



**STANDING COMMITTEE ON  
PETROLEUM & NATURAL GAS**

**(2015-16)**

**SIXTEENTH LOK SABHA**

**MINISTRY OF PETROLEUM & NATURAL GAS**

**'PRODUCTION OF COAL BED  
METHANE (CBM)'**

**FOURTEENTH REPORT**



**LOK SABHA SECRETARIAT  
NEW DELHI**

*August, 2016 / Shravana, 1938 (Saka)*

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*Presented to Lok Sabha on \_\_\_\_\_*

*Laid in Rajya Sabha on \_\_\_\_\_*



**LOK SABHA SECRETARIAT**

**NEW DELHI**

*August, 2016/ Shravana, 1938 (Saka)*

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**COMPOSITION OF THE STANDING COMMITTEE ON PETROLEUM & NATURAL  
GAS (2015-16)**

<b>Sl. No.</b>	<b>Name of Members</b>	
	<b>LOK SABHA</b>	
	<b>Shri Pralhad Joshi - Chairperson</b>	
2	Dr. Ravindra Babu	
3	Shri P. K. Biju	
4	Shri Kalikesh N. Singh Deo	
5	Smt. Rama Devi	
6	Shri Elumalai V.	
7	Shri Naranbhai Kachhadiya	
8	Dr. Thokchom Meinya	
9	Smt. Pratima Mondal	
10	Shri Ashok Mahadeorao Nete	
11	Smt. Jayshreeben Patel	
12	Vacant <sup>*</sup>	
13	Shri Arvind Sawant	
14	Shri Raju Shetty	
15	Dr. Bhola Singh (Begusarai)	
16	Shri Ravneet Singh	
17	Shri Kamakhya Prasad Tasa	
18	Shri Rajesh Verma	
19	Shri Om Prakash Yadav	
20	Shri Laxmi Narayan Yadav	
21	Shri A.T. Nana Patil	
	<b>RAJYA SABHA</b>	
22	Smt. Raneer Narah	
23	Shri Harshvardhan Singh Dungarpur	
24	Shri Prabhat Jha	
25	Shri Bhubaneshwar Kalita	
26	Vacant <sup>†</sup>	
27	Shri Ahmed Patel	
28	Shri Garikapati Mohan Rao	
29	Chaudhary Munvvar Saleem	
30	Shri Sharad Yadav	
31	Vacant <sup>‡</sup>	
	<b>SECRETARIAT</b>	
1.	Shri A.K.Singh	Additional Secretary
2.	Dr. Ram Raj Rai	Director
3.	Shri H.Ram Prakash	Additional Director
4.	Shri Sujay Kumar	Under Secretary

<sup>\*</sup> Since Smt. Anupriya Patel appointed as Minister w.e.f. 05.07.2016.

<sup>†</sup> Since Shri Mansukh L. Mandaviya appointed as Minister w.e.f. 05.07.2016.

<sup>‡</sup> Since Shri Praful Patel retired from Rajya Sabha on 04.07.2016.

## **INTRODUCTION**

I, the Chairperson, Standing Committee on Petroleum & Natural Gas (2015-16) having been authorised by the Committee to submit the Report on their behalf, present this Fourteenth Report on 'Production of Coal Bed Methane (CBM)'.

2. The Committee took evidence of the representatives of the Ministry of Petroleum & Natural Gas at their sittings held on 29.06.2016 and 13.07.2016.

3. The Committee considered and adopted the Report at their sitting held on 09.08.2016.

4. The Committee wish to express their thanks to the representatives of the Ministry of Petroleum and Natural Gas, Ministry of Labour & Employment, Ministry of Coal, Ministry of Mines and Public Sector Undertakings / Organisations for placing their views before them and furnishing the information desired in connection with examination of the subject.

5. The Committee also place on record their appreciation for the invaluable assistance rendered to them by the officials of the Lok Sabha Secretariat attached to the Committee.

New Delhi;  
August, 2016  
Shravana, 1938 (Saka)

**PRALHAD JOSHI,**  
**Chairperson,**  
**Standing Committee on**  
**Petroleum & Natural Gas.**

## **REPORT**

### **PART-I**

#### **Introductory**

The Country is pursuing economic policies to achieve significant growth to lift its citizens who are at the bottom of the income and wealth distribution and also to meet the needs and opportunities of young, middle class and aspirational India to realise its potential. Given the fact that the requirement of energy will rise with development and growth, the country has to ensure availability of energy to support its economic growth and also ensure it is clean, safe and convenient form of energy. However, it is necessary to recognise that India is growingly dependent on energy imports to meet its increasing demand.

2. Coal Bed Methane (CBM) is natural gas found in coal seams and is mainly composed of Methane ( $\text{CH}_4$ ) with minor amounts of nitrogen, carbon dioxide and heavier hydrocarbons like ethane. During earlier years of coal mining activity, this gas was wasted and vented into the atmosphere resulting in greenhouse emissions. It is also a serious safety hazard during coal mining operations. At the same time, it is a precious energy resource and is regarded as an unconventional form of natural gas. Due to rising energy requirements and being a clean source of energy, CBM has become an important energy resource of global significance over the last few decades with the emergence of active CBM players in countries like Canada, Australia, China and India.

#### **A. CBM as environmentally safe gas**

3. Methane has been identified as Green House Gas by United Nations Framework Convention on Climate Change (UNFCCC) if it is released to atmosphere as such because it has Global Warming Potential of 21 times more than that of Carbon Dioxide. Methane is considered as a greenhouse gas as it absorbs and emit infrared radiation in the wavelength range emitted by Earth.

4. However, CBM as fuel, (because it is essentially methane gas) is considered as a clean fuel which emits carbon-dioxide and water on combustion thus is

environmentally safe gas. Accordingly, useful exploitation of CBM as fuel would not only lead to usage of an efficient fuel but would also prevent it to be released to atmosphere as such during mining of coal. Hence, it is considered as efficient fuel which would have otherwise been released to atmosphere had it not extracted and used as energy resource.

5. Advantages of Coal Bed Methane are three fold:

- i) CBM extraction from coal will stop its emission to environment thus causing reduction in emission of green house gas from coal mining.
- ii) CBM extraction prior to coal mining helps in making mining of coal safer by degassing the coal seams/layer.
- iii) Extraction of CBM also help in increasing domestic gas production. As on May 2016, contribution of CBM to domestic natural gas production was 1.6%.

