

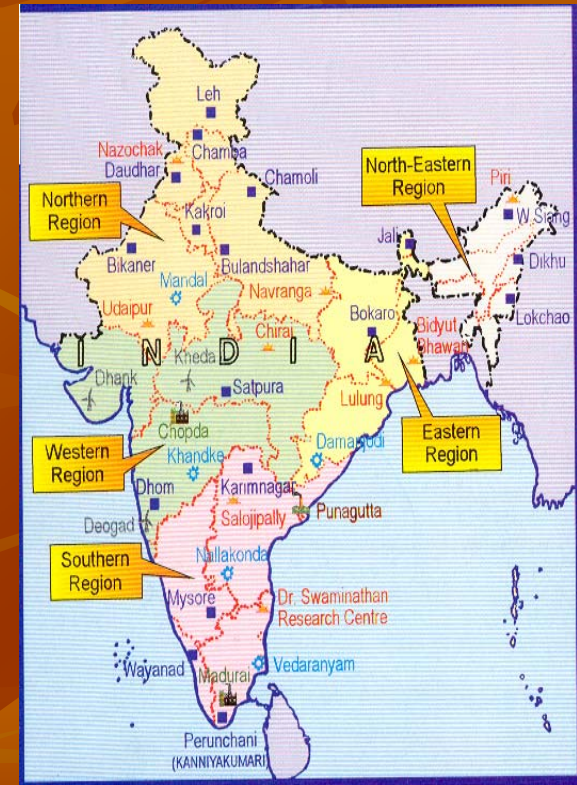


# Nuworld Research & Development

## Coal Bed Methane to Power Generation



**Coal Bed Methane (CBM)** would introduce a clean energy source and reduce local pollution and emissions of greenhouse gases. India is the third largest producer of coal in the world. If effectively recovered, coal-bed methane gas associated with coal reserves and emitted during coal mining could be a significant potential source of energy in coal-rich but often economically poor regions of India.





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## Coal Bed Methane (CBM) and Power Generation

- ❖ CBM-III had attracted 54 bids, almost three-and-a-half-times the number of bids that came in for CBM-I.

- ❖ Eight overseas companies and 18 Indian companies had bid for blocks in CBM-III.



- ❖ CBM-III: The gas from the blocks will be used as fuel for power plants. It is estimated that the total power generation capacity of these 10 blocks is between 8,000 Mw to 10,000 Mw.

# Identified Opportunities

## CBM- III

- ❖ Domestic bidders are Reliance Industries, Reliance Energy, Oil and Natural Gas Corporation, Indian Oil Corporation, Tata Power and Essar Oil.
- ❖ Overseas bidders - Arrow Energy of Australia, CDX Gas of the US, the UK's BP, Coal Gas of the US and GeoPetrol of France.
- ❖ The bidding process had attracted Rs 9.50 crore, actual investment for CBM-III would be known only when the government completes the evaluation of bids by August 31, 2006. The contract between the government and the successful bidders would be signed by October 2006.

# CBM to Power Generation Identified Opportunities

- ❖ CBM reserves are estimated to be 586 billion cubic meters and are spread over following Provinces:
  1. West Bengal,
  2. Jharkhand,
  3. Chhattisgarh,
  4. Madhya Pradesh,
  5. Rajasthan, and
  6. Andhra Pradesh.
- ❖ The gas from the blocks will be used as fuel for power plants. It is estimated that the total power generation capacity of these 10 blocks is between 8,000 Mw to 10,000 Mw.



# CBM Opportunities

## Canadian / US Companies

- Canadian / US - companies specializing in following activities in CBM Opportunities.

1. SERVICES/ EQUIPMENT PROVIDER

2. UTILISATION OF GAS

- Joint participation in Tenders / bids with identified companies.
- We will like to represent identified companies in marketing /selling their equipment to the companies who are generating/producing CBM gas in India.
- Ranchi, Jharkhand based local sales and risk partner in operation /maintenance contract for the above activities

# Developers, OEM and Specialists

## SERVICES/ EQUIPMENT SUPPLIERS

1. DRILLING: CORING/ non-CORING. Size -NQ(Slime) 12&1/4, 8&1/2 where completion size is 5&1/2.
2. Geophysical Logging Service with special reference to Lithology & characteristic physical porosity - young modules.
3. Testing of Coal : All physical & chemical property - including porosity permeability & other related property with reference to CBM.
4. Cementation.
5. Perforation : Plug setting
6. Thermatical test.
7. Hydrofactoring job.
8. Lowering, commissioning & maintance of : i: PC Pump ii SRP Pump iii other pumping method which is economically suitable for CBM production.
9. Gas collection center. Gas gathering/gas collection equipment.

