the Bangladeshi economy that provides the most important source of protein to the diet of the Bangladeshi people.[106] Most of the fishermen in the Bay, including on the Indian side, are small-scale, artisanal fishers who lack anything but the most rudimentary navigational tools, let alone sophisticated GPS technology. A boundary defined by a meridian of longitude drawn from the land boundary terminus would create an easily understandable line for local fishermen to obey when fishing near Indian maritime space. In a related vein, the Chamber of the ICJ in *Gulf of Maine* observed that:

> Exploitation of the sea's fishery resources calls for the existence of clear boundaries of a constant course, that do not compel those engaging in such activity to keep checking their position in relation to the complicated path of the line to be respected.[107]

6.121 Further, the 180° degree line coincides almost precisely with the location and bearing of the Swatch of No Ground in the vicinity of the physical shelf break in the Bay. Bangladesh's proposed boundary thus coincides with an obvious and stable natural boundary which may be said to divide the continental shelves of India's West Bengal State and Bangladesh.

6.122 As discussed in Chapter 2, the Swatch of No Ground is a trough-shaped marine canyon that cuts through the physical shelf of the Bay. Its origins remain the subject of

104 *Ibid.* at para. 108.

105 *Ibid.* at para. 109 (In order to do so, "it is necessary to consider how all these delimitations fit in with the general configuration of the West African coastline, and what deductions should be drawn from this in relation to the precise area concerned in the present delimitation."). In the *Libya/Malta* case, the ICJ similarly took a regional perspective, stating that it "has to look beyond the area concerned in the case, and consider the general geographical context in which the delimitation will have to be effected" (para. 69).

106 Roos et al. (2003). MB, Vol. IV, Annex B67.

107 *Gulf of Maine* at para. 202.

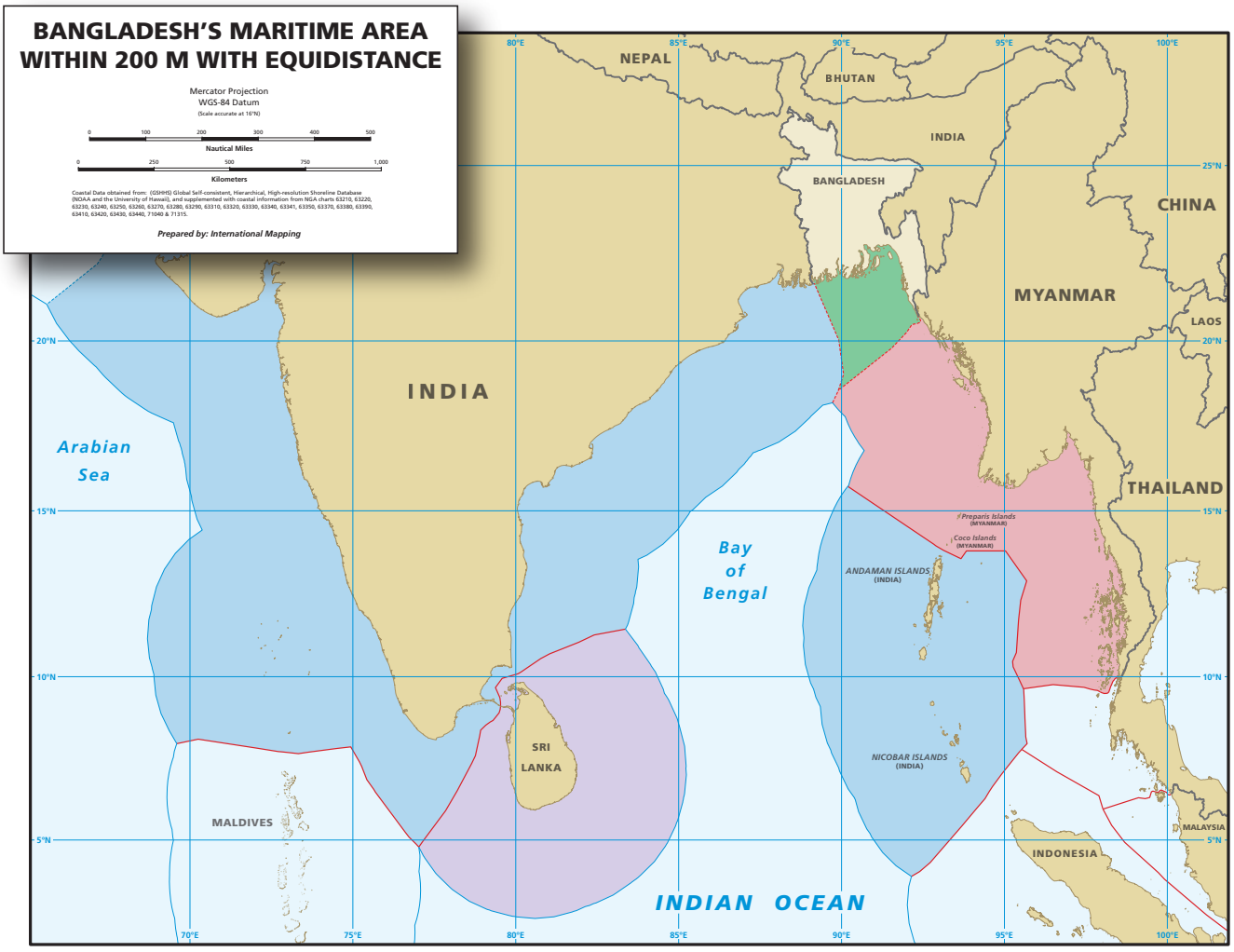


Figure 6.20A

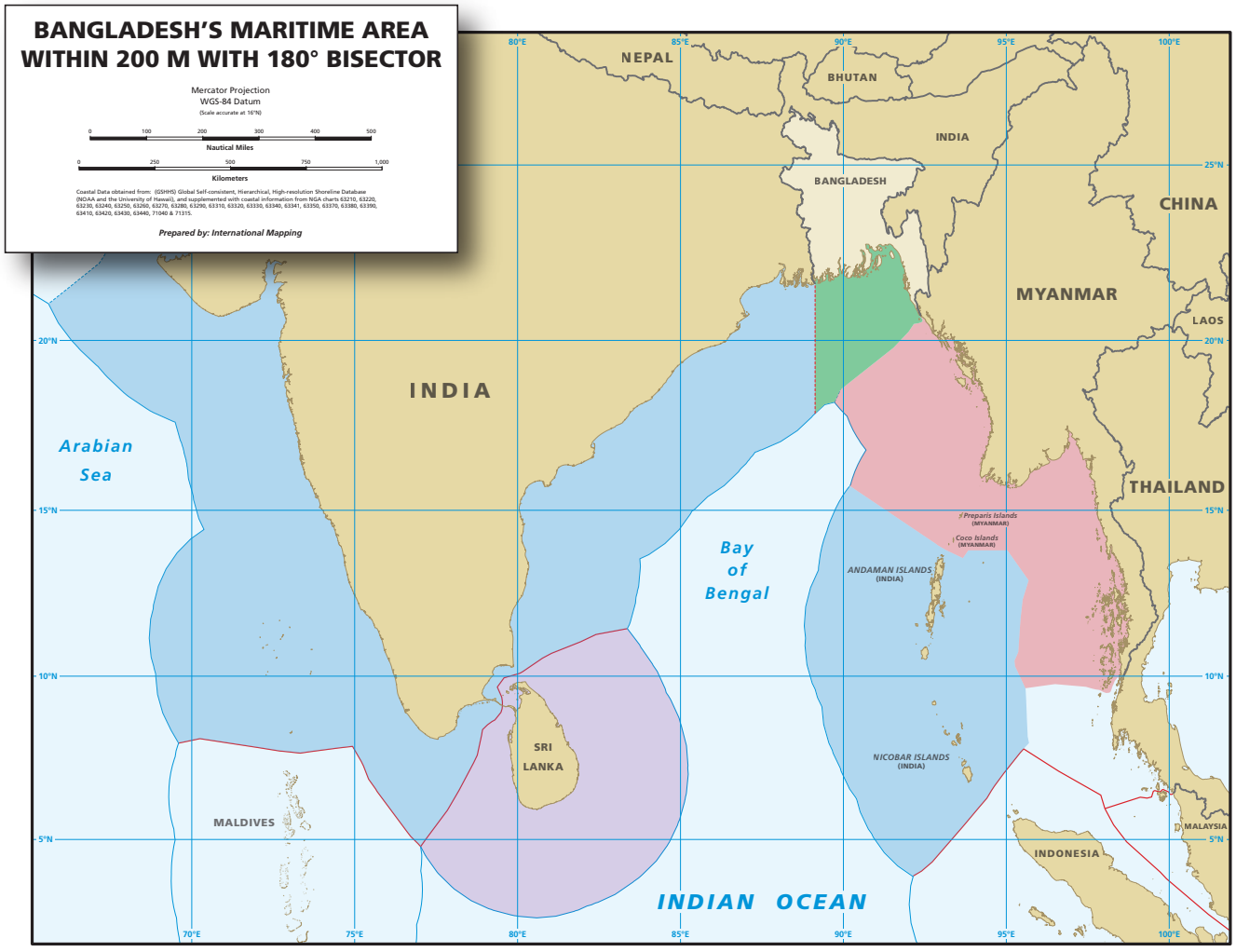


Figure 6.20B

debate. Whatever they may be, the Swatch of No Ground is an ancient geological structure with depths in the area of the physical shelf break of approximately 1,200 metres (in contrast to 150 metres just outside the canyon). The 180° boundary Bangladesh proposes passes almost precisely through the deepest parts of Swatch near the physical shelf break and thus follows the contours of this natural boundary. This is show in **Figure 6.22** (in Volume II only).