#### **B. Role of Geological Survey of India in CBM development**

6. Geological Survey of India, being the largest repository of the geological database on coal and lignite resources of the country, was associated with this activity since inception. At the instance of the Directorate General of Hydrocarbons (DGH), a nodal agency constituted by the Union Govt. for formulation of strategy for CBM search and production, the first series of information docket and data packages in respect of certain selected coalfields like Raniganj, Jharia, East-Bokaro, West-Bokaro, Sohagpur, North-Karanpura and Birbhum were prepared during 1997-98 in two phases by GSI on basis of the geological investigations carried out by the Department over years. These documents laid the foundation for leasing out the blocks/ sectors for CBM exploration by DGH to public/ private enterprises during 1st round of bidding. GSI carried out an exercise on prognostication of possible gas-in-place resource in selected parts of the above-mentioned coalfields. The computation was done primarily on empirical basis reconciling the same with meager data available on gas desorption. Data related to direct measurement of in-situ gas content from drilled cores of bore holes were almost non-existent then.

7. Geological understanding from perusal of the available geological information indicated that thermogenic methane generation possibilities lie in the coalfields that hosts high rank coal. Accordingly GSI initiated CBM related baseline data generation in

collaboration with ONGC and CMRI (presently CIMFR) during the course of regional coal exploration in selected parts of Raniganj, East-Bokaro and Sohagpur coalfields. A programme for comprehensive study of CBM prospect in a number of coalfields hosting thick non-coking coal horizons (e.g. Rajmahal/Birbhum, Talchir, Ib-River, Singrauli, Mand-Raigarh, Ramkola-Tatapani and lignite fields of East Coast) was formulated subsequently during the end of X, XI & XII Plan Periods.

8. GSI carried out CBM study in 51 boreholes in Raniganj, Birbhum, Rajmahal, Talcher, Ib-River, Mand-Raigarh, Sohagpur and Tatapani-Ramkola coalfields during X to XII Plan Period. In-situ gas content is very low (<1cc/gm) in all coalfields except Sohagpur Coalfield where maximum recorded in-situ gas content is 2.50cc/gm. Coalfields with high rank (V<sub>Ro</sub> mean  $\geq 0.70\%$ ) areas are prioritized for baseline data generation for Shale gas / CBM exploration. High rank and thermal history of Raniganj, Jharia and East Bokaro coalfields of Damodar-Koel valley Basin are favourable for shale gas/CBM exploration and commercial exploitation.

### **C. Coal Bed Methane Policy, 1997**

9. In order to harness CBM potential in the country, the Government of India formulated CBM Policy in 1997 (Annexure-I), wherein CBM being Natural Gas is explored and exploited under the provisions of Oil Fields (Regulation and Development) Act 1948 (ORD Act 1948) and Petroleum & Natural Gas Rules 1959 (P&NG Rules 1959) administered by Ministry of Petroleum & Natural Gas (MoP&NG).

10. The CBM development in India gained momentum with the announcement of Coal Bed Methane (CBM) policy in 1997 which laid the foundation of commercial exploitation of CBM in India. As per the policy, Ministry of Petroleum & Natural Gas (MoP&NG) became the administrative Ministry and Directorate General of Hydrocarbons (DGH) was made the nodal agency for development of CBM in the country. The policy specifies the modality for taking up commercial development of CBM, modality for identification and allotment of blocks, fiscal provisions/incentives and in a subsequent MOU entered between MOC & MOPNG specifies that right of

exploitation of Coal Mine Methane (CMM) from coal mining areas will be with coal mine operator.

#### **D. Role of Ministry of Coal in CBM development**

11. The total Gondwana basinal area as per Geological Survey of India (GSI) is 52246 sq. km. However, the prognosticated potential coal bearing area is 19262 sq. km. out of which 13968 sq. km. has been regionally explored till XI plan and proposed area to be covered by Regional Exploration during XII plan period is 1401 sq. km. The balance area including CBM overlap is 3893 sq. km.

12. Central Mine Planning and Design Institute (CMPDI), a subsidiary of Coal India Limited (CIL) has been engaged in the identification and subsequent preparation of data dossiers for most of the CBM blocks allotted to different operators. Besides, CMPDI is also generating CBM specific data from boreholes being drilled under Promotional Regional Exploration (PRE) scheme of Government of India since X plan period (2002-07).

13. Consequent to announcement of CBM policy, 33 CBM/LBM(Lignite Bed Methane) blocks have been allotted in an area of 16613 sq. km. (Area of CBM blocks: 11184 sq. km. & LBM blocks: 5429 sq. km.) for commercial development of CBM/LBM based on four (4) rounds of global bidding by DGH on behalf of the MoP&NG. While identifying the blocks for CBM development, such areas where coal mining was not envisaged for the next 15-20 years have been considered.

#### **E. CBM Resources in India**

14. India, having the fourth largest proven coal reserves in the world, holds significant prospects for exploitation of CBM. However, no assessment about total prognosticated CBM resources in the country, including CIL mining lease areas is available. The MoPNG in consultation with Ministry of Coal and CMPDI has identified 26000 sq km of area for CBM operation. Total estimated CBM Resources in this identified area is about **2600 BCM (91.8 TCF)**. State wise distribution of the resources along with established reserves is given below:

Statewise distribution of CBM resources & Reserves established				
Sl. No.	STATE	Prognosticated CBM Resource	Prognosticated CBM Resource (in TCF)	Established CBM Reserves (in TCF)
		(in BCM)		
1	Jharkhand	722.08	25.5	1.916
2	Rajasthan	359.62	12.7	0
3	Gujarat	351.13	12.4	0
4	Odisha	243.52	8.6	0
5	Chhattisgarh	240.69	8.5	0
6	Madhya Pradesh	218.04	7.7	3.65
7	West Bengal	218.04	7.7	4.33
8	Tamil Nadu	104.77	3.7	0
9, 10	Telangana & Andhra Pradesh	99.11	3.5	0
11	Maharashtra	33.98	1.2	0
12	North East	8.5	0.3	0
<b>Total CBM Resource</b>		<b>2599.48</b>	<b>91.8</b>	<b>9.9</b>

15. When asked why against the prognosticated CBM resources of 62.4TCF in 33 awarded blocks, till date only 9.9 TCF has been established as Gas in place and the reasons for such wide mismatch between prediction and establishment of CBM resource, the Ministry of Petroleum and Natural Gas submitted in its written reply as under:

"The prognosticated CBM resource in 33 CBM blocks is 62.4 TCF. Reserves of 9.9 TCF are the established Gas-Initially-in-Place (GIIP) of 8 CBM blocks that have entered Development phase. Details are as below:

**CBM Blocks in Development phase - GIIP & Recoverable Reserves**

Sl. no.	Round	Block	State	Operator	Approx Area (Sq.Km.)	GIIP in TCF	Recoverable Reserves (TCF)
1	I	RG(E)-CBM-2001/1	West Bengal	EOL	500	2.15	0.993
2	I	BK-CBM-2001/1	Jharkhand	ONGC	95	1.06	0.130
3	I	NK-CBM-2001/1	Jharkhand	ONGC	340	0.34	0.052
4	I	SP(E)-CBM-2001/1	MP	RIL	495	1.69	0.620
5	I	SP(W)-CBM-2001/1	MP	RIL	500	1.96	0.670
6	Nom.	RANIGANJ NORTH	West Bengal	ONGC	350	0.26	0.066
7	Nom.	JHARIA	Jharkhand	ONGC	85	0.52	0.107
8	Nom.	RANIGANJ SOUTH	West Bengal	GEECL	210	1.92	1.340
<b>Total</b>					<b>2575</b>	<b>9.90</b>	<b>3.978</b>

Methane gas is always present in coal seams, however, the quantity of methane present is required to be present in commercial quantity for CBM venture to be

successful. In majority of the Blocks where exploration work carried out commercial CBM potential could not be established technically due to less quantity of gas present and hence reserves could not be established".

16. When enquired whether any comprehensive assessment of reserves of CBM has been undertaken in the country and the agency responsible for carrying out the assessment and whether MoPNG has entered into collaboration with any foreign agency for assessment and exploration of CBM in the country, the Ministry have furnished the following information:

"In a joint exercise carried out by DGH, CMPDI and GSI, it was estimated that the total prognosticated CBM resource in the country is 91.8 TCF (coal depths from 0 to 1200-m) in the area earmarked for CBM exploration. The assessment was done in late 90s. MoPNG has not entered into collaboration with any foreign agency for assessment and exploration of CBM in the country".

**F. Reassessment of Hydrocarbon resources by DGH**

17. When asked about the role of DGH in exploration/assessment/production of Coal Bed Methane (CBM) and whether CBM assessment was part of the DGH's exercise relating to 'Reassessment of Hydrocarbon resources in the country', the Ministry of Petroleum and Natural Gas have submitted the following in its written reply:

"As per MoP&NG notification dated 01.09.2006, the Directorate General of Hydrocarbons has been vested with the power to monitor the upstream petroleum operations in India including Coal Bed Methane and Gas Hydrates operations in accordance with the Act (ORDA-1948) and the Rules (PNG Rules-1959). Accordingly, DGH identifies CBM blocks in consultation with Coal Mines Planning and Development Institute (CMPDI) & Geological Survey of India (GSI). Compilation of Information docket & Data Package is done by CMPDI in consultation with DGH. After award of CBM Contracts, DGH monitors the operations carried out by contractors in the awarded CBM Blocks with a view to promoting sound management of CBM resources in the country. CBM assessment was not a part of the DGH's exercise relating to 'Reassessment of Hydrocarbon resources in the country".

**G. Status of CBM Blocks awarded**

18. CBM bidding rounds –I, II, III & IV were undertaken in the year 2001, 2003, 2005 & 2008 respectively and round wise number of blocks awarded are 5, 8, 10 & 7 respectively. 2 more Blocks were awarded through Nomination and 1 through FIPB

route. Out of the 33 CBM Blocks awarded so far, 2 are in Production Phase, 6 in Development Phase and 4 are under exploration Phase. For 2 Blocks PEL is awaited from the State Government. Contract of 1 Block has been terminated due to non-compliance of Contract terms. Rest 18 Blocks after initial assessment by Exploration activities found to be having poor CBM potential are under relinquishment/relinquished. Future award of CBM areas will be through Unified License under the recently approved Hydrocarbon Exploration Licensing Policy (HELP).

19. A brief summary of the status of 33 allotted CBM blocks is given as follows:

<b>CBM Policy formulated in:</b>	<b>1997</b>
<b>MoU signed between MoP&amp;NG &amp; MoC</b>	<b>09.09.1997</b>
<b>Total CBM rounds conducted</b>	<b>4</b>
<b>No. of CBM Blocks awarded</b>	<b>33</b>
<b>Coal bearing Area identified for CBM</b>	<b>26,000 Sq. Km.</b>
<b>Area covered under 33 CBM Blocks</b>	<b>16, 613 Sq. Km.</b>
<b>CBM Resources identified in the area made available (26000 sq km)</b>	<b>2600 BCM (91.8 TCF)</b>
<b>CBM Resources (in 33 Blocks)</b>	<b>1767 BCM (62.4 TCF )</b>
<b>Established CBM Reserves (Gas in Place -GIP)</b>	<b>280.34 BCM (9.9TCF)</b>
<b>Commercial Production commenced</b>	<b>July 2007</b>
<b>Total No. of CBM Wells drilled</b>	<b>725</b>
<b>Investment made so far</b>	<b>US\$ 1167 MM (Till FY 2014-15)</b>
<b>Present Gas Production(as on May 2016)</b>	<b>1.3757 MMSCMD from 5 CBM blocks</b>
<b>No. of CBM Blocks in Development Phase</b>	<b>8 (including 2 which entered Production phase)</b>
<b>No. of CBM Blocks in Exploration Phase</b>	<b>4</b>
<b>No. of CBM Blocks relinquished</b>	<b>4</b>
<b>No. of CBM Blocks awaiting PEL</b>	<b>2</b>
<b>No. of CBM Blocks under relinquishment</b>	<b>14</b>
<b>No. of CBM Block whose Contract is terminated due to non-compliance of Contract Conditions</b>	<b>1 (presently under Arbitration)</b>
<b>Annual CBM production in FY 2015-16:</b>	<b>392.865 MMSCM</b>

