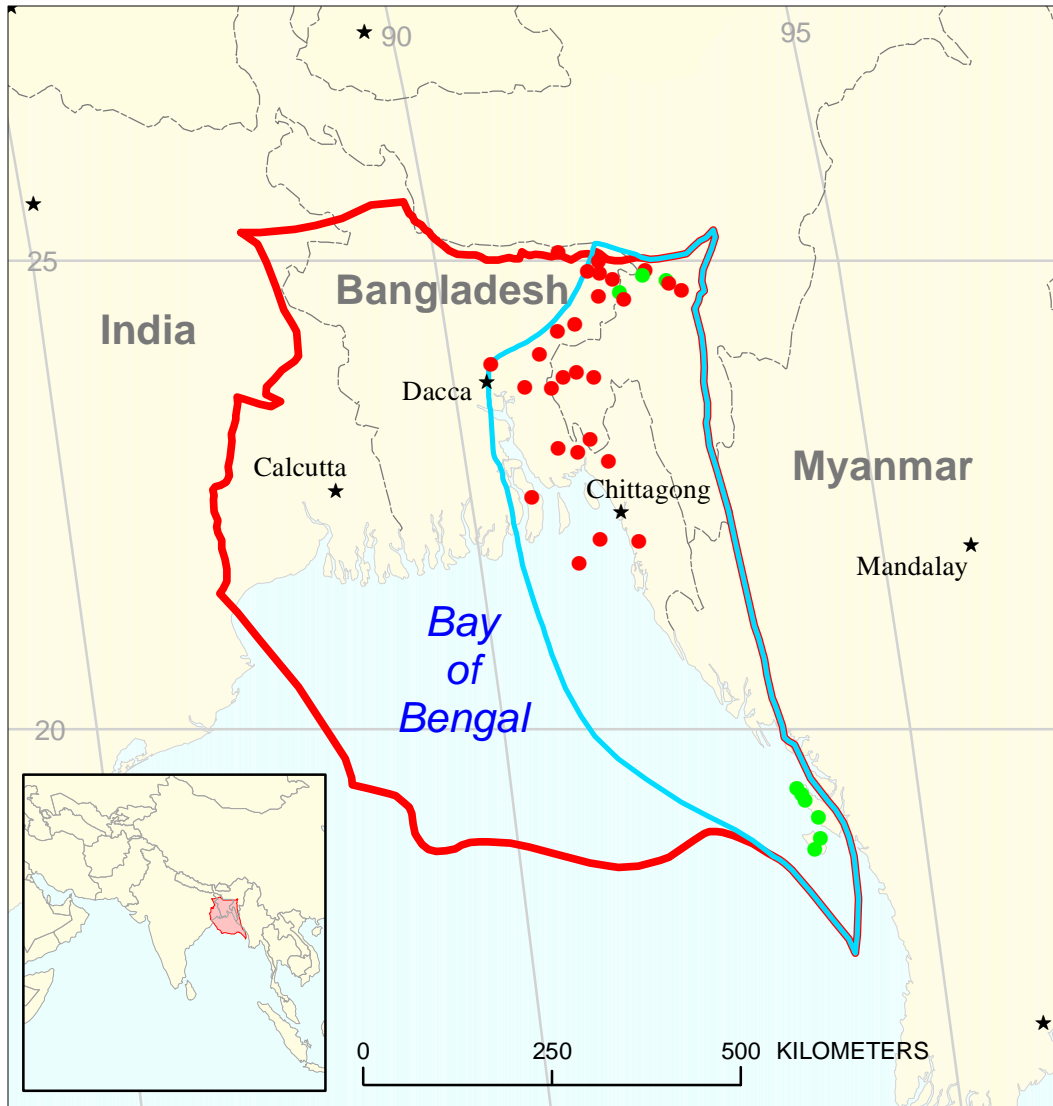




Eastern Fold Belt Assessment Unit 80470302



-  Eastern Fold Belt Assessment Unit 80470302
-  Ganges-Brahmaputra Delta Geologic Province 8047