6.123 In response to the arguments of the United States in the *Gulf of Maine* case, the Chamber of the ICJ accepted the possibility that a sufficiently "genuine, sure and stable"[108] natural boundary might serve "as a basis for carrying out a delimitation"[109]. On the facts of that case, however, it was unable to discern such a natural boundary. Here, the circumstances are quite different. The Swatch of No Ground is genuine, it is sure, and it is stable. It is obvious on any bathymetric map and has been there for millions of years. It thus meets all the relevant criteria, and further underscores the equitableness of Bangladesh's proposed solution.

6.124 As noted above in Section I concerning the applicable law, the final step in the delimitation process is to confirm that the proposed delimitation line "does not lead to any significant disproportionality by reference to the respective coastal lengths and the apportionment of areas that ensue".[110] This is done by comparing the relative lengths of the Parties' coasts to the amount of maritime area a proposed delimitation would apportion to each. It is therefore necessary to measure both (1) the lengths of the Parties' relevant coasts, and (2) the size of the maritime areas each would receive as a result of the proposed delimitation.

6.125 The respective coastal façades of Bangladesh and India on the Bengal Delta as depicted in Figures 6.17 and 6.18 are broadly comparable. If the ICJ's approach in *Nicaragua v. Honduras* and *Gulf of Maine* is followed, the two resulting coastal façades measure: for Bangladesh 177 km; for India 150 km. The ratio is 0.85:1 in favour of Bangladesh.

6.126 If the *Guinea/Guinea-Bissau* arbitral tribunal's method is employed, Bangladesh's portion of the single coastal front line measures 283 km; India's measures 160 km. The ratio is 0.56:1 in favour of Bangladesh. However they are measured, Bangladesh's coastal front on the Bengal Delta is longer than India's.

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108 *Gulf of Maine* at para. 54.

109 *Ibid.* at para. 55.

110 *Romania v. Ukraine* at para. 210.

6.127 Bangladesh submits that the relevant maritime area to be apportioned is that situated in front of these coastal fronts and extending out to 200 M, except only that areas claimed by third States should not be included because they cannot fairly be considered as appertaining to either Party. This maritime area thus to be delimited, together with the Parties' coastal front lines and the proposed 180° bisector line is depicted in **Figure 6.23** (in Volume II only). For the reasons just stated, areas claimed by Myanmar have been excluded from this depiction. As shown in Figure 6.23, Bangladesh receives 94,794 sq km and India 82,573 sq km. The Tribunal may note that India's portion of the relevant area as depicted in Figure 6.23 does not include areas immediately to the west that are within 200 M of its deltaic coastal front and indisputably part of its maritime territory. If this area were included, the results would be to tilt the numbers further in India's favour by giving it a larger share of the relevant area. Nonetheless, Bangladesh has chosen not to include it in order to apply a consistent approach in a balanced manner on both sides of the 180° bisector line.

6.128 The apportionment of the relevant area is consistent with the comparative lengths of the two States' coastal façades. As stated, the ratio of the lengths of the Parties' coastal façades is either 0.85:1 or 0.56:1 in favour of Bangladesh, depending on which method for measuring the Parties' deltaic coastal front is used. The ratio of maritime spaces, however, is just 0.87:1 in favour of Bangladesh. If this is at all disproportionate, it is unfavourable to Bangladesh. It is plainly equitable to India.

Conclusions

6.129 For all the foregoing reasons, Bangladesh submits that ITLOS should delimit the maritime boundary between it and India in the continental shelf within 200M and the EEZ by the use of an angle-bisector, with the resulting boundary line running along an azimuth of 180° from the end of the territorial sea boundary out to the 200M limit from its coast (located at 18°18'18" N – 89°06'39" E).

6.130 The 180° line would eliminate the inequities associated with equidistance. It would achieve an equitable solution abating the cut-off effect that equidistance produces, and thereby allow Bangladesh both to extend its maritime jurisdiction to the full 200 M limit and to access its natural prolongation in the outer continental shelf. It would also produce a result that more proportionately – and therefore more equitably – distributes the relevant maritime area between Bangladesh and India in the northern Bay of Bengal.

6.131 The extension of this boundary into the outer continental shelf beyond 200 M is addressed in the next Chapter.

CHAPTER 7
DELIMITATION OF THE CONTINENTAL SHELF BEYOND 200 M

7.1 This chapter addresses delimitation of the continental shelf beyond 200 M, from the point located at 18°18'18"N – 89°06'39" E (WGS84). At paragraph 21 of its Statement of Claim, Bangladesh requested that the Tribunal:

> delimit, in accordance with the principles and rules set forth in UNCLOS, the maritime boundary between Bangladesh and India in the Bay of Bengal, in the territorial sea, the EEZ, and the continental shelf, *including the portion of the continental shelf pertaining to Bangladesh that lies more than 200 nautical miles from the baselines* from which its territorial sea is measured.[1]

7.2 Articles 76(1) to 76(3) of the 1982 Convention provide for the continental shelf of a coastal State to extend beyond 200 M based on the "natural prolongation" of its land territory into the seabed and subsoil of the adjacent sea. Articles 76(4) to 76(7) set limits on the extent to which States may claim such an entitlement beyond 200 M. Article 76(8) requires States to submit information to the CLCS, which will then make recommendations on the establishment of the outer limits of the continental shelf, *i.e.,* on the line where national jurisdiction over the continental shelf ends.

7.3 Bangladesh, India, and Myanmar have each made submissions to the CLCS.[2] As previously explained in Chapter 4, the CLCS has no power to delimit the boundary between one continental shelf and another. It may not even make recommendations on submissions regarding the outer limits where there is a dispute between opposite or adjacent States concerning their continental shelf boundaries.[3] Article 76(10) specifically provides that:

> The provisions of this article are without prejudice to the question of delimitation of the continental shelf between States with opposite or adjacent coasts.

7.4 Delimitation of the boundary in the continental shelf beyond 200 M, like delimitation of the shelf within that distance, can only be effected by agreement of the parties, or

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1 Government of Bangladesh, Statement of Claim and Notification under UNCLOS Article 287 and Annex VII, Article 1 (8 October 2009), at para. 21 (emphasis added). MB, Vol. III, Annex B26.

2 Government of Bangladesh, *Submission by the People's Republic of Bangladesh to the Commission on the Limits of the Continental Shelf: Executive Summary* (February 2011). MB, Vol. III, Annex B25.

3 *See* Memorial of Bangladesh (hereinafter "MB"), at paras. 4.21-4.22.

by an international court or arbitral tribunal acting under Part XV of the 1982 Convention.[4] In carrying out this function, the court or tribunal must look to Article 83(1), which governs delimitation in the continental shelf. Article 83(1) applies with equal force to delimitation within and beyond 200 M. In either part of the continental shelf, it requires that the delimitation achieve "an equitable solution".

7.5 As shown in **Figure 7.1** (on the next page), the claims of Bangladesh and India in the outer continental shelf partially overlap with each other, and with those of Myanmar. In the northeast portion (depicted in green), Bangladesh's claim overlaps only with Myanmar's. In the larger portion to the south and west (depicted in blue), Bangladesh's claim overlaps not only with India's but also with Myanmar's (the "trilateral area"). Further to the south (coloured in light and dark pink), the outer continental shelf is not claimed by Bangladesh; these areas are claimed by Myanmar and India (light pink) or by India alone (dark pink), and are therefore beyond the scope of these proceedings. (The Tribunal may also note that in the west (depicted in brown), there is a tiny area of bilateral overlap between Bangladesh and India where Myanmar has no claim.)

7.6 Bangladesh's claim does not call on the Tribunal to define the outer limit of the continental margin, where it meets the international seabed Area, because of the constraints imposed by Article 76(4) and (5). At its maximum extent, Bangladesh's claim runs into the adjoining area of continental shelf claimed by India and Myanmar. In the view of all three States, therefore, the continental shelf claimed by Bangladesh ends well short of the outer limit of the continental margin vis-à-vis the international community. Accordingly, for the Tribunal to delimit the outer continental shelf area claimed by Bangladesh is to delimit its shelf boundary with India, not any boundary with the international seabed Area. For that reason, wherever the maritime boundary between Bangladesh and India is drawn, it can have no effect on the rights of the International Seabed Authority or of third States to exploit the international seabed Area. Nor can it have any effect on whatever rights Myanmar may have to an outer continental shelf, since Myanmar will not be bound by any judgment that is rendered in this case, as explained in Chapter 4.

