PEOPLE'S REPUBLIC OF BANGLADESH

V.

REPUBLIC OF INDIA

MEMORIAL OF BANGLADESH

VOLUME II
FIGURES

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FIGURES

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EQUIDISTANCE CUTOFF IN THE BAY OF BENGAL

Mercator Projection
WGS-84 Datum
(Scale accurate at 18°N)

Prepared by: International Mapping

Coastal data compiled from: NGA charts 63290, 63310, 63320, 63330, 63340, 63341, 63350 & 63410.

Figure 1.1
Figure 2.3

SATELLITE IMAGERY OF SOUTH TALPATTY

1973

1989

South Talpatty

BANGLADESH

INDIA

BANGLADESH

INDIA
Figure 2.4

Figure 2.5


Figure 2.6

GEOLOGICAL PROVINCES

Legend:
- Indian Plate: Continental Crust
- Indian Plate: Oceanic Crust
- Burma Plate

Source: Coastal Data Compiled from World Data Bank II.
Prepared by: International Mapping
Andaman Islands (INDIA)

Nicobar Islands (INDIA)

Sumatra (INDONESIA)

INDIA

SRI LANKA

BANGLADESH

MYANMAR

THE BENGAL DEPOSITIONAL SYSTEM

The Bengal Fan

Middle Fan

Lower Fan

Upper Fan

Shelf

Subaqueous Delta

Sediment Flow

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

Prepared by: International Mapping

Coastal Data Compiled from: World Data Bank II.

Figure 2.7
Figure 2.8
A: India's Continental Margin

B: Bangladesh's Continental Margin

C: India's Andaman Margin

- Sediment derived from landmass
- Sediment derived from north
- Continental-ocean transition
Easternmost portion of India’s straight baseline claim
INDIA’S OUTER CONTINENTAL SHELF CLAIM
DRAWN FROM ITS MAINLAND COAST

Source: India’s Submission to the Commission on the Limits of the Continental Shelf, Part I Executive Summary, pg 10.

INDIA’S OUTER CONTINENTAL SHELF CLAIM
DRAWN FROM THE ANDAMAN ISLANDS

Source: India’s Submission to the Commission on the Limits of the Continental Shelf, Part I Executive Summary, pg 11.
The outer limits of the continental shelf extending beyond 200 nautical miles of the territorial sea baselines have been delineated by geodesic straight lines not exceeding 60 nautical miles in length used to connect the Article 76 fixed points, defined by coordinates of latitude and longitude expressed in decimal degrees.

The map below illustrates the line depicting the outer limits of the continental shelf of Bangladesh overlain on a gridded bathymetric of the northern Bay of Bengal.

Source: Bangladesh's Submission to the Commission on the Limits of the Continental Shelf, Executive Summary, pg 11.
OVERLAPPING CLAIMS OF BANGLADESH AND INDIA BEYOND 200 M

Mercator Projection
WGS-84 Datum
(Scale accurate at 16°N)

Prepared by: International Mapping

Coastal Data Compiled from: NGA charts 63250, 63260, 63270, 63280, 63290, 63310, 63320, 63330, 63340, 63341, 63350, 63370 & 63410.

Figure 3.6
Figure 3.7

Myanmar’s Outer Continental Shelf Claim

BANGLADESH, MYANMAR, INDIA

Prepared by: International Mapping

Coastal Data Compiled from: NGA charts 63250, 63260, 63270, 63280, 63290, 63310, 63320, 63330, 63340, 63341, 63350, 63370 & 63410.

Mercator Projection
WGS-84 Datum
(Scale accurate at 16°N)
RADCLIFFE AWARD, ANNEXURE “B” FROM THE 1947 GAZETTE OF PAKISTAN
THE RADCLIFFE AWARD LINE DEPICTED ON THE 1931 EDITION OF ADMIRALTY CHART 859

Excerpt from the 1931 edition of BA Chart 859

Charted channel of the Hariabhanga River

Figure 5.3

The Raimangal Estuary

24 Parganas District

Khulna District

Charted channel of the Hariabhanga River
THE RADCLIFFE AWARD LINE DEPICTED ON AN EXCEPT FROM THE 1931 EDITION OF ADMIRALTY CHART 859

Charted channel of the Hariabhanga River

Mid-point of the Hariabhanga River channel plotted on Admiralty Chart 859: 21°38'09.8"N - 89°06'45.2"E

Mid-Point of the Hariabhanga River channel

Closing line of the Raimangal Estuary

The Raimangal Estuary

THE BANGLADESH - INDIA LAND BOUNDARY TERMINUS IN THE 1984 WORLD GEODETIC SYSTEM DATUM (WGS-84)

Bangladesh - India Land Boundary Terminus converted to WGS-84: 21°38'14"N - 89°06'39"E
No visual evidence of islands or low tide elevations with lighthouses or similar installations at purported base point 87 and 88.