#### **Status of 33 CBM Blocks awarded**

CBM Blocks Under Development & Production						
Sl. No.	CBM Round / allotment	State	Block	Contractor (PI%)	Area (Sq. Km.)	Present Status
1	Through FIPB route	West Bengal	Raniganj (South)	GEECL (100)	210	Production
2	On Nomination Basis	Jharkhand	Jharia	ONGC (90)-CIL (10)	85	Development
3	On Nomination Basis	West Bengal	Raniganj(North)	ONGC (74)-CIL (26)	350	Development
4	I	Jharkhand	BK-CBM-2001/I	ONGC (80)-IOC (20)	95	Development
5	I	Jharkhand	NK-CBM-2001/I	ONGC (80)-IOC (20)	340	Development
6	I	West Bengal	RG(E)-CBM-2001/I	Essar Oil Ltd (100)	500	Development
7	I	Madhya Pradesh	SP(E)-CBM-2001/I	RIL (100)	495	Development
8	I	Madhya Pradesh	SP(W)-CBM-2001/I	RIL (100)	500	Production

### CBM Blocks under Exploration

Sl. No.	CBM Round / allotment	State	Block	Contractor (PI%)	Area (Sq. Km.)	Present Status
1	III	Madhya Pradesh	SP(N)-CBM-2005/III	REL (45)-RNRL (45)-Geopetrol (10)	609	Exploration
2	IV	Jharkhand	RM(E)-CBM-2008/IV	EOL (100)	1128	Exploration
3	IV	Madhya Pradesh & Chhattisgarh	SP(NE)-CBM-2008/IV	EOL (100)	339	Exploration
4	III	Madhya Pradesh	SR-CBM-2005/III	DIL (90)-Coal Gas (10)	330	Exploration

### Block Terminated (and Under Arbitration)

Sl. No.	CBM Round / allotment	State	Block	Contractor (PI%)	Area (Sq. Km.)	Present Status
1	IV	Tamil Nadu	MG-CBM-2008/IV	GEECL (100)	667	Under Arbitration
<b>PEL awaited</b>						
1	IV	Odisha	TL-CBM-2008/IV	EOL (100)	557	PEL awaited
2	IV	Odisha	IB-CBM-2008/IV	EOL (100)	209	PEL awaited

### CBM Blocks Under Relinquishment

Sl. No.	CBM Round / allotment	State	Block	Contractor (PI%)	Area (Sq. Km.)
1	II	Jharkhand	SK-CBM-2003/II	ONGC (100)	70
2	II	Jharkhand	NK(W)-CBM-2003/II	ONGC (100)	267

3	III	West Bengal	BB-CBM-2005/III	British Petroleum (100)	248
4	III	Chhattisgarh	MR-CBM-2005/III	Dart Energy (35)-GAIL (35)-EIG (15)-TATA Power (15)	634
5	III	Chhattisgarh	TR-CBM-2005/III	Dart Energy (35)-GAIL (35)-EIG (15)-TATA Power (15)	458
6	II	Rajasthan	BS(1)-CBM-2003/II	RIL(100)	1045
7	II	Rajasthan	BS(2)-CBM-2003/II	RIL (100)	1020
8	II	Chhattisgarh	SH(N)-CBM-2003/II	RIL (100)	825
9	III	Andhra Pradesh	KG(E )-CBM-2005/III	REL (45) – RNRL(45) - Geopetrol (10)	750
10	III	Rajasthan	BS(4)-CBM-2005/III	REL (45)-RNRL (45)- Geopetrol (10)	1168
11	III	Rajasthan	BS(5)-CBM-2005/III	REL (45)-RNRL (45)- Geopetrol (10)	739
12	III	Telangana	GV(N)-CBM-2005/III	Coal Gas (10)-DIL (40)- Adinath (50)	386
13	III	Jharkhand	RM-CBM-2005/III	Dart Energy (35)-GAIL (35)-EIG (15)-TATA Power (15)	469
14	IV	Assam	AS-CBM-2008/IV	Dart Energy (10)-OIL (90)	113

#### CBM Blocks Relinquished

Sl. No.	CBM Round / Manner of allotment	State	Block	Contractor (PI%)	Area (Sq. Km.)
1	II	Madhya Pradesh	ST-CBM-2003/II	ONGC (100)	714
2	II	Maharashtra	WD-CBM-2003/II	ONGC (100)	503
3	II	Rajasthan	BS(3)-CBM-2003/II	ONGC (74)-CIL (26)	790
4	IV	Madhya Pradesh	ST-CBM-2008/IV	Dart Energy (80)-TATA Power (20)	714

#### (Annexure II)

20. When asked to furnish a note on the gestation period of a CBM block from discovery to production phase, the Ministry of Petroleum and Natural Gas in its written reply stated the following:

"CBM potential of any area has to be ascertained through exploration activities carried out by the contractor in Phase – I & II (Exploration period) of the contract. If these activities establishes any commercial CBM potential in the area, through activities of Development Phase (Phase-III) of the CBM Contract, facilities for commercial production of CBM area created.

For ready reference the different phases in CBM contract are as follows: (As per CBM Policy and CBM Extension policy):

- Phase-I: Exploration phase
  - Duration: 3 years + 3 extensions of 6 months (set-off from next phase)
  - Major activity: Drilling of Coreholes and Test wells
- Phase-II: Pilot Assessment Phase
  - Duration: 5 years + 3 extensions of 6 months (set-off from next phase)
  - Drilling of Pilot wells, EIA study, Techno-economic Evaluation, Market survey
- Phase-III: Development Phase (5 years + 1 year extension – set-off from next phase)
  - Duration: 5 years + 1 year extension (set-off from next phase)
  - Major Activity: Drilling, completion and testing of development wells
- Phase-IV: Production Phase
  - Duration: 25 years
  - Major Activity: Commercial production from the Block

After completion of Phase-II i.e. Pilot Assessment phase, the CBM Contractor has a period of 5 years to drill the development wells in the block so as to commence production from the block. The gestation period of a CBM block from discovery to production phase is thus 13 years. (Phase-I: 3 years, Phase-II: 5 years and Phase-III: 5 years; as per CBM Policy). This gestation period however is subject to timely grant of Clearances from Central and State Government. In few CBM blocks, it has been observed that the gestation period is less than 13 years".