7.7 This Chapter demonstrates: *First*, that by virtue of the natural prolongation of its land territory, Bangladesh is entitled to claim a continental shelf beyond 200 M.

7.8 *Second*, that India too has a natural prolongation, and thus a legitimate claim beyond 200 M, but only by virtue of its landmass in the Bengal Delta abutting Bangladesh. In contrast, India's peninsular landmass does not enjoy the same degree of physical continu-

4 *Ibid.* at para. 4.11.

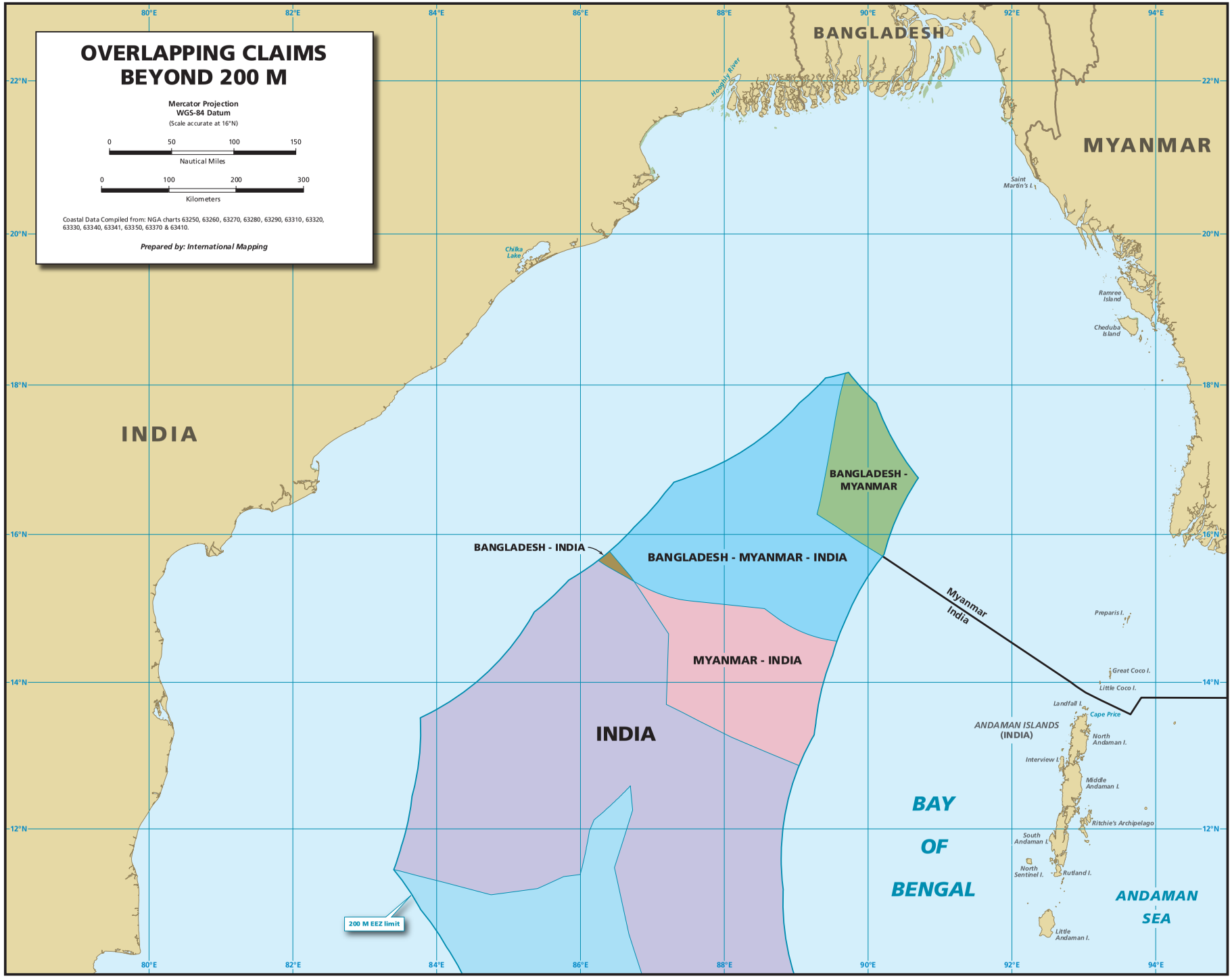
OVERLAPPING CLAIMS
BEYOND 200 M
Mercator Projection
WGS-84 Datum
(Scale accurate at 16°N)
0 50 100 150
Nautical Miles
0 100 200 300
Kilometers
Coastal Data Compiled from: NGA charts 63250, 63260, 63270, 63280, 63290, 63310, 63320, 63330, 63340, 63341, 63350, 63370 & 63410.
Prepared by: International Mapping
BANGLADESH
MYANMAR
INDIA
Hooghly River
Chilka Lake
Saint Martin's I.
Ramree Island
Cheduba Island
BANGLADESH - MYANMAR
BANGLADESH - INDIA
BANGLADESH - MYANMAR - INDIA
MYANMAR - INDIA
INDIA
Myanmar
India
Preparis I.
Great Coco I.
Little Coco I.
Landfall I.
Cape Price
ANDAMAN ISLANDS
(INDIA)
North Andaman I.
Interview I.
Middle Andaman I.
Ritchie's Archipelago
South Andaman I.
North Sentinel I.
Rutland I.
Little Andaman I.
BAY OF BENGAL
ANDAMAN SEA
200 M EEZ limit
80°E
82°E
84°E
86°E
88°E
90°E
92°E
94°E
22°N
20°N
18°N
16°N
14°N
12°N

Figure 7.1

ity with the seabed and subsoil of the Bay beyond 200 M, and therefore offers a far weaker basis for a claim of natural prolongation. At best, such prolongation as peninsular India may have is based strictly on its adjacency to the Bengal Depositional System, which is not the same as geological continuity.

7.9 *Third*, on the east side of the Bay of Bengal, India's Andaman Islands generate no entitlement beyond 200 M because they have no natural prolongation into the Bay more than some 50 M from their coast.

7.10 Based on these points, the equitable solution required by Article 83(1) in the disputed area of the outer continental shelf results in a delimitation that, as between Bangladesh and India, leaves the entirety of the area claimed by both States to Bangladesh. This is an equitable result because India would still retain its much larger claim in the outer continental shelf beyond the limits of the area claimed by Bangladesh. Bangladesh's entitlement in this area remains subject to the claims of Myanmar; but these will have been finally determined in the parallel ITLOS proceedings between Bangladesh and Myanmar which, on the current schedule, should be completed prior to the conclusion of the proceedings between Bangladesh and India.

7.11 The position Bangladesh takes in this case is fully consistent with its position in the proceedings with Myanmar. In both cases, Bangladesh maintains the view that the important differences between the juridical regimes of the continental shelf within and beyond 200 M must be recognised and given due weight: entitlement to a continental shelf beyond 200 M depends on proof of natural prolongation; natural prolongation is both geological and geomorphological in character; and the comparative extent of natural prolongation is the most relevant circumstance in delimiting the shelf beyond 200 M. In sustaining that position, Bangladesh relies on the 1982 Convention, Articles 76 and 83; the consistent trend of case law; the recommendations of the CLCS concerning the existence and basis for an entitlement in the outer continental shelf; and the expert evidence of geologists. The equitable solution proposed by Bangladesh is supported by all of these authorities.

I. Entitlement to a Continental Shelf Beyond 200 M Requires Evidence of Natural Prolongation

7.12 Article 76 is carefully structured and proceeds logically from a definition of the "continental shelf" and "continental margin" in Articles 76(1) and (3), respectively. It then turns to the rules and procedures for establishing the outer edge of the continental margin in paragraph 76(4), and for delineating the outer limit of the continental shelf in paragraphs 76(5) to 76(7).

7.13 Article 76(1) provides:

> The continental shelf of a coastal state comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea *throughout the natural prolongation of its land territory* to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.[5]

Article 76(3) further provides that:

> The continental margin comprises *the submerged prolongation of the land mass of the coastal State*, and consists of the seabed and subsoil of the shelf, the slope and the rise. It does not include the deep ocean floor with its oceanic ridges or the subsoil thereof.[6]

7.14 These provisions make clear that *within* 200 M, a juridical continental shelf entitlement exists solely on the basis of distance from the shore, regardless of the geology or geomorphology of the seabed.[7] As the International Court of Justice explained in *Libya/ Malta*:

> where the continental margin does not extend as far as 200 miles from the shore, natural prolongation, which in spite of its physical origins has throughout its history become more and more a complex and juridical concept, is in part defined by distance from the shore, irrespective of the physical nature of the intervening sea-bed and subsoil.[8]

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5 Emphasis added.

6 Emphasis added.

7 *See* MB, chap. 6.

8 *Continental Shelf (Libyan Arab Jamahiriya/Malta)*, Judgment, I.C.J. Reports 1985, p. 13 (hereinafter "*Libya/ Malta*"), at para. 34. *See also* MB, chap. 6.