Location of points 87-89 on India’s straight baseline claim.

Easternmost portion of India’s straight baseline claim.
Bangladesh's proposed boundary out to 200 M

Bangladesh's territorial sea boundary

Myanmar's Equidistance Proposal

India's Claim Line
FIGURE 6.1
Prepared by: International Mapping
Coastal Data Compiled from: NGA charts: 63310, 63320, 63330, 63340 & 63341.

BANGLADESH'S BOUNDARY CLAIM OUT TO 200 M
Mercator Projection
WGS-84 Datum
(Scale accurate at 20°N)

0 755025
Nautical Miles
100 125
0 50 100
Kilometers
200 250 150

Bangladesh's proposed boundary out to 200 M
Bangladesh's proposed territorial sea boundary

N 180° E

Myanmar's Equidistance Proposal

India's Claim Line

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

Prepared by: International Mapping

FIGURE 6.2
Figure 6.3

THE CUTOFF EFFECT ON GERMANY

Mercator Projection
WGS-84 Datum

Nautical Miles

Kilometers

Prepared by: International Mapping

Figure 6.3

CONCAVITY

State A

State B

State C

CONCAVITY WITHIN A CONCAVITY

State A

State B

State C

Figure 6.5A

Figure 6.5B
Perpendicular Bisector to General Direction of the Coast
Pt. Almadies
Cape Shilling
Alcratraz Island
Poilao Islet
Bijagós Archipelago

Figure 6.7

Guinea / Guinea Bissau
Arbitral Award: 1985

Mercator Projection
WGS-84 Datum

Prepared by: International Mapping
Figure 6.9

THE GAMBIA – SENEGAL AGREED MARITIME BOUNDARIES

Mercator Projection
WGS-84 Datum
(accurate at 14°N)

Prepared by: International Mapping
DOMINICA – FRANCE (Guadeloupe & Martinique)
AGREED MARITIME BOUNDARIES

Mercator Projection
WGS-84 Datum
(Accurate at 16°N)

Prepared by: International Mapping
Figure 6.12

Coastal concavity

Equidistance cut-off
COMPARISON OF CUTOFF EFFECTS

Inset map has been rotated and shown at same scale as main map.
ANTICIPATED EFFECTS OF SEA-LEVEL RISE ON THE BENGAL DELTA COAST

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

Blue areas under water by the year 2100
THE BISECTOR METHODOLOGY USING A SINGLE SOUTH-FACING COASTAL FRONT

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

0 75 50 25 Nautical Miles
100 125
0 50 100 Kilometers
200 250
150

Bangladesh’s 200 M limit
180° Perpendicular Bisector

Single east-west coastal facade passing through the LBT

Prepared by: International Mapping
Coastal Data Compiled from: NGA charts: 63310, 63320, 63330, 63340 & 63341.

Figure 6.18
Figure 6.18

Prepared by: International Mapping

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

THE BISECTOR METHODOLOGY

USING A SINGLE SOUTH-FACING COASTAL FRONT

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

0 75 50 25
Nautical Miles
100 125

0 50 100
Kilometers
200 250 150

Bangladesh's 200 M limit

Single east-west coastal facade passing through the LBT

Figure 6.19

Prepared by: International Mapping

COMPARISON OF THE SINGLE COASTAL FRONT IN THIS CASE WITH THE SINGLE COASTAL FRONT IN GUINEA - GUINEA BISSAU

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

0 25 50
Nautical Miles
100 150

0 50 100 150 200
Kilometers
250

Bangladesh's 200 M limit

180° Perpendicular Bisector

Single east-west coastal facade passing through the LBT
BANGLADESH’S CLAIMS OUT TO 200 M IN THE BAY OF BENGAL

Prepared by: International Mapping

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.

Mercator Projection
WGS-84 Datum
(Scale accurate at 16°N)

Bangladesh’s 200 M limit

Bangladesh’s 200 M limit

0 50 100 150 200
Nautical Miles

0 100 200 300 400
Kilometers

Figure 6.21

Prepared by: International Mapping

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.

Mercator Projection
WGS-84 Datum
(Scale accurate at 16°N)

Bangladesh’s 200 M limit

Bangladesh’s 200 M limit

0 50 100 150 200
Nautical Miles

0 100 200 300 400
Kilometers

Figure 6.21

Prepared by: International Mapping

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.