# UTILISATION OF GAS

1. CBM to Modular power generation
2. CBM to CNG for Vehicle fuel
3. Gas distribution through pipeline.
4. Steel plants
5. Tankers.
6. Transportation



# Canadian / US Companies

- **Are You Ready - Step 1,2 and 3:**
  - Step 1: Internal Risk Assessment and Engagement Letter
  - Step-2: Internal Strategy development Field Trips to India
  - Step 3: Investment and Operational Infrastructure development in India.
- Nuworld Research develops and executes strategic marketing programs and channels sales opportunities through Technology or Risk Partners sales and after-sales-service network, and recommends investment opportunities to MMC Ontario (an investment holding company).



# Are You Ready??

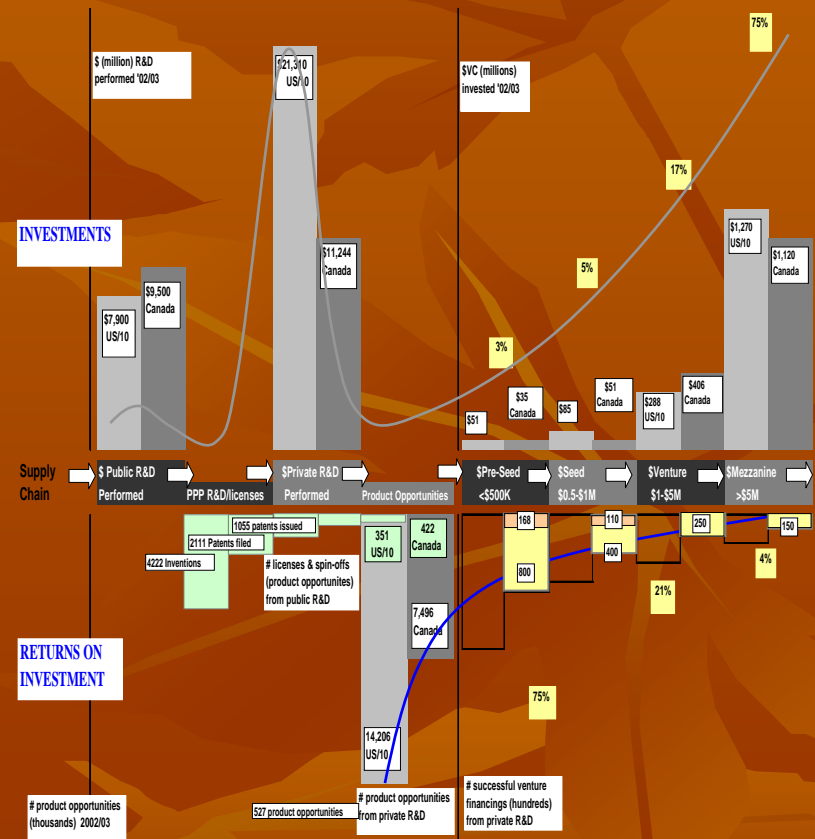
## CBM- III

### Step-1:

1. Internal Risk Assessment and Engagement Letter
- ❖ Advisor and In-Country Risk Partner

### Step-2

- ❖ Visit and Field Trips to India:
1. Fact Finding mission
  2. Internal strategy development field trips



# Step-1

## Internal Risk Assessment and Engagement Letter

### Internal Data Collection

- Management Team
- Management & Financial Commitment?
- Dedicated Team?
- Existing business plan?
- Existing Budget \$\$\$
- Targets and Goals?
- Methods and Options
- Time allocation??
- Fee for Services and Options...

### Internal Risk Assessment

1. In-house knowledge & past experience re. India - opportunities, Players, Partners, Competition, Govt. and infrastructure information to set up goals targets and options.
2. Outstanding business, Web-inquiries, email communications etc.
3. Data for risk assessment as per attached document.

# Step-1

## Internal Risk Assessment and Engagement Letter

1. Idea to defining objectives
  2. Scope of work - Deliverables
  3. Team development
  4. Project development
  5. Technology
  6. Risk Partners
  7. Field Trips to India:
    - Fact Finding Mission
    - Strategy development
    - Infrastructure Establishment
    - In-country Operations & ROI
  8. Investment and ROI
  9. Fee and Options
- **Options:**
    1. In-House Advisor
    2. Client's Umbrella
    3. Outsourcing
    4. In-country Risk partners.
  - Fee can be tailored to suit clients needs and existing budget through a long-term agreement with an option for in-country risk partner.
  - Please discuss options with Mr. Chawla at 416-605-1518 or email: [madan.chawla@sympatico.ca](mailto:madan.chawla@sympatico.ca)

# Step-2

## CBM - Internal Strategy Development Field Trips to India

- Opportunities, players, competition, in-country Government policies and infrastructure information for a business plan to achieve goal of \$??? In ??? years.
- Fact finding and verifications missions
- Team??
- Time??
  - In-House Preparation?
  - "On-Site" in India??
  - Report and Monitoring??
- Estimated Budget??



# Step-3

## CBM - Establishment of India Infrastructure *Subject to findings Step-2*

### INVESTMENT

- ❖ Holding Company - Purpose: Investment in operating company & JV
- ❖ Meetings with Federal Government departments.
- ❖ In-country promotions.
- ❖ Representative Office (near Delhi) for political and financial impact
- ❖ Team
- ❖ Time??
- ❖ Estimated Budget



# Step-3

## CBM - Establishment of India Infrastructure *Subject to findings of Step-2*

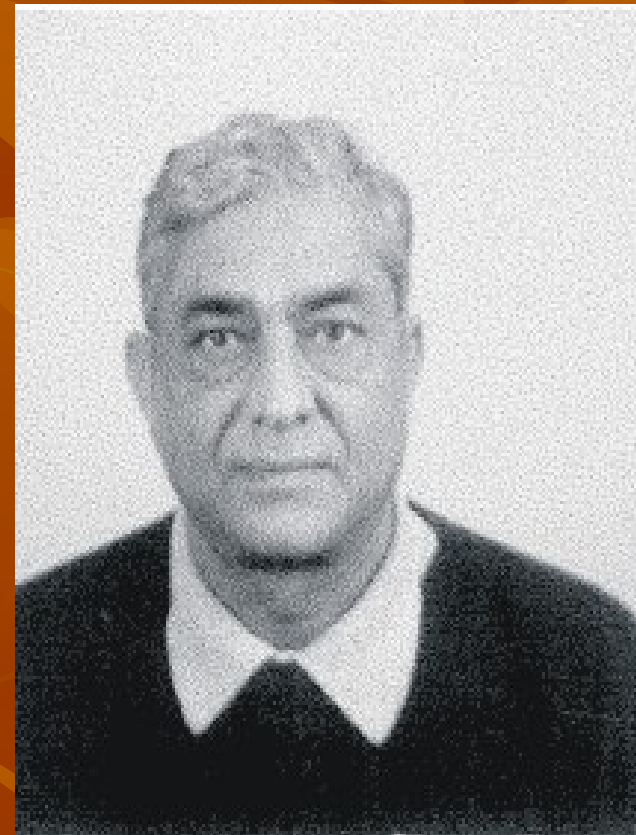
### OPERATION

- ❖ Operating company- Purpose:
- ❖ In-Country joint ventures
- ❖ Training programs for joint-venture companies and
- ❖ Purchase services from parent company office in ??
- ❖ Team??
- ❖ Time??
- ❖ Estimated Budget??



# ADVISOR and In-Country Risk Partner

- **Madanmohan Chawla, BSc., BSEE-** has 30 years of professional experience in power systems engineering, project management and business development.
- Expertise includes working with Consulting Engineers, Utilities, Developers, OEM, EPC, Federal & Provincial Government Agencies in Canada, USA and developing countries.
- “On-Site” Project experience with CIDA, EDC, World Bank & other IFI’s financed projects in the Americas, Asia, Africa-Middle East and Europe.





# Nuworld Research & Development

## To Get Started:

- Please identify your company's risk position in project cycle?
- Are you Ready - You are invited to define deliverable and scope of work or alternatively fax your questions at 905-420-8421 Attention Mr. Chawla, Advisor or email [mmcgroup@nuworldresearch.com](mailto:mmcgroup@nuworldresearch.com)

**Contact:**  
Gauri Chawla, JD  
CEO - SMB Partnerships