7.15 In respect of the outer shelf *beyond* 200 M, however, Article 76 employs the terminology of "natural prolongation of [the] land territory"[9], a phrase drawn from the Judgment of the ICJ in the *North Sea Cases*.[10] Beyond 200 M, a continental shelf entitlement thus exists only insofar as it meets the criteria implied by the "natural prolongation" of the land territory.

7.16 In the *North Sea Cases* the Court held that:

> the rights of the coastal State in respect of the area of continental shelf that constitutes a natural prolongation of its land territory into and under the sea exist *ipso facto* and *ab initio,* by virtue of its sovereignty over the land, and as an extension of it in an exercise of sovereign rights for the purpose of exploring the seabed and exploiting its natural resources. In short, there is here an inherent right. In order to exercise it, no special legal process has to be gone through, nor have any special legal acts to be performed.[11]

Article 77(3) of the 1982 Convention reiterates that:

> The rights of the coastal State over the continental shelf do not depend on occupation, effective or notional, or on any express proclamation.

II. The Meaning of "Natural Prolongation"

7.17 Article 76 of the 1982 Convention does not define the phrase "natural prolongation" but it is apparent from the drafting history that the term is drawn from the ICJ's Judgment in the *North Sea Cases*.[12] There, the Court understood "natural prolongation" as follows:

> More fundamental than the notion of proximity appears to be the principle — constantly relied upon by all the Parties — of the natural prolongation or continuation of the land territory or domain, or land sovereignty of the coastal State, into and under the high seas, via the bed of its territorial sea which is under the full sovereignty of that State. There are various ways of formulating this principle, but the underlying idea, namely of an extension of something already possessed, is the same, and it is this idea of extension

9 Article 73(3) uses similar terminology – "the submerged prolongation of the land mass of the coastal State" – to define the continental margin.

10 See *North Sea Continental Shelf (Federal Republic of Germany/Denmark; Federal Republic of Germany/Netherlands)*, Judgment, I.C.J. Reports 1969, p. 3 (hereinafter "*North Sea Cases*"), at paras. 19, 39-40, 43.

11 *Ibid.* at para 19.

12 M. Nordquist et al, eds., *United Nations Convention on the Law of the Sea 1982: A Commentary,* Vol. II (1993), at p. 846. MB, Vol. III, Annex B42.

> which is, in the Court's opinion, determinant. Submarine areas do not really appertain to the coastal State because — or not only because — they are near it. They are near it of course; but this would not suffice to confer title, any more than, according to a well-established principle of law recognized by both sides in the present case, mere proximity confers *per se* title to land territory. What confers the *ipso jure* title which international law attributes to the coastal State in respect of its continental shelf, is the fact that the submarine areas concerned may be deemed to be actually part of the territory over which the coastal State already has dominion, - in the sense that, although covered with water, they are a prolongation or continuation of that territory, an extension of it under the sea. From this it would follow that whenever a given submarine area does not constitute a natural — or the most natural — extension of the land territory of a coastal State, even though that area may be closer to it than it is to the territory of any other State, it cannot be regarded as appertaining to that State; — or at least it cannot be so regarded in the face of a competing claim by a State of whose land territory the submarine area concerned is to be regarded as a natural extension, even if it is less close to it.[13]

7.18 This language makes clear that natural prolongation is the *sine qua non* of title to the continental shelf beyond 200 M ("*What confers the ipso jure title which international law attributes to the coastal State in respect of its continental shelf, is the fact that the submarine areas concerned may be deemed to be … an extension of [the land territory] under the sea.*"). Mere proximity or adjacency is not enough ("*whenever a given submarine area does not constitute a natural — or the most natural — extension of the land territory of a coastal State, even though that area may be closer to it than it is to the territory of any other State, it cannot be regarded as appertaining to that State*"). The Court's language also makes clear that geophysical elements, including both geology and geomorphology, are the essential determinants of natural prolongation ("*in the sense that, although covered with water, they are a prolongation or continuation of that [land] territory, an extension of it under the sea*"). The subsequent case law confirms this view.

7.19 The ICJ returned to the issue of natural prolongation in the *Tunisia/Libya* case, where the Court made reference to Article 76 of the 1982 Convention – which by then had been finalized, although the Convention as a whole was still being negotiated. It rejected arguments based on "geology in its historical aspect"[14] but nonetheless reaffirmed that geological circumstances "as they are today" are very much relevant. It stated:

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13 *North Sea Cases* at para. 43 (emphasis added).

14 *Continental Shelf (Tunisia/Libyan Arab Jamahiriya)*, Judgment, I.C.J. Reports 1982, p. 18 (hereinafter "*Tunisia/Libya*"), at para. 60.

> The function of the Court is to make use of geology only so far as required for the application of international law. It is of the view that what must be taken into account in the delimitation of shelf areas are the physical circumstances as they are today; that just as it is the geographical configuration of the present-day coasts, so also it is the present-day sea-bed, which must be considered. It is the outcome, not the evolution in the long-distant past, which is of importance.[15]

7.20 In its decision, the Court referred to "the physical factor constituting the natural prolongation"[16] and made clear that "a marked disruption or discontinuance of the seabed" may constitute "an indisputable indication of the limits of two separate continental shelves or two separate natural prolongations".[17] The relevance of these points is not diminished by the fact that, on the evidence presented to it by the parties, it was unable to conclude that such a discontinuity existed in that case.

7.21 In the *Libya/Malta* case, the ICJ again affirmed the relevance of geology and held that a discontinuity in the seabed could be "so scientifically 'fundamental', that it must also be a discontinuity of a natural prolongation in the legal sense".[18] Once again, however, the evidence was insufficient to demonstrate that such a discontinuity existed in the seabed underlying that part of the Mediterranean Sea:

> Having carefully studied that evidence, the Court is not satisfied that it would be able to draw any sufficiently cogent conclusions from it as to the existence or not of the "fundamental discontinuity" on which the Libyan argument relies. Doubtless the region has many geological or geomorphological features which may properly be described in scientific terms as "discontinuities". The endeavour, however, in the terms of the Libyan argument, was to convince the Court of a discontinuity so scientifically "fundamental", that it must also be a discontinuity of a natural prolongation in the legal sense; and such a fundamental discontinuity was said to be constituted by a tectonic plate boundary which the distinguished scientists called by Libya detected in the rift zone, or at least by the presence there of a very marked geomorphological feature.[19]

7.22 As the Court indicated, a fundamental discontinuity signifying the end of a State's natural prolongation into the seabed could be indicated by either "a tectonic plate boundary" or at least by "a very marked geomorphological feature". Libya claimed the existence

15 *Ibid*. at para. 61.

16 *Ibid*. at para. 68.

17 *Ibid*. at para. 66.

18 *Libya/Malta* at para. 41.

19 *Ibid.*

of such a "tectonic plate boundary", but in the words of the Court, "the no less distinguished scientists called by Malta testified that this supposed 'secondary' tectonic plate boundary was only an hypothesis, and that the data at present available were quite insufficient to prove, or indeed to disprove, its existence".[20] The Court concluded on the specific facts of that case that it was unable "to draw any sufficiently cogent conclusions, … as to the existence or not of the 'fundamental discontinuity'".[21]

7.23 As will be shown below, in contrast to the factual findings in *Tunisia/Libya* and *Libya/Malta,* the technical and scientific evidence in the present case demonstrates that the seabed and subsoil of the Bay of Bengal beyond 200 M (1) is the natural prolongation of the Bengal Delta; (2) does not constitute "the most natural" extension of Peninsular India[22]; and (3) in the area west of the Andaman Islands there is "a marked disruption or discontinuance of the sea-bed as to constitute an indisputable indication of the limits of two separate continental shelves, or two separate natural prolongations".[23]

III. The Outer Continental Shelf in the Bay of Bengal Is the Natural Prolongation of the Bangladesh Landmass

A. Bangladesh Has an Entitlement Beyond 200 M

7.24 Taking into account the scientific evidence set out in Chapter 2 and the jurisprudence considered in the previous section, there can be no doubt that the continental shelf that runs southwards from the Bengal Delta into the Bay of Bengal is the physical extension of Bangladesh's land territory, as required by Article 76.

7.25 As shown in Chapter 2,[24] the Bengal Delta and the seabed of the Bay form one continuous geological structure which extends offshore through the subaqueous Delta and the deep-sea Bengal Fan. The Bengal Fan extends approximately 1,500 M from the edge of the physical shelf off the coast of the Bengal Delta to the area southeast of Sri Lanka.[25] At its widest, it spans nearly 500 M of seabed. Near the Bangladesh coast, the Fan has an estimated maximum thickness of about 16.5 kilometers, which gradually decreases to

20 *Ibid.*

21 *Ibid.*

22 *North Sea Cases* at para. 43; MB at paras. 7.46-7.48.

23 *Tunisia/Libya* at para. 66; MB, chap. 2; MB, chap. 7, sec. IV.

24 *See* MB, paras. 2.53 and 2.59-2.71. *See also* Joseph R. Curray, "The Bay of Bengal: Tectonics, Stratigraphy and History of Formation" (26 May 2011) (hereinafter "Curray Expert Report (2011)"). MB, Vol. IV, Annex B52.

25 MB at para 2.51.

about one km south of the Equator, in the Indian Ocean beyond the limits of the Bay of Bengal.[26]

7.26 In his expert report, Professor Curray describes the entire area extending from "the river-deposited sediments of Bangladesh, through the sediments of the Bengal Delta, to the [physical] continental shelf and slope deposits, and finally to the submarine Bengal Fan" as forming the "single, integrated" Bengal Depositional System.[27] He observes that these "different individual environments are related by common origin, common sediment source and inter-related processes of sediment transportation and deposition".[28] As such, he concludes that "[t]hese elements represent an *offshore continuation of the geological processes and depositional environments of the land territory of Bangladesh into the Bay of Bengal*".[29]

7.27 This geological reality is reflected in the schematic presented in **Figure 7.2** (in Volume II only). As a result of the Bengal Depositional System, innumerable layers of sedimentary rock blanket the edge of the continental crust, and extend onto and across the oceanic crust of the Indian Plate. The accumulated sedimentary layers comprise a single geological entity that spans the Bengal Delta (and thus Bangladesh's land territory), the submerged Delta, and the Bengal Fan. The continent-ocean boundary is actually hundreds of miles inland. This sedimentary structure extends continuously from the Bangladesh mainland through the continental shelf, slope, and rise all the way past the limit of the Bay of Bengal into the Indian Ocean.

7.28 Further evidence of this manifest continuity between the Bengal Delta and the seabed in the Bay of Bengal can be found in the unusual bathymetry of the Bay, with water depths increasing uniformly down the north-south axis of the basin and bathymetric contours running approximately east-west. As shown on Figure 2.7, typical abyssal depths (usually deeper than 4000 meters elsewhere in the world) are not reached anywhere in the main part of the Bay of Bengal.

7.29 The geology and geomorphology of the area thus demonstrate that the seabed and subsoil of the Bay of Bengal beyond 200 M constitute the natural prolongation of the land territory of Bangladesh in precisely the sense the ICJ articulated in the *North Sea Cases*.

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26 *Ibid* at para. 2.52.

27 Curray Expert Report at p. 2. MB, Vol. IV, Annex B52.

28 *Ibid*. at p. 6.

29 *Ibid.*

7.30 Given the underlying geology and geomorphology of the Bay with its thick layers of sedimentary rock, Bangladesh's natural prolongation into the Bay actually continues well to the south of the outer shelf claimed by Bangladesh in these proceedings. Nonetheless, as discussed immediately below, Articles 76(4) and (5) of the 1982 Convention place limits on the maximum extent of the shelf that can be claimed by coastal States. As a result, Bangladesh's juridical natural prolongation is substantially more limited than its physical natural prolongation.

B. The Limits of Bangladesh's Claim in the Outer Continental Shelf

7.31 The outer limits of the continental shelf beyond 200 M that a coastal State can claim are defined by Articles 76(4) and (5) of the 1982 Convention. Article 76(7) in turn determines the method to be used in delineating the limits of the outer shelf area.

7.32 Article 76(4) governs the methods for establishing the "outer edge" of the "continental margin", and provides:

> (a) For the purposes of this Convention, the coastal State shall establish the outer edge of the continental margin wherever the margin extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, *by either*:
>
> (i) a line delineated in accordance with paragraph 7 by reference to the outermost fixed points at each of which the thickness of sedimentary rocks is at least 1 per cent of the shortest distance from such point to the foot of the continental slope; or
>
> (ii) a line delineated in accordance with paragraph 7 by reference to fixed points not more than 60 nautical miles from the foot of the continental slope.
>
> (b) In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in the gradient at its base.

7.33 Article 76(4) is a complex provision, but its objective is simple: it allows States to choose between two alternative methods for defining the maximum extent of the continental margin, according to whichever is further seaward. The two options can be summarised as follows:

> Article 76(4)(a)(i): The margin extends to where the thickness of sedimentary rocks equals 1% of the distance from the foot of slope. (the "Gardiner formula"); or

> Article 76(4)(a)(ii): The margin extends 60 miles beyond the foot of the slope (FOS) (the "Hedberg formula").

7.34 In this case, the Gardiner formula results in a limit that is furthest seaward for Bangladesh. As can be seen in **Figure 7.3** (in Volume II only), the line resulting from the Hedberg formula is nearly everywhere less than 200 M from Bangladesh's coastline. By contrast, the Gardiner formula, also shown in Figure 7.3, produces an outer edge for the margin that extends well to the south, as far as 500 M from the Bangladesh coast. Accordingly, it is this formula that defines the maximum extent of Bangladesh's continental margin.

7.35 Article 76(5) then imposes constraints beyond which the "outer limits" of the coastal State's "continental shelf" may not extend. It thus operates as to limit the outer edge of the margin established pursuant to Article 76(4). Specifically, Article 76(5) provides:

> The fixed points comprising the line of the outer limits of the continental shelf on the seabed, drawn in accordance with paragraph 4 (a)(i) and (ii), either shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured or shall not exceed 100 nautical miles from the 2,500 metre isobath, which is a line connecting the depth of 2,500 metres.

7.36 Given that the outer edge of Bangladesh's continental margin is established by reference to the Gardiner formula, the relevance of Article 76(5) is that the fixed points which constitute the outer limits of its continental shelf must *either* be located no more than 350 M from the baselines of the territorial sea *or* they must be located no more than 100 M seaward of the 2,500 metre isobath.

7.37 As shown below, the Gardiner formula produces a line for Bangladesh that is beyond both of the limits set in Article 76(5). Accordingly, pursuant to that provision, Bangladesh's entitlement in the outer continental shelf cannot reach the Gardiner line, but can only extend to (1) 350 M, or (2) 100 M beyond the 2,500 metre isobath, whichever is furthest seaward. Drawn in accordance with Article 76(5), the 2,500 metre + 100 M line is everywhere seaward of the 350 M limit. It is that line which therefore represents the extent of Bangladesh's continental shelf entitlement.

7.38 Finally, Article 76(7) provides:

> The coastal State shall delineate the outer limits of its continental shelf, where that shelf extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, by straight lines

not exceeding 60 nautical miles in length, connecting fixed points, defined by coordinates of latitude and longitude.

7.39 The purpose of Article 76(7) is to indicate the precise methodology for delineating the outer limits of the shelf in accordance with Article 76(5). This line is shown in Figure 3.5 and is repeated for ease of reference as **Figure 7.4** (in Volume II only).

* * *

7.40 The application of Article 76 to the geology and geomorphology of the Bay of Bengal means that Bangladesh is entitled to claim sovereign rights under the 1982 Convention over the "natural prolongation" of its landmass seawards from the 200 M limit as far as the outer limit of the shelf delineated in accordance with Article 76(4), 76(5) and 76(7). As shown, the application of these rules entitles Bangladesh to claim sovereign rights for the purpose of exploration and exploitation of its natural resources in an area of the outer continental shelf which extends to, but not beyond, 100 M past the 2,500 metre isobath.

7.41 Insofar as its entitlement to this area of continental shelf overlaps with the claims of India, it is for the Tribunal to determine the strength of the competing claims and delimit an equitable boundary taking into account the applicable law and relevant scientific circumstances.

IV. India's Natural Prolongation in the Outer Continental Shelf Derives from the Bengal Delta

7.42 As described in Chapter 2, the Bengal Delta straddles the land boundary between Bangladesh and India. Although three-quarters of the Delta's surface area is located in Bangladesh, India's presence in the Delta means that it too has a natural prolongation that joins its land territory to the seabed and subsoil of the Bay of Bengal beyond 200 M. The factual and legal analysis that supports the existence of Bangladesh's entitlement in the outer continental shelf also applies to India's deltaic land territory.

7.43 For the reasons discussed below, however, the same cannot be said of the other portions of the Indian coast that face onto the Bay: peninsular India and the Andaman Islands. In this respect, it is critical to note that but for the effects of the Bengal Depositional System and the massive layers of sedimentary rocks it has built up both on and off shore, there would be no continental shelf beyond 200 M for any of the littoral States on the Bay of Bengal to claim. Without the Bengal Depositional System-derived sediments that now

blanket the seafloor, the continental margin throughout the Bay would lie within 200 M of all parts of the coast.

A. India's Claim in the Continental Shelf Beyond 200 M

7.44 India claims an outer continental shelf in the Bay of Bengal drawn not only from its portion of the Bengal Delta, as it is entitled to do under Article 76, but also from its peninsular landmass in the west and the Andaman Islands in the east. From the limited information presented in the Executive Summary to its CLCS Submission, India appears to have determined the outer edge of the continental margin in both sectors by applying the Gardiner 1% sediment thickness formula. In any event, with the exception of two line segments that it claims to be "potential maritime boundaries" with Myanmar and Sri Lanka, India has defined the outer limits of its peninsular outer continental shelf claim exclusively through the application of the 350 M constraint set forth in Article 76(5).[30] The extent of India's claim in the outer continental shelf drawn from its peninsular landmass is depicted in **Figure 7.5A** (in Volume II only).

7.45 The limits of India's claim in the shelf beyond 200 M drawn from the Andaman Islands is made up of three segments. The first is a north-south trending segment that is formed by connecting points that are located 350 M from the Andaman Islands.[31] The second segment also trends north-south but is formed by connecting a number of 1% sediment thickness points, all of which are located less than 350 M from the Andaman Islands.[32] The final segment runs almost due east from India's southernmost 1% sediment thickness point to the intersection of the 200 M limit of the Andaman Islands' EEZ.[33] The extent of India's outer shelf claim drawn from the Andaman Islands is depicted in **Figure 7.5B** (in Volume II only).

B. India's Peninsular Margin

7.46 As noted in Chapter 2, peninsular India's continental margin differs significantly from the margin of the Bengal Delta, in that sedimentary rock derived from the interior only comprises a very small proportion of the seabed of Bay of Bengal.[34] The vast majority

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30 Government of India, *Partial submission to the Commission on the Limits of the Continental Shelf, pursuant to article 76, paragraph 8 of the United National Convention on the Law of the Sea: Part I, Executive Summary* (May 2009), at p. 6.

31 *Ibid.* at pp. 35-38.

32 *Ibid.*

33 *Ibid.*

34 *See* MB, chap. 2. *See also* Curray Expert Report (2011) at p. 2. MB, Vol. IV, Annex B52.

of the sedimentary rock which forms the seabed is not derived from the land territory of peninsular India but rather has been carried there over large distances from the distributory systems associated with the Bengal Delta in the north. The landmass of peninsular India thus has only a limited affinity with the Bay's seafloor. It is, at most, adjacent to the Bengal Depositional System but it is not part of that system.

7.47 There is no "marked discontinuity" between the land territory of peninsular India and the seabed and subsoil of the Bay beyond 200 M of the sort that the jurisprudence suggests is sufficient to indicate "the limits of two separate continental shelves, or two separate natural prolongations".[35] It is clear, however, that the seafloor of the Bay beyond 200 M, in the words of the ICJ, "does not constitute a natural — or the most natural — extension of the land territory of" peninsular India "even though that area may be closer to it than it is to the territory of"[36] the Bengal Delta.

7.48 The lesser degree of continuity – and thus the lesser degree of natural prolongation – between the land territory of peninsular India and the seabed and subsoil of the Bay of Bengal beyond 200 M is reflected in the schematic presented in **Figure 7.6A** (in Volume II only). Seaward of the foot of the slope, the seafloor is covered in thick sediments deposited by the Bengal Depositional System. Unlike most passive continental margins, the thickness of the sediment actually *increases* as one moves from India's east coast towards the centre of the Bay. This demonstrates that the seafloor and its sediment thickness are not the geological prolongation of the peninsular coast but of the landmass at the northern end of the Bay. Compared to the Bengal Delta (including the Indian portion), there is a lack of physical continuity between the peninsular land mass and the seafloor. It is in this sense that peninsular India can be described as adjacent to, but distinct from, the Bengal Depositional System.

C. India's Andaman Margin

7.49 In contrast to Peninsular India, India's Andaman Islands are separated from the seabed and subsoil of the Bay of Bengal beyond 200 M by just the sort of "marked discontinuity" that indicates the limits of two separate natural prolongations. The Andamans cannot therefore contribute in any way to any Indian entitlement in the outer continental shelf.

35 *North Sea Cases* at para. 66.

36 *Ibid.* at para. 43.

7.50 As discussed in Chapter 2, the Andaman margin (as well as that of Myanmar and the eastern side of Bangladesh) is formed by an active or convergent tectonic plate boundary. The oceanic crust of the India Plate that underlies most of the Bay of Bengal is impinging upon and being forced beneath the Burma Plate to the east. The junction between these two geological regions is a text-book example of the most fundamental geological discontinuity found anywhere on the Earth's surface.

7.51 As it impinges on the Burma Plate, the Indian Plate descends along a tectonically active and highly seismogenic surface known as a subduction zone. This movement generates a large number of earthquakes and sporadic volcanic activity. This "active" type of margin bears no resemblance to the passive margin of India's mainland to the west of the Bay of Bengal and Bangladesh's to the north, where the ocean/continent transition has been stable for more than 100 million years and devoid of earthquake or volcanic activity.

7.52 India's Andaman Islands (together with Myanmar's Preparis and Coco Islands) are a product of the deformation processes associated with the active margin and subduction zone.[37] At the latitude of the islands, the convergence is between two plates of oceanic crust. The effect of the collision here has been to break-off parts of the oceanic crust and the underlying mantle (to form so-called "ophiolites") that have then become mixed with sediments scraped off the descending Indian Plate to form an accretionary prism comprised of a complex mix of rock types that are piled upon themselves to form the islands. The western edge of the accretionary prism can readily be traced southwards along the topographic feature known as the Sunda Trench.

7.53 Geologically speaking, the natural prolongation of the Andamans is thus limited to the accretionary complex of shallow seabed that extends westwards only as far as the India-Burma tectonic plate boundary, as shown in the schematic presented in **Figure 7.6B** (in Volume II only).[38] This conclusion is supported by the CLCS Guidelines, which state: "From a geoscientific perspective the seaward extent of convergent continental margins is defined [ ] by the seaward edge of the accretionary wedge . . . ".[39]

7.54 Given these facts, Bangladesh submits that India cannot demonstrate the existence of a natural prolongation of its land territory beyond 200 M west of the Andamans.

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37 Curray Expert Report (2011) at pp. 4-5. MB, Vol. IV, Annex B52. *See also* MB at paras. 2.62-2.63.

38 *Ibid.*

39 Commission on the Limits of the Continental Shelf, *Scientific and Technical Guidelines,* U.N. Doc. No. CLCS/11 (13 May 1999) (hereinafter "*CLCS Guidelines*), at para. 6.3.6.

The islands' natural prolongation ends only about 50 M offshore at the location of the subduction zone, which marks the boundary between the Indian and Burma Plates. This manifestly is "a marked disruption or discontinuance of the sea-bed" that serves as "an indisputable indication of the limits of two separate continental shelves, or two separate natural prolongations".[40]

7.55 Without a natural prolongation beyond 200 M from the Andaman Islands, India's claims to an outer continental shelf related to the islands have no basis in fact or law, and must necessarily be rejected.

7.56 The areas of bilateral and trilateral overlap as modified to take account of the absence of a valid claim drawn from the Andamans vary only slightly from those depicted in Figure 7.1. The change is nonetheless significant in that both Bangladesh's and India's claims in the area of overlap derive primarily from their respective Bengal Delta coasts and, in India's case, to a much lesser extent from its mainland peninsular coast. No areas to the east are implicated.

V. Equitable Delimitation of the Continental Shelf Beyond 200 M

7.57 Article 83 of UNCLOS does not distinguish between delimitation of the continental shelf beyond 200 M and delimitation of the shelf within 200 M. Its terms are equally applicable in both areas. The objective of delimitation is "to achieve an equitable solution". In both cases, for the reasons discussed above, however, the elements that inform the achievement of an equitable solution in the area beyond 200 M are different from those that shape an equitable solution within that distance. Within 200 M, the basis of entitlement is distance from the coast. That being so, coastal geography plays a primary role in determining what is an equitable solution in a given case. Beyond 200 M, however, coastal geography ceases to be important. Instead, the plain text of Article 76 as informed by the relevant jurisprudence, makes natural prolongation – the physical extension of the continental landmass into and across the seabed – the primary determinant of entitlement. The equitable solution the law requires must therefore be found by reference to the geological and geomorphological factors that underpin the concept of natural prolongation.[41]

7.58 In addition to the text of Article 76 and the case law, the doctrine also supports this approach. Colson argues that "geological and geomorphological factors will re-emerge in

40 *Tunisia/Libya* at para. 66.

41 In the *Libya/Malta* case, the ICJ held that "the choice of the criterion and the method which it is to employ in the first place to arrive at a provisional result should be made in a manner consistent with the concepts underlying the attribution of legal title." (para 61).

the law of maritime delimitation of the outer continental shelf …. Presumably, they will work together with the other factors in the case, perhaps prominently or perhaps not, depending of the circumstances, to achieve an equitable solution."[42] Highet goes further and predicts that in outer continental shelf delimitations "it is clear that geological and geomorphological factors will not merely be important; they will be of the essence."[43]

7.59 In the present case, several geological and geomorphological features stand out as critical to delimitation of the continental shelf beyond 200 M. *First*, the indisputable fact that the seabed and subsoil in the Bay of Bengal beyond 200 M are, above all else, the natural prolongation of the Bengal Delta. Indeed, the onshore Delta, the subaqueous Delta and the Bengal Fan constitute a single, integrated geological structure that unites the continental landmass to the seafloor throughout the Bay in uninterrupted layers of sedimentary rock.

7.60 *Second*, but for the massive layers of sediment deposited on the seafloor by Bengal Depositional System, there would be no continental shelf beyond 200 M for any of the Bay's littoral States to claim.

7.61 *Third*, peninsular India does not enjoy the same degree of physical continuity with the seabed and subsoil of the Bay. Although there is no marked discontinuity to disconnect India's peninsular landmass from the outer shelf area, the most that can be said is that peninsular India is adjacent to the Bengal Depositional System, not part of it. As such, whatever notional natural prolongation peninsular India may enjoy is significantly weaker than the manifest natural prolongation from the Bengal Delta.

7.62 *Fourth*, an equitable delimitation between the Parties in the outer continental shelf must take into account *all* the outer continental shelf area attributable to the Parties, including areas claimed by India beyond the limits of Bangladesh's claim. Regardless of the outcome of the present case, India will continue to enjoy uncontested sovereign rights over a substantial area of outer continental shelf to the south of the area where its claims overlap with those of Bangladesh (and Myanmar, too). This southern area is relevant to the delimitation and must be weighed in the balance of an equitable solution.

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42 David A. Colson, "The Delimitation of the Outer Continental Shelf between Neighboring States," *American Journal of International Law,* Vol. 97, No. 91 (2003), at p.107. MB, Vol. III, Annex B48.

43 Keith Highet, "The Use of Geophysical Factors in the Delimitation of Maritime Boundaries", in J.I. Charney and L.M. Alexander (eds.) *International Maritime Boundaries* Vol. I (1993), at pp. 163, 196. MB, Vol. III, Annex B45.

7.63 As a matter of geology and geomorphology, the natural prolongation of Bengal Delta continues well south of the outer limits of the claim Bangladesh has presented to the Tribunal. As stated, the Bengal Fan extends as far south as approximately 7° S latitude. Due to the juridical constraints stated in Article 76(5), however, Bangladesh cannot claim any of this area.

7.64 India is in a different situation, however. Because the land territory of peninsular India extends much further south adjacent to the Bay, the formula lines drawn from India's coast reach farther south beyond the formula lines drawn from Bangladesh. Since there is no "marked discontinuity" between the landmass of peninsular India and the seabed beyond 200 M, there is nothing to prevent India from drawing the formula lines from its peninsular coast. But that does not change the fact that this portion of the continental shelf derives geologically from the Bengal Delta and the Bengal Depositional System, in the same way as the area of overlap claimed by both India and Bangladesh.

7.65 Given these facts, Bangladesh submits that the achievement of an equitable solution in the area beyond 200 M must, as between Bangladesh and India, recognize all of the area of overlap beyond 200 M as appertaining to Bangladesh. This result would recognize significant area of outer continental shelf as appertaining to each Party. Indeed, although India would receive none of the area of overlap, it would still enjoy a substantially larger area of outer continental shelf than Bangladesh. Bangladesh's claim in the shelf beyond 200 M covers a total 99,800 sq km. In comparison, the area of India's claim south of the limits of Bangladesh's claim covers an area of 154,000 sq km, more than 50% larger than the entire area of overlap.[44]

7.66 This result is equitable because the claims of both Bangladesh and India derive ultimately from both States' presence in the Bengal Delta. Indeed, considering the fact that Bangladesh occupies some 75% of the Delta's land territory, a result that recognizes 50% more area of outer continental shelf as appertaining to India is, if anything, slanted in India's favour.

7.67 For these reasons, Bangladesh submits that the maritime boundary between it and India should be drawn from the end point of the 180° bisector line discussed in the previous Chapter and thence, upon reaching the 200 M limit drawn from India's coast, along the line that is exactly 200 M from India's coast, until it reaches the western endpoint of the line representing the outer limit of Bangladesh's claim. From that point, the boundary

44 As noted, India's submission to the CLCS is a partial submission subject to upward revision. *See* MB, chap. 3, fn. 28.

line would run east along Bangladesh's claim line until it reaches the easternmost limit of that line. It would then continue northward along the 200 M limit drawn from India's Andaman Islands until it reaches the end point of the agreed maritime boundary between India and Myanmar in the eastern Bay of Bengal. The boundary line proposed by Bangladesh is depicted in **Figure 7.7** (following page 148).

7.68 Among its other salutary aspects, the maritime boundary Bangladesh proposes would give effect to what Charney has called the principle of "maximum reach" for both States. As discussed in the previous Chapter, Charney argues that decisions of international tribunals have sought "to delimit maritime boundaries so that all disputants are allotted some access to the areas approaching the maximum distance from the coast permitted for each one".[45] Chapter 6 gives examples of State practice following the same approach.[46] There is no reason in principle why this approach should have any less application in areas where the continental shelf extends beyond 200 M. The maritime boundary Bangladesh proposes would give it and India "access to the areas approaching the maximum distance from the coast permitted for each one". For its part, Bangladesh would be able to extend its maritime jurisdiction as far seaward as Article 76(5) permits. And for its part, India too would be able to extend its own maritime jurisdiction to the full limits of its claim across a substantial area measuring more than 350 M in length.

* * *

7.69 It should be noted that there is a small wedge-shaped area immediately beyond the Bangladesh EEZ which is within 200 M of mainland of India. The extent of this wedge-shaped area is shown in **Figure 7.8** (in Volume II only). Thus, in theory, there is a small area of Bangladesh's continental shelf which is overlain by waters which India claims as its EEZ. This is not a one-off occurrence. It occurs wherever two conditions are met: (1) a maritime delimitation line which is not a strict equidistance line reaches a point 200 M from the nearer of the two coasts (and thus the limits of the EEZ attributable to that coast), and (2) there is an underlying physical continental shelf beyond that point. This was the situation, for example, in the *Gulf of Maine* case: the Chamber's Point D, the terminal point

45 Jonathan I. Charney, "Progress in International Maritime Boundary Delimitation Law," *American Journal of International Law*, Vol. 88, No. 227 (1994) (hereinafter "Charney (1994)") , at pp. 247 et seq. MB, Vol. III, Annex B43. In support of this view, Charney cites the following cases: *North Sea Cases* at para. 81; *Land, Island and Maritime Frontier Dispute (El Salvador/Honduras: Nicaragua Intervening)*, Judgment, I.C.J. Reports 1993, p. 351 (hereinafter "Gulf of Fonseca"), at paras. 415-420; and *Case Concerning Delimitation of Maritime Areas between Canada and France (St. Pierre and Miquelon)*, Decision, 10 June 1992, reprinted in 31 ILM 1149 (hereinafter "St. Pierre & Miquelon"), at paras. 66-74.

46 Notably in the treatment of Gambia, Monaco, and Dominica. *See* MB at paras. 6.54-6.59.

of its line, is 200 M from the nearest US coast but rather closer to the nearest point on the Canadian coast – as can be seen from the map attached to the Judgment.[47] In that case, the Chamber was able to avoid dealing with the problem by stopping the delimitation line at the first 200 M limit (that of the United States). In the present case, that solution will not serve; the delimitation must carry on beyond 200 M.

7.70 This matter cannot be resolved by giving priority to the EEZ over the continental shelf. The Tribunal should reject any suggestion that even a tiny sliver of EEZ of State B beyond the outer limit of State A's EEZ could put an end to the entitlement that State A would otherwise have to its outer continental shelf under Article 76. To accept such an approach would mean that delimitation beyond 200 M becomes a back-to-front world as compared with delimitation within 200 M.

7.71 For example, take a single maritime boundary which departs to some degree from equidistance in favour of State A in order to reach an equitable solution. The result will be that the maritime boundary is closer to adjacent State B. In such a case, if the "EEZ trumps" theory holds, in many coastal configurations State B will shelf-lock State A at the 200 M limit – by the very reason of an EEZ adjustment intended to be adverse to B: *i.e.*, to achieve equity for State A.

7.72 This is impossible to defend as a general proposition. Is it the case that an equitable line suddenly becomes inequitable as it crosses the invisible 200 M limit on a featureless sea? No. The delimitation line, equitable at 199 M, is also equitable at 201 M in the absence of some supervening feature. Here there is a supervening feature: it is Bangladesh's natural prolongation beyond both its own and India's 200 M EEZ limits. In such circumstances, the single maritime boundary must continue as such to the outermost of the two 200 M EEZ limits (that of India), and thence southwards along the 200 M line to the point where India's EEZ ends, and that it delimits all relevant and applicable maritime zones. As always with the continental shelf, the land dominates the sea, even at a distance of 200 M.

7.73 The matter of the wedge-shaped area also cannot be resolved by allocating water column rights over that area to India and continental shelf rights to Bangladesh. There is no textual basis in UNCLOS for doing so, unless Article 56(3) is to be so interpreted, which it cannot be. The continental shelf was prior in time as a legal institution, and represents an inherent right of the coastal State by virtue of the principle of natural prolongation, as the ICJ held in 1969. Moreover, the great inconvenience of a solution which gives

47 *Delimitation of the Maritime Boundary in the Gulf of Maine Area (Canada/United States of America)*, Judgment I.C.J. Reports 1984, p. 246 (hereinafter "*Gulf of Maine*"), at p. 346.

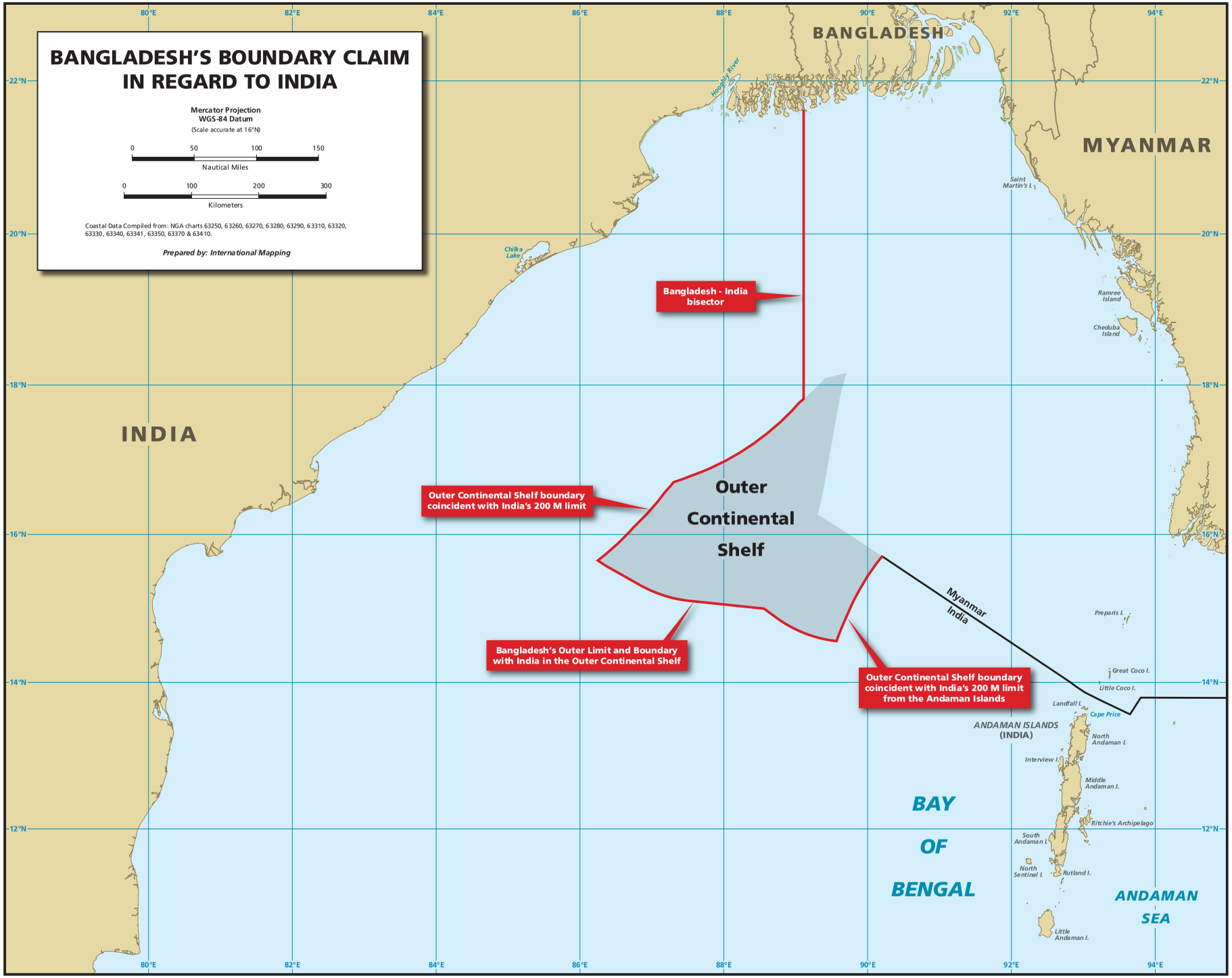
BANGLADESH'S BOUNDARY CLAIM IN REGARD TO INDIA
Mercator Projection
WGS-84 Datum
(Scale accurate at 16°N)
0 50 100 150
Nautical Miles
0 100 200 300
Kilometers
Coastal Data Compiled from: NGA charts 63250, 63260, 63270, 63280, 63290, 63310, 63320, 63330, 63340, 63341, 63350, 63370 & 63410.
Prepared by: International Mapping
BANGLADESH
MYANMAR
INDIA
Hooghly River
Chilka Lake
Saint Martin's I.
Ramree Island
Cheduba Island
Bangladesh - India bisector
Outer Continental Shelf boundary coincident with India's 200 M limit
Outer Continental Shelf
Bangladesh's Outer Limit and Boundary with India in the Outer Continental Shelf
Myanmar
India
Outer Continental Shelf boundary coincident with India's 200 M limit from the Andaman Islands
Preparis I.
Great Coco I.
Little Coco I.
Landfall I.
Cape Price
ANDAMAN ISLANDS (INDIA)
North Andaman I.
Interview I.
Middle Andaman I.
Ritchie's Archipelago
South Andaman I.
North Sentinel I.
Rutland I.
Little Andaman I.
BAY OF BENGAL
ANDAMAN SEA
80°E
82°E
84°E
86°E
88°E
90°E
92°E
94°E
22°N
20°N
18°N
16°N
14°N
12°N

Figure 7.7

State A sovereign rights over the seabed and State B exclusive rights for resource purposes over the water column at exactly the same location may be noted. This is why international tribunals have sought at all costs to avoid the problem[48] and why different attribution of zone and shelf has hardly ever been adopted in State practice.[49]

7.74 Bangladesh submits that in the circumstances of the present case, the maritime boundary between Bangladesh and India should continue along the line dictated by the bisector method (*i.e.*, 180°), until it reaches India's 200 M EEZ limit, thence southwards along that 200 M limit line until it reaches the point where India's 200 M limit intersects the outer limit of Bangladesh's claim in the outer continental shelf. From there, the boundary line runs east along Bangladesh's claim line until it reaches the easternmost limit of that line. From there, it continues north along the 200 M limit drawn from India's Andaman Islands to the point where it intersects the end point of the agreed maritime boundary between India and Myanmar, as depicted in Figure 7.8.

Conclusions

7.75 For the reasons set out in the present Chapter, Bangladesh submits that:

- There is an indisputable natural prolongation from Bangladesh's landmass into the Bay of Bengal: the continental shelf beyond 200 M claimed by Bangladesh is the physical extension of Bangladesh's land territory by virtue of the uninterrupted seabed geology and geomorphology of the onshore Bengal Delta, the subaqueous Bengal Delta and the Bengal Fan.

- India enjoys a physical extension from its landmass into the Bay beyond 200 M, but only by virtue of its portion of the Bengal Delta. Peninsular India is, at most, adjacent to the Bengal Depositional System but is not geologically part of it. And the Andaman Islands are disconnected from the seabed and subsoil beyond 200 M by a tectonic plate boundary and subduction zone that deprive India of any natural prolongation into the outer continental shelf area from these islands.

- An equitable maritime delimitation between Bangladesh and India would recognize the primacy of Bangladesh's natural prolongation and, as between Bangla-

48 *Delimitation of Maritime Boundary between Barbados and Trinidad and Tobago,* Award, 11 April 2006, *reprinted in* 27 RIAA 147, at para. 227. Reproduced in MB, Vol. V.

49 The example usually quoted is Australia/Papua New Guinea, Treaty concerning Sovereignty and Maritime Boundaries in the area between the two Countries, including the area known as Torres Strait, and Related Matters, 1429 UNTS 207 (18 December 1978), entered into force 15 February 1985. MB, Vol. III, Annex B3.

desh and India only, allocate to Bangladesh the entirety of its claim in the area beyond 200 M, as shown in Figure 7.8.

- This result achieves an equitable solution for India since it retains a significant undisputed area to the south of Bangladesh's claim and will continue to enjoy rights over an extensive continental shelf, all of which ultimately derive from the Bengal Depositional System.

SUBMISSIONS

On the basis of the facts and law set forth in this Memorial, Bangladesh requests the Tribunal to adjudge and declare that:

(1) The maritime boundary between Bangladesh and India follows a line with a geodesic azimuth of 180° from the location of the land boundary terminus at 21° 38' 14" N – 89° 06' 39" E to the point located at 17° 49' 36" N – 89° 06' 39" E;

(2) From the latter point, the maritime boundary between Bangladesh and India follows the contours of the 200 M limit drawn from normal baselines on the Indian mainland to the point located at 15° 39' 19" N – 86° 14' 24" E;

(3) From that point, the maritime boundary between Bangladesh and India follows the contours of the outer limit of Bangladesh's claim in the continental shelf beyond 200 M as presented to the Commission on the Limits of the Continental Shelf on 25 February 2011 to the point located at 14° 33' 30" N – 89° 34' 47" E; and

(4) From that point, the maritime boundary between Bangladesh and India follows the contours of the 200 M limit drawn from normal baselines on India's Andaman Islands to the point located at 15° 42' 54" N – 90° 13' 50" E.

(All points referenced are referred to WGS84.)

31 May 2011

Rear Admiral (Retd.) Md. Khurshed Alam

Deputy Agent of the People's Republic of Bangladesh

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