THIRD US – INDIA WOKING GROUP MEETING ON COAL
ORGANISED BY
MINISTRY OF COAL

COLLABORATIVE PROPOSAL
FOR
INTEGRATED CBM STUDIES IN TALCHER
COALFIELD, INDIA

Submitted by
Coal Wing
Geological Survey of India
GEOLOGICAL SURVEY OF INDIA -

the custodian of rich and robust database on geology and solid fossil fuel resource of the country - generated through more than 150 years of survey and exploration

THE ORGANISATION IS ENGAGED IN

CBM STUDIES IN COURSE OF COAL EXPLORATION SINCE LATE NINETIES
14 BLOCKS AWARDED FOR CBM DEVELOPMENT

10 BLOCKS UNDER BIDDING IN DIFFERENT COAL AND LIGNITE FIELDS

**GSI** PROVIDED CUSTOMISED DATA PACKAGES / DATABASE FOR A CONSIDERABLE NUMBER OF BLOCKS IN PHASES (1997 – 2005)

COVERING GEOLOGY AND COAL RESOURCES ALONG WITH LIMITED INFORMATION ON IN-SITU GAS CONTENT

PROGNOSTICATION OF CBM POTENTIAL WAS ON EMPIRICAL BASIS

RECENT SUCCESS IN CBM DEVELOPMENT IN SOHAGPUR, JHARIA AND RANIGANJ BEARS TESTIMONY TO GSI’s PROGNOSTICATION
CBM blocks allotted and under bidding

1st round Bidding
- Sohagpur East & West
- N.Karanpura East
- Bokaro
- Jharia CF
- Raniganj North, East & South

2nd round Bidding
- Barmer-Sanchor Basin
- Sohagpur North
- Satpura
- N.Karanpura West
- S.Karanpura
- Wardha

3rd round Bidding
- Rajmahal
- Birbhum
- Tatapani-Ramkola
- Singrauli
- Mand-Raigarh
- Sohagpur
- Godavari-North
- Kothagudem-East
- Barmer-Sanchor Basin
HIGH RANK COAL BEARING AREAS MOSTLY ALLOTED

GLOBAL EXPERIENCE PROMPTS CBM EVALUATION FOR DEEP SEATED THICK COAL SEAMS OF GONDWANA BASINS EVEN WITH LOW RANK BUT WITH FAVOURABLE PERMEABILITY

RECENT FIND OF GAS CONTENT TO THE TUNE OF 5 - 8 CU.M/TON IN BIRBHUM COALFIELD WITHIN A FEW 6-8M SECTIONS OF A 100M THICK INTERBANDED COAL HORIZON IS SIGNIFICANT IN THE ABOVE CONTEXT
FUTURE CHALLENGES FOR CBM DEVELOPMENT IN REMAINING INDIAN COALFIELDS

COAL BASIN WISE INTEGRATION OF -

- FUNDAMENTAL BASELINE INFORMATION ON GAS CONTENT AND THEIR GEOLOGICAL CONTROL
- CHEMICAL AND PHYSICAL PROPERTIES OF COAL
- PERMEABILITY
- GEOTECHNICAL PROPERTIES

TO MAKE A POWERFUL GEOECONOMIC TOOL
ONGOING ACTIVITY OF GSI

IN COURSE OF EXPLORATION FOR COAL AND LIGNITE

FUNDAMENTAL BASELINE INFORMATION GENERATED ON

- COAL SEAM BEHAVIOURAL PATTERN
- GAS CONTENT
  - in collaboration with DGH, CMRI
  - Indigenously through in-house infrastructure
- CHEMICAL AND PHYSICAL PROPERTIES OF COAL
- DETAILED PETROGRAPHIC AND MICRO-CLEAT STUDIES
Prospective GREENFIELD areas identified by GSI for CBM studies outside blocks, allotted / slated for bidding

Singrauli Coalfield (Western part)

Talcher Coalfield (Central part)

Mannargudi lignite field (Cauvery basin, Tamil, Nadu)

Ramnad lignite field (eastern & southern part, Cauvery basin, Tamil, Nadu)
Target area: West central part of Talcher Coalfield

Size of block: 150 sqkm

Pilot boreholes: 5-6

Envisaged depth: 700-800m

Envisaged total meterage: 4000m – 5000m
GEOLOGICAL MAP OF TALCHER COALFIELD, ORISSA

Quaternary deposits
Laterite
Kamthi Formation
Barren Measures
Barakar Formation
Karharbari Formation
Talchir Formation
Metamorphics
Fault
Block Boundary

Explored area by GSI
Coal seams: 9 (regionally persistent)
Controll points: > 40 (spacing < 1 km – 1 km apart)
Depth of overburden: Max. 350 m
Ind. Seam thickness: 1 m - > 80 m
Cum. Coal thickness: 80 m – 160 m

Quality: M% - 4% to 7%, A% - 20% - 40%
Maceral
Vitrinite (60%) Inertinite (30%) Exinite (10%)
Ro.(max): 0.45% to 0.61%
Under *Ind0-US collaborative programme*

**Work Schedule:**

**GSI**
- Subsurface probing - Coal geology
- Structure and Tectonics
- Determination of Desorbed gas content
- Coal petrography

**CMRI**
- Geotechnical studies
- In-situ permeability and porosity

**Foreign Agency**
- Adsorption Isotherm
- Hydrogeology & Reservoir permeability applicable to CBM development
- Basinal history; Geological control of ‘**SWEET SPOTS**’ for predictive models
- Reservoir simulation and Modelling