USGS PROVINCE: Ganges-Brahmaputra Delta (8047) Bangladesh, India, Myanmar

GEOLOGIST: R.C. Milici

TOTAL PETROLEUM SYSTEM: Jenam/Bhuban-Bokabil (80473)

ASSESSMENT UNIT: Eastern Fold Belt (80470302)

DESCRIPTION: Assessment unit is in the thick Tertiary deltaic deposits of the Bengal basin. The delta is located east of the Indian craton of Precambrian crystalline rocks, south of the Himalaya Mountains, and west of the Arakan Yoma. The eastern part of the delta is thrown into a series of plunging folds where it is being subducted obliquely beneath the Arakan Yoma. Overall, the delta is as thick as 20,000 m in the Patuakhall depression, a depocenter located on the southeastern side of the delta. The strata that comprise the assessment unit are in the Oligocene Barail Group and the Miocene Surma Group and range from about 3000 to 5000 m thick. In general, the lithologies are sandstones, siltstones, and shales that contain plant-derived organic matter.

SOURCE ROCKS: Source rocks include the shales of the Oligocene Jenam Formation and silty shales in the lower part of the Bhuban Formation. The Bhuban Formation contains about 0.2 to 0.7 percent TOC and the Jenam Formation contains 0.6 to 2.4 percent TOC. Coal beds may occur in these formations and serve as a source for gas.

MATURATION: Thermal maturation is sufficient to generate natural gas and natural gas liquids throughout much of the area. A little oil has been discovered in small fields along the coast of Myanmar.

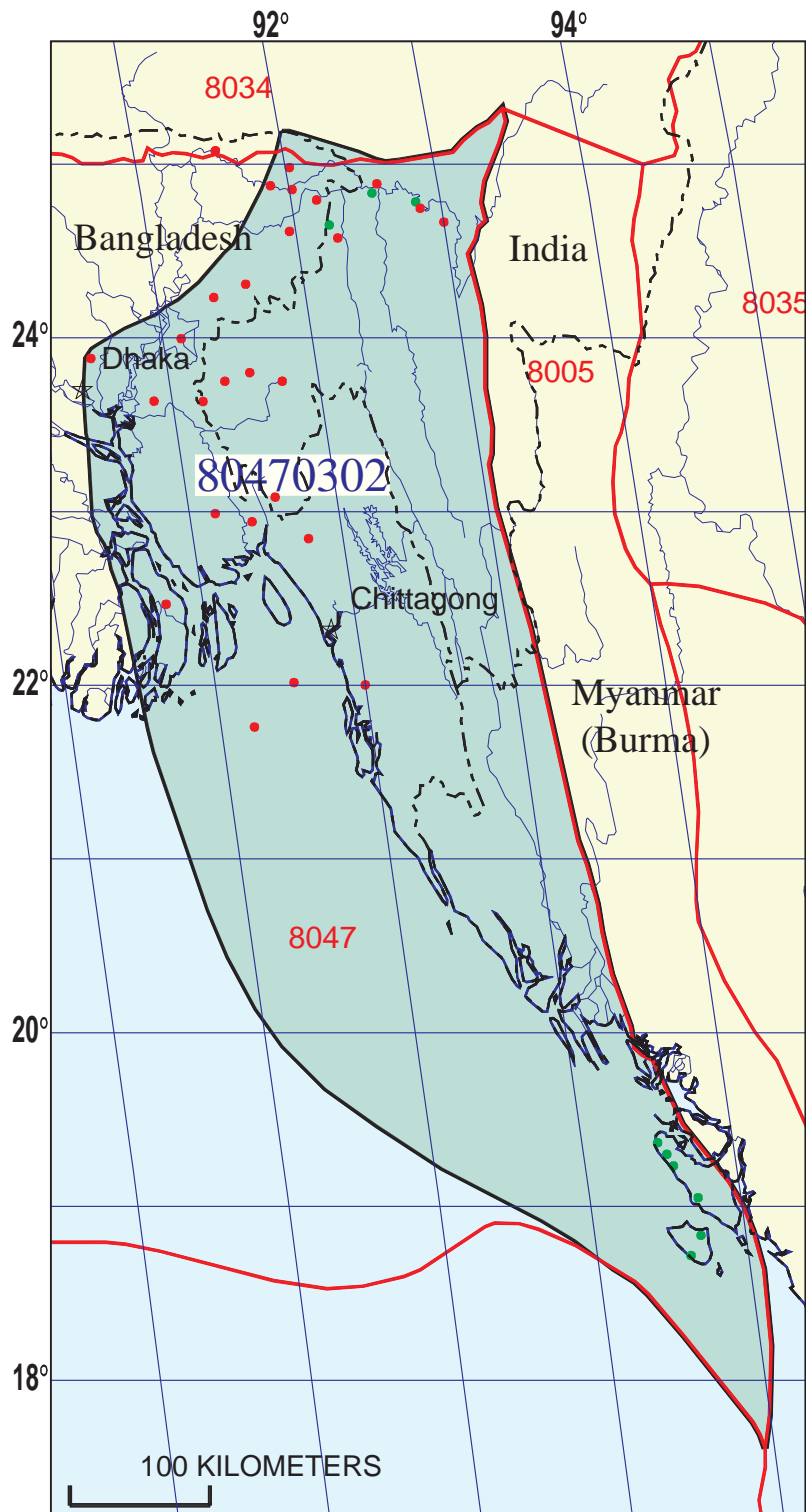
MIGRATION: Migration is generally vertical along fractures and through porous media.