#### H. Clearances needed for CBM blocks

21. When the Committee sought to know the different clearances required to be obtained by the companies who have been awarded CBM blocks before the start of their operations, the Ministry submitted the following in its written reply:

"The different clearances required to be obtained by the companies who have been awarded CBM blocks before the start of their operations along with approving authority/agencies are given below:

Sl. No.	Clearances required	Approving Authority / Agency
1	Approval for Work Programme & Budget	DGH
2	Petroleum Exploration License	State Govt.
3	Environmental Clearance	MOEF (EP Act 1986)
4	Forest Diversion proposal for work program	MOEF (EP Act 1980)
5	NOC from ATC/Airbase	Ministry of Defence
6	NOC for SCADA implementation in the CBM field	Ministry of Communication
7	Approval for equipments used during operations	Directorate General of Mine Safety (DGMS)
8	Approval for use of explosives operations in the well site	DGMS
9	Approval for carrying out 12 hour shift operations	DGMS
10	Consent to Establish	State Pollution Control Board (SPCB)
11	Approval of HSD storage during drilling	SPCB

12	Authorization of Hazardous waste storage and handling	SPCB
13	Disposal of treated produced water	Consent to Operate(CTO) from SPCB
14	Disposal of treated produced water at surface water body	State Irrigation department / SPCB
15	Approval of HSD storage during drilling	Petroleum & Explosives Safety Organization (PESO)
16	Approval for laying pipeline	PESO
17	14 Yr Clearance to hold land excess of ceiling limit	L&IR department State Govt.
18	Approval of Dewatering for CBM operations	State Water Investigation Department
19	Lifetime Membership with Hazardous Waste treatment storage Disposal Facility	Waste Management Limited
20	Approval for laying pipeline for Fire and emergency services	State Fire and Emergency Services
21	Approval for ground water use	State Water Investigation Department
22	Non- Agricultural certification for facility creation	State Land & Irrigation department
23	NOC from Panchayat	Village Panchayats
24	Registration for office	Inspector, Shops and Establishment Concerned State
25	Service Tax Code and Location code	Assistant Commissioner of Service Tax, Service Tax Division of Concerned State
26	Certificate of Registration, labour License & Various approval under Labour & Employment	Ministry of Labour & Employment (Central), Govt. of India
27	Registration under section (1) of the Central Sales Tax Act 1956	Assistant Commissioner, Commercial Taxes, concerned State
28	Code for depositing tax under Added Tax Act 2003	Commissioner, Sales Tax concerned State
29	Registration under Value Added Tax Rules, 2005	Assistant Commissioner, Sales Tax concerned State
30	Registration under Section 19(2) and 21 of the West Bengal Value Added Tax Act, 2003 Value Added Tax Rules, 2005	Assistant Commissioner, Sales Tax concerned State

22. When the Committee sought to know whether any environmental impact assessment is carried out before the exploration and exploitation of CBM is actually permitted, the MoPNG in its written reply submitted the following:

"CBM is extracted from coal beds through the drilling of wells. Large amounts of water must be pumped out (dewatering) from the coal seams in order to depressurize the bed. A main concern is that water must be removed in order to release the methane. It can pose a unique challenge since the water typically has a high salinity level, therefore it cannot be introduced into local freshwater ecosystems without the potential for adverse effects. Several methods are used to dispose of the produced water; the most common is to return the water into the subsurface rock formations. Another approach is to construct holding, or infiltration ponds. Most freshwater extracted can be used for irrigation of crop or farmland.

In CBM Contracts, prior to commencing of exploration activity in the block a Contractor has to seek Environment Clearance from the Ministry of Environment, Forest & Climate Change (MoEF&CC). A pre-requisite to seek EC is to carry out

an Environment Impact Study which shall seek to determine the prevailing situation relating to environment, human beings, local communities, flora and fauna in the contract area and in the adjoining or neighbouring areas. The study shall establish the likely impact of CBM operations to be conducted under the contract and measures contemplated to minimize environmental damage and carry out site restoration activities. Similar study shall be undertaken by the contractor in phase-II and submitted by the Contractor as part of Development plan".

23. When the Committee sought to know whether the investment and infrastructure required for developing a CBM block is at par with other natural gases, the Ministry of Petroleum and Natural Gas in its written reply submitted the following:

"The investment and infrastructure required for developing a CBM block is not at par with conventional Natural Gas. Drilling of Natural Gas well approximately till 3000-m depth nominally costs USD 8 Million. However, the nominal cost of drilling a CBM well is USD 1.2 Million. Due to low productivity large number of CBM wells are required to be drilled against single conventional hydrocarbon well to produce the same quantity of gas. Natural gas produced from a conventional well is produced at high pressure (~2000 psi or greater depending on the depth and type of reservoir) whereas CBM produced at surface is at much lower pressure. Therefore, there is a need for higher compression stages at the Gas Collecting Station/Gas Gathering Station. Moreover, condensates and water often accompany Natural gas during its production. In CBM operations, water has to be continuously dewatered from the coal seams to increase the CBM production. Hence, there is a need to treat the water produced to bring the salinity and TDS levels of produced water to surface disposal levels. CBM operations work on a marginal scale of economics in comparison to conventional natural gas where margins are high and so is the period of production. The producing life of a CBM well is up to 15 years however the average producing life of a natural gas well is 20 to 25 years".

24. When asked by the Committee about the recovery factor for CBM and what factors influence the extraction of CBM, the Ministry of Petroleum and Natural Gas in its written reply submitted the following:

"It is premature to ascertain the recovery factor for CBM blocks in India as few of the blocks are still in the early stages of production and most of the blocks in Development phase are yet to commence production. The tentative Recovery factor as per Field Development Plan is as below and it varies from block to block. It varies from 12% to 70% with an average Recovery factor of 32%.

SL. NO.	BID ROUND	BLOCK NAME	OPERATOR	APPROX AREA (SQ.KM.)	GIIP IN TCF	Recoverable Reserves (TCF)	Recovery factor
1	I	RG(E)-CBM-2001/1	EOL	500	2.15	0.993	46.19
2	I	BK-CBM-2001/1	ONGC	95	1.06	0.130	12.26
3	I	NK-CBM-2001/1	ONGC	340	0.34	0.052	15.19
4	I	SP(E)-CBM-2001/1	RIL	495	1.69	0.620	36.69
5	I	SP(W)-CBM-2001/1	RIL	500	1.96	0.670	34.18
6	NOM.	RANIGANJ NORTH	ONGC	350	0.26	0.066	25.26
7	NOM.	JHARIA	ONGC	85	0.52	0.107	20.65
8	NOM.	RANIGANJ SOUTH	GEECL	210	1.92	1.340	69.79

Factors that influence the extraction of CBM are as follows:

- Land acquisition: A large number of CBM wells are required to be drilled to efficiently drain CBM as coal seams have low permeability
- Water disposal issues: Water has to be continuously dewatered from the coal seams in order to
- Gas pricing and allocation
- Presence of industries/infrastructure to market the produced CBM
- Availability of Gas Grid".