Mercator Projection
WGS-84 Datum
(Scale accurate at 16°N)

Bangladesh’s 200 M limit

Bangladesh’s 200 M limit

0 50 100 150 200
Nautical Miles

0 100 200 300 400
Kilometers

Figure 6.21
THE 180° BISECTOR AND THE 'SWATCH OF NO GROUND'

Mercator Projection
WGS-84 Datum
(Scale accurate at 16°N)

Prepared by: International Mapping

Coastal Data Compiled from: NGA charts 63250, 63260, 63270, 63280, 63290, 63310, 63320, 63330, 63340, 63341, 63350, 63370 & 63410.

Figure 6.22

180° Bisector

BAY OF BENGAL

ANDAMAN ISLANDS (INDIA)

ANDAMAN SEA

BANGLADESH

MYANMAR

INDIA

Prepared by: International Mapping
Myanmar's claim line from the deltaic coasts of India and Bangladesh:

- **Coastal Lengths (Façades):**
  - **Maritime Areas**
    - **India:** 82,573 km²
    - **Bangladesh:** 94,794 km²
    - **Proportionality:** 0.87 : 1

Proportionality Measurements:

- **Coastal Lengths (Façades):**
  - **India:** 150 km
  - **Bangladesh:** 177 km
  - **Proportionality:** 0.85 : 1

Figure 6.23
Figure 7.2

Bangladesh’s Continental Margin
APPLICATION OF THE HEDBERG AND GARDINER FORMULAE TO BANGLADESH

Mercator Projection
WGS-84 Datum
(Scale accurate at 16°N)

Prepared by: International Mapping

Coastal Data Compiled from NGA charts 63250, 63260, 63270, 63280, 63290, 63310, 63320, 63330, 63340, 63341, 63350, 63370 & 63410.

Approximate 1% Sediment Thickness (Gardiner Formula)

Foot of Slope points (FOS)

FOS + 60 M (Hedberg Formula)
BANGLADESH’S OUTER CONTINENTAL SHELF SUBMISSION

Mercator Projection
WGS-84 Datum
(Scale accurate at 16°N)

Prepared by: International Mapping

Coastal data compiled from: NGA charts 63250, 63260, 63270, 63280, 63290, 63310, 63320, 63330, 63340, 63341, 63350, 63370 & 63410.

Approximate 1½ Sediment Thickness (Gardiner Formula)

Foot of Slope points (FOS)

FOS + 60 M (Hedberg Formula)

Outer Limit of CS Claimed by Bangladesh (segments joining fixed points <60 M apart)

2500 m isobath + 100 M

Small Islands

Approximate 1% Sediment Thickness (Gardiner Formula)

2500 m

FOS + 60 M

(Hedberg Formula)

Outer Limit of CS Claimed by Bangladesh
(segments joining fixed points <60 M apart)

2500 m isobath + 100 M

FOOT OF SLOPE POINTS (FOS)

2500 m

2500 m

2500 m

BAY OF BENGAL
Figure 7.6A

A: India's Continental Margin

- India's land territory
- Natural Prolongation
- Baseline
- Continent-ocean transition
- Foot of slope

Bay of Bengal

Figure 7.6B

B: India's Andaman Margin

- Natural prolongation
- Baseline
- Accretionary prism
- Plate boundary
- Foot of slope

Bay of Bengal

Figure 7.6B
**Bangladesh’s Proposed Delimitation Line with India**

- **Mercator Projection**
- **WGS-84 Datum**
- **Mercator Projection WGS-84 Datum (Scale accurate at 16°N)**
  
  - 0 50 100 150 Nautical Miles
  - 0 100 200 300 Kilometers

**Data Compiled from:** NGA charts 63250, 63260, 63270, 63280, 63290, 63310, 63320, 63330, 63340, 63341, 63350, 63370 & 63410.

**Prepared by:** International Mapping

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**Legend:**
- **Bangladesh - India Bisector**
- **Bangladesh’s 200 M Limit**
- **Outer Continental Shelf boundary coincident with India’s 200 M Limit**
- **Zone where Bangladesh’s Outer CS overlaps India’s 200 M EEZ**
- **Bangladesh’s Outer Limit and Boundary with India in the Outer Continental Shelf**
- **Outer Continental Shelf boundary coincident with India’s 200 M Limit from the Andaman Islands**

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**Figure 7.8**

Bangladesh - India delimitation line in the Bay of Bengal and Andaman Sea.