RESERVOIR ROCKS: Reservoir rocks are chiefly the sandstones of the Bokabil Formation and turbidite sandstones in the thick deposits of megasequence 1 and in the channel-fill deposits of megasequence 2. Porosity ranges generally from 10 to 20 percent.

TRAPS AND SEALS: Anticlines, faulted anticlines, and stratigraphic traps along sequence boundaries and in channel-fill deposits comprise the major traps. Seals consist of the upper shale beds of the Bokabil Formation and finer-grained units associated with turbidite deposits. Anticlines and faulted anticlines comprise the major traps of the Eastern Fold Belt Assessment unit. Stratigraphic traps associated with broad low-amplitude folds occur in the offshore region in the southeastern part of the delta.








REFERENCES:

Indian Journal of Geology, 1997, v. 69, no. 1 and 2.



Eastern Fold Belt Assessment Unit - 80470302

EXPLANATION

-  Hydrography
-  Shoreline
- 8047**  Geologic province code and boundary
-  Country boundary
-  Gas field centerpoint
-  Oil field centerpoint
- 80470302**  Assessment unit code and boundary

Projection: Robinson. Central meridian: 0

**SEVENTH APPROXIMATION
NEW MILLENNIUM WORLD PETROLEUM ASSESSMENT
DATA FORM FOR CONVENTIONAL ASSESSMENT UNITS**

Date:..... 8/23/99
 Assessment Geologist:..... R.C. Milici
 Region:..... South Asia Number: 8
 Province:..... Ganges-Brahmaputra Delta Number: 8047
 Priority or Boutique..... Boutique
 Total Petroleum System:..... Jenam/Bhuban-Bokabil Number: 804703
 Assessment Unit:..... Eastern Fold Belt Number: 80470302
 * Notes from Assessor Lower 48 growth factor.

CHARACTERISTICS OF ASSESSMENT UNIT

Oil (<20,000 cfg/bo overall) or Gas (≥20,000 cfg/bo overall):... Gas

What is the minimum field size?..... 2 mmmboe grown (≥1mmboe)
 (the smallest field that has potential to be added to reserves in the next 30 years)

Number of discovered fields exceeding minimum size:..... Oil: 1 Gas: 24
 Established (>13 fields) X Frontier (1-13 fields) _____ Hypothetical (no fields) _____

Median size (grown) of discovered oil fields (mmmboe):
 1st 3rd 3.1 2nd 3rd _____ 3rd 3rd _____
 Median size (grown) of discovered gas fields (bcfg):
 1st 3rd 1194 2nd 3rd 17 3rd 3rd 166

Assessment-Unit Probabilities:

<u>Attribute</u>	<u>Probability of occurrence (0-1.0)</u>
1. CHARGE: Adequate petroleum charge for an undiscovered field ≥ minimum size.....	<u>1.0</u>
2. ROCKS: Adequate reservoirs, traps, and seals for an undiscovered field ≥ minimum size.....	<u>1.0</u>
3. TIMING OF GEOLOGIC EVENTS: Favorable timing for an undiscovered field ≥ minimum size	<u>1.0</u>

Assessment-Unit GEOLOGIC Probability (Product of 1, 2, and 3):..... 1.0

4. **ACCESSIBILITY:** Adequate location to allow exploration for an undiscovered field
 ≥ minimum size..... 1.0

UNDISCOVERED FIELDS

Number of Undiscovered Fields: How many undiscovered fields exist that are ≥ minimum size?:
 (uncertainty of fixed but unknown values)

Oil fields:.....min. no. (>0) 1 median no. 5 max no. 10
 Gas fields:.....min. no. (>0) 10 median no. 120 max no. 300

Size of Undiscovered Fields: What are the anticipated sizes (**grown**) of the above fields?:
 (variations in the sizes of undiscovered fields)

Oil in oil fields (mmbo).....min. size 2 median size 3.5 max. size 45
 Gas in gas fields (bcfg):.....min. size 12 median size 70 max. size 8000

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

<u>Oil Fields:</u>	minimum	median	maximum
Gas/oil ratio (cfg/bo).....	<u>1100</u>	<u>2200</u>	<u>3300</u>
NGL/gas ratio (bnl/mmcf).....	<u>30</u>	<u>60</u>	<u>90</u>
<u>Gas fields:</u>	minimum	median	maximum
Liquids/gas ratio (bnl/mmcf).....	<u>2</u>	<u>4</u>	<u>8</u>
Oil/gas ratio (bo/mmcf).....	<u> </u>	<u> </u>	<u> </u>

SELECTED ANCILLARY DATA FOR UNDISCOVERED FIELDS

(variations in the properties of undiscovered fields)

<u>Oil Fields:</u>	minimum	median	maximum
API gravity (degrees).....	<u> </u>	<u> </u>	<u> </u>
Sulfur content of oil (%).....	<u> </u>	<u> </u>	<u> </u>
Drilling Depth (m)	<u>500</u>	<u>1500</u>	<u>6000</u>
Depth (m) of water (if applicable).....	<u>0</u>	<u>400</u>	<u>2000</u>
<u>Gas Fields:</u>	minimum	median	maximum
Inert gas content (%).....	<u> </u>	<u> </u>	<u> </u>
CO ₂ content (%).....	<u> </u>	<u> </u>	<u> </u>
Hydrogen-sulfide content (%).....	<u> </u>	<u> </u>	<u> </u>
Drilling Depth (m).....	<u>500</u>	<u>1500</u>	<u>6000</u>
Depth (m) of water (if applicable).....	<u>0</u>	<u>400</u>	<u>2000</u>

**ALLOCATION OF UNDISCOVERED RESOURCES IN THE ASSESSMENT UNIT
TO COUNTRIES OR OTHER LAND PARCELS** (uncertainty of fixed but unknown values)

1. Bangladesh represents 45 areal % of the total assessment unit

<u>Oil in Oil Fields:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	50	_____
Portion of volume % that is offshore (0-100%):.....	_____	50	_____
 <u>Gas in Gas Fields:</u>	 minimum	 median	 maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	50	_____
Portion of volume % that is offshore (0-100%):.....	_____	50	_____

2. India represents 20 areal % of the total assessment unit

<u>Oil in Oil Fields:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	25	_____
Portion of volume % that is offshore (0-100%):.....	_____	0	_____
 <u>Gas in Gas Fields:</u>	 minimum	 median	 maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	25	_____
Portion of volume % that is offshore (0-100%):.....	_____	0	_____

3. Myanmar represents 35 areal % of the total assessment unit

<u>Oil in Oil Fields:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	25	_____
Portion of volume % that is offshore (0-100%):.....	_____	50	_____
 <u>Gas in Gas Fields:</u>	 minimum	 median	 maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	25	_____
Portion of volume % that is offshore (0-100%):.....	_____	50	_____

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Undiscovered Field-Size Distribution