25. Information furnished by the Ministry regarding reasons for relinquishment of each CBM block so far by operators/companies:

CBM Blocks relinquished

Sl. No.	CBM Round / allotment	Block	State	Area (Sq. Km.)	Contractor (PI%)	Reason for relinquishment
1	II	ST-CBM-2003/II	Madhya Pradesh	714	ONGC (100)	Relinquished due to poor CBM prospectivity
2	II	WD-CBM-2003/II	Maharashtra	503	ONGC (100)	Relinquished due to poor CBM prospectivity
3	II	BS(3)-CBM-2003/II	Rajasthan	790	ONGC (74)-CIL (26)	Relinquished due to poor CBM prospectivity
4	IV	ST-CBM-2008/IV	Madhya Pradesh	714	Dart Energy (80)-TATA Power (20)	Relinquished due to poor CBM prospectivity

CBM blocks under relinquishment:

Sl. No.	CBM Round / allotment	Block	State	Area (Sq. Km.)	Contractor (PI%)	Reason for exercising exit option
1	II	SH(N)-CBM-2003/II	Chhattisgarh	825	RIL (100)	Relinquished due to untimely grant of Statutory clearances
2	II	BS(1)-CBM-2003/II	Rajasthan	1045	RIL(100)	Relinquished due to poor CBM prospectivity
3	II	BS(2)-CBM-2003/II	Rajasthan	1020	RIL (100)	Relinquished due to poor CBM prospectivity
4	II	SK-CBM-2003/II	Jharkhand	70	ONGC (100)	Relinquished due to poor CBM prospectivity
5	II	NK(W)-CBM-2003/II	Jharkhand	267	ONGC (100)	Relinquished due to poor CBM prospectivity
6	III	RM-CBM-2005/III	Jharkhand	469	Dart Energy (35)-GAIL (35)-EIG (15)-TATA Power (15)	Relinquished due to poor CBM prospectivity
7	III	GV(N)-CBM-2005/III	Telangana	386	Coal Gas (10)-DIL (40)-Adinath (50)	Relinquished due to untimely grant of Statutory clearances
8	III	BB-CBM-2005/III	West Bengal	248	British Petroleum (100)	Relinquished due to poor CBM prospectivity
9	III	MR-CBM-2005/III	Chhattisgarh	634	Dart Energy (35)-GAIL (35)-EIG (15)-TATA Power (15)	Relinquished due to poor CBM prospectivity
10	III	TR-CBM-2005/III	Chhattisgarh	458	Dart Energy (35)-GAIL (35)-EIG (15)-TATA Power (15)	Relinquished due to poor CBM prospectivity
11	III	BS(4)-CBM-2005/III	Rajasthan	1168	REL (45)-RNRL (45)-Geopetrol (10)	Relinquished due to untimely grant of Statutory clearances
12	III	BS(5)-CBM-2005/III	Rajasthan	739	REL (45)-RNRL (45)-Geopetrol (10)	Relinquished due to untimely grant of Statutory clearances
13	III	KG(E )-CBM-2005/III	Andhra Pradesh	750	REL (45) – RNRL(45) - Geopetrol (10)	Relinquished due to untimely grant of Statutory clearances
14	IV	AS-CBM-2008/IV	Assam	113	Dart Energy (10)-OIL (90)	Relinquished due to poor CBM prospectivity

26. When the Committee asked the Ministry to furnish reasons for wrong assessment of CBM availability of CBM prospects in the blocks under relinquishment and wanted to know whether using better technology may result in better assessment of such blocks, the Ministry of Petroleum and Natural Gas in its written reply submitted the following:

"The Information Docket and Data Packages are prepared by Central Mine Planning Design Institute (CMPDI), Ranchi on the basis of coreholes/boreholes drilled in the area by CMPDI/GSI. The data of few coreholes/boreholes drilled in the block are utilized for extrapolating data for the entire CBM Contract area and calculating the CBM resource. The data obtained from few coreholes may not be representative of the Gas content, gas saturation and presence of adequate coal seams in the entire CBM contract area. Actual detail exploration activities have to be carried out to establish CBM potential during Exploration Phase (Phase-I) as provided in CBM Contract".

27. When the Committee pointed out that last bidding for CBM blocks were done in 2008 and what are the reasons for no further bidding of CBM blocks in last 8 years, the Ministry of Petroleum and Natural Gas in its written reply submitted the following:

"In India, conventional oil & gas and unconventional gas (CBM, Shale Gas & Gas Hydrate) resources have been found in the same block/ basinal area but in vertically separated horizons such as Raniganj coalfields (CBM & Shale Gas) of Gondwana basin in West Bengal, BarmerSanchor (CBM & Conventional Oil/Gas) coalfields of Cambay basin (CBM, Shale Gas/Oil & conventional Oil/Gas) in Gujarat and Rajasthan, Krishna Godavari Basin (Shale Gas/Oil, Gas Hydrates & Conventional Oil/Gas) in Andhra Pradesh and Mannargudi coalfield (CBM, Shale Gas/Oil & Conventional Oil/Gas) of Cauvery basin in Tamil Nadu. There is significant overlapping of hydrocarbon resources and existing licensing regime (NELP & CBM Contracts) prevents simultaneous extraction of conventional and unconventional hydrocarbons. In view of above, it was felt that under the new licensing regime, freedom be given to contractor to optimally exploit both conventional and unconventional hydrocarbons in a contract area. This would lead to efficient exploitation of hydrocarbon resources and minimal overlap issues with coal blocks which have hindered operations in many CBM blocks. In view of above, Hydrocarbon Exploration and Licensing Policy was launched wherein, a licensee will have the right to extract conventional (crude oil and Natural Gas) and unconventional hydrocarbons (CBM, Shale Gas, Tight Oil, Gas Hydrates) from the same block/contract area".

#### **I. CBM Production in the country**

28. Commercial CBM production started in July 2007 in the Raniganj South block operated by GEECL. Total CBM production in the country in last Financial Year 2015-16 was 392.865 MMSCM\* (**1.0734 MMSCMD\*\***) and current (as on May 2016) per day CBM production is **1.3757** MMSCMD. Two CBM Blocks in West Bengal (Operated M/s GEECL & M/s Essar Oil Ltd), one Jharkhand (Operated by ONGC) and one in Madhya Pradesh (operated by M/s RIL) are producing CBM. 4 blocks (one in west Bengal & 2 in

Jharkhand operated by ONGC& one in Chhattisgarh-MP operated by M/s RIL) are in Development Phase and likely to start CBM production in next 1-2 year. CBM production in the country since inception is given below:

CBM GAS PRODUCTION SINCE INCEPTION										(in MMSCM)
Block Name	Operator	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Grand Total
JHARIA	ONGC	0	0	0	3.559	2.949	3.378	2.479	2.04	14.405
MMscmd		0	0	0	0.009751	0.0081	0.009255	0.006791	0.00557	
RANIGANJ EAST	Essar Oil Ltd	0	0	0	9.066	12.827	35.359	91.331	236.499	385.082
MMscmd		0	0	0	0.025	0.035	0.097	0.25	0.646	
RANIGUNJ SOUTH	GEECL	19.786	38.402	41.362	70.04	88.021	121.13	132.351	152.924	664.016
MMscmd		0.054	0.105	0.113	0.192	0.24	0.332	0.363	0.418	
SOHAGPUR EAST	RIL	0	0	0	0.381	2.24	4.502	0.572	0.023	7.718
MMscmd		0	0	0	0.001045	0.0061	0.012333	0.001567	6.3E-05	
SOHAGPUR WEST	RIL	0	0	0	1.144	1.2	1.149	1.506	1.382	6.382
MMscmd		0	0	0	0.003135	0.0033	0.003149	0.004126	0.00378	
<b>Grand Total</b>		<b>19.786</b>	<b>38.402</b>	<b>41.362</b>	<b>84.191</b>	<b>107.24</b>	<b>165.518</b>	<b>228.239</b>	<b>392.868</b>	<b>684.735</b>
<b>Grand Total (MMscmd)</b>		<b>0.054</b>	<b>0.105</b>	<b>0.113</b>	<b>0.231</b>	<b>0.293</b>	<b>0.453</b>	<b>0.625</b>	<b>1.073</b>	

Details in respect of current CBM production in the country are given below:

CBM Production data (FY 2016-17)					
Block Name	Operator	in MMSCM		in MMSCMD	
		Apr-16	May-16	Apr-16	May-16
JHARIA	ONGC	0.195	0.212	0.0065	0.0068
RANIGANJ EAST	GEECL	24.312	28.632	0.8104	0.9236
RANIGUNJ SOUTH	Essar Oil Limited	12.516	13.29	0.4172	0.4287
SOHAGPUR WEST	RIL	0.216	0.513	0.0072	0.0166
<b>Grand Total</b>		<b>37.239</b>	<b>42.647</b>	<b>1.2413</b>	<b>1.3757</b>

\*MMSCM: Million Standard Cubic Metre

\*\*MMSCMD: Million Standard Cubic Metre per day

29. The actual CBM Production in the country for last two years and Projected production on for next 2 years are as follows (Source: DGH):

CBM BLOCKS - PRODUCTION & PROJECTION										
Sl. No.	CBM Block	Operator	All figures are in MMSCM				All figures are in MMSCMD			
			Actual FY 2014-15	Actual FY 2015-16	Projected FY 2016-17	Projected FY 2017-18	Actual FY 2014-15	Actual FY 2015-16	Projected FY 2016-17	Projected FY 2017-18
1	Jharia	ONGC	2.479	2.039	5.456	20.260	0.006792	0.005571	0.014948	0.055507
2	Raniganj (North)	ONGC	0.000	0.000	2.650	36.546	0.000000	0.000000	0.007261	0.100125
3	BK-CBM-2001/I	ONGC	0.000	0.000	42.783	57.046	0.000000	0.000000	0.117214	0.156291
4	NK-CBM-2001/I	ONGC	0.000	0.000	12.357	52.506	0.000000	0.000000	0.033855	0.143852
5	Raniganj (South)	GEECL	132.351	152.923	250.000	310.000	0.362605	0.417822	0.684932	0.849315
6	RG(East)-CBM-2001/I	Essar Oil	91.331	236.497	860.000	1215.000	0.250222	0.646167	2.356164	3.328767
7	SP(East)-CBM-2001/I	RIL	0.572	0.024	0.600	0.900	0.001567	0.000066	0.001644	0.002466
8	SP(West)-CBM-2001/I	RIL	1.506	1.382	276.000	414.000	0.004126	0.003776	0.756164	1.134247
	Total		228.239	392.865	1449.847	2106.258	0.618521	1.073402	3.972183	5.770569

\*MMSCM: Million Standard Cubic Metre

\*\*MMSCMD: Million Standard Cubic Metre per day

30. When the Committee enquired as to how the CBM production has been projected to increase from 1.07 MMSCMD in 2015-16 to 5.77 MMSCMD in 2017-18, the representative of the Ministry of Petroleum and Natural Gas submitted the following during the oral evidence:

"Actually from the blocks we are seeing very good movement. Almost month after month more than one lakh or one and a half lakh increase is there. Right now we have reached 1.456 as compared to 1.07 in 2015-16. In two years' time we are expecting to reach about 5.77 million which is going to be a significant part. Right now, the CBM represents only one per cent of country's production. When it reaches five it will be more significant. We have projections from each of the operators which are indicating a very good progress in the next couple of years".

31. Companies currently producing CBM from their allocated CBM Blocks are as below:

Block Name	State	Operator	Sector	Jun-16	
				MMSCM	MMSCMD
Jharia	Jharkhand	ONGC	PSU	0.197	0.007
Raniganj East	West Bengal	Essar Oil Limited	Private	30.031	1.001
Raniganj South	West Bengal	GEECL	Private	13.019	0.434
Sohagpur West	Madhya Pradesh	RIL	Private	0.422	0.014
<b>Grand Total</b>				<b>43.669</b>	<b>1.456</b>

Other companies currently/previously engaged in CBM extraction but not producing CBM are as below:

Sl. No.	Blocks	Operator
1	BB-CBM-2005/III	BP
2	AS-CBM-2008/IV, TR-CBM-2005/III (TatapaniRamkola), RM-CBM-2005/III (Rajmahal), MR-CBM-2005/III (MandRaigarh), ST-CBM-2008/IV (Satpura)	Dart Energy
3	KG(E)-CBM-2005/III [Kothagudem East], BS(4)-CBM-2005/III [BarmerSanchor 4], BS(5)-CBM-2005/III [BarmerSanchor 5]	Geopetrol
4	GV(N)-CBM-2005/III [Godavari North], SR-CBM-2005/III	Deep Industries Limited
5	SP(N)-CBM-2005/III [Sohagpur North]	Reliance-Infra

#### J. Status of CBM blocks awarded to ONGC

32. When the Committee sought to know how many blocks have been awarded to ONGC for CBM extraction and the position of CBM blocks awarded to ONGC, the Ministry furnished the following in its written reply:

"Till date, 9 CBM Blocks have been awarded to ONGC for CBM extraction. Out of the 9 CBM blocks, 4 CBM blocks are currently in Development phase, 2 blocks are under relinquishment and 3 CBM blocks have been relinquished by ONGC.

Sl. No.	Block / Area (sq. km)/ Consortium-PI (%)	Work carried out	Status of the Block	Remarks
1	Bokaro BK-CBM-2001/1 95 ONGC (80) IOC (20)	Core Holes: 10 Test Wells: 2 Pilot Wells: 12	Block is currently in Development phase. Operator has initiated Land acquisition and hiring of rigs.	Block was awarded to ONGC in CBM round I in 2003.
2	North Karanpura NK-CBM-2001/I 340 ONGC (55) IOC (20) PEPL (25)	Core Holes: 9 Test Wells: 2 Pilot Wells: 6	Block is currently in Development phase. Operator has initiated Land acquisition and hiring of rigs.	Block was awarded to ONGC in CBM round I in 2003.
3	Jharia - CBM-2001/I 85 ONGC (74) CIL (26)	Core Holes: 8 Test Wells: 2 Pilot Wells: 9	Block is currently in Development phase. Operator has initiated Land acquisition and hiring of rigs. Incidental CBM production @ 6567 SCMD.	Block was awarded to ONGC on nomination basis on 06.02.2003
4	Raniganj (North) 350 ONGC (74) CIL (26)	Core Holes: 8 Test Wells: 1 Pilot Wells: 2	Block is currently in Development phase.	No development phase activity could commence in the block due to non-grant of PML from West Bengal Govt. due to overlap with BAPL project (Airport).
5	South Karanpura SK-CBM-2003/II 70 ONGC (100)	Core Holes: 10 Test Wells: 3 Pilot Wells: 0	Block is currently under relinquishment due to low CBM prospectivity	Operator requested to avail exit option at the end of Phase-I on 23.7.11

6	North Karanpura (West) NK(W)-CBM-2003/II 267 ONGC (100)	Core Holes:8 Test Wells: 0 Pilot Wells: 0	Block is currently under relinquishment due to low CBM prospectivity	Operator applied for relinquishment on 21.7.09 owing to poor prospectivity
7	Satpura (MP) ST-CBM-2003/II 714 ONGC(100)	Core Holes:3 Test Wells: 0 Pilot Wells: 0	Block relinquished	Operator applied for relinquishment of the block on 20.07.07. The block was re-awarded under CBM-IV
8	Barmer-Sanchor (3) BS(3)-CBM-2003/II 790 ONGC (74)-CIL (26)	Core Holes: 8 Test Wells: 2 Pilot Wells: 0	Block relinquished	- The Block stands relinquished at the end of Phase-I, i.e. w.e.f. 09.03.08
9	Wardha (Maharashtra) WD-CBM-2003/II 503 ONGC(100)	Core Holes: 2 Test Wells: 0 Pilot Wells: 0	Block relinquished	Operator applied for relinquishment of the block on 09.03.07 after completion of Phase-I due to poor prospectivity

33. When asked by the Committee about the poor progress in blocks awarded to ONGC for CBM extraction, the official from ONGC submitted the following during the oral evidence:

"It was given in 1997 initially on nomination basis. We are having consultations with SAIL and are working together for finalising joint agreement to resolve the issue. May be, in a month's time, we will be able to make it. This is a very prospective block of ONGC. It got stuck because of overlapping issue. One private coal operator ECL was given a mining lease. But later on when the Supreme Court cancelled all the mining leases, Ministry of Petroleum and Natural Gas and the Ministry of Coal sat together and decided to give that area to a PSU so that both the PSUs can sit together and come with a solution. That is why, that area was given".

Elaborating further:

"This issue started in 2005 initially when some private company was there. Now this area has been given to SAIL. Now the area was given to SAIL about three-four months back. Otherwise, it was with a private company and that agreement was not coming forward with a private company. Now we have developed a core development agreement which is in a draft stage. We all are working on that."

34. When asked as to give reasons for the long delay by ONGC regarding extraction of CBM in the blocks allotted to it, the Officials of the Ministry submitted the following:

"The coal mining lease was with a private party, so the extraction of coal bed methane was stuck because of that. That is the whole issue. The coal mining lease was given to the private party and not the CBM. The CBM extraction was given to the ONGC".

35. Asked by the Committee as to what is total investment of the ONGC's in CBM extraction in the last three years, the Ministry of P&NG in its written reply submitted the following:

"Total investment made by ONGC in its four active CBM Blocks in last three years is given below:

<b>ONGC OPERATED ACTIVE CBM BLOCKS</b>					
<b>BLOCK</b>	<b>NK-CBM-2001/I</b>	<b>BK-CBM-2001/I</b>	<b>JHARIA</b>	<b>RANIGANJ NORTH</b>	<b>TOTAL</b>
<b>YEAR</b>	US \$ in Million	US \$ in Million	US \$ in Million	US \$ in Million	US \$ in Million
2012-13	4.526012	3.363557	7.693242	7.675155	<b>2.3257966</b>
2013-14	3.440773	4.820367	8.359367	3.643554	<b>2.0264061</b>
2014-15	2.580029	1.979492	4.767383	2.783179	<b>1.2110084</b>
<b>Total</b>	<b>10.546814</b>	<b>10.163416</b>	<b>20.819992</b>	<b>14.101888</b>	<b>5.5632111</b>

36. Asked by the Committee to explain the technology available with ONGC for CBM the officials of ONGC submitted the following:

"Sir, we are doing all kinds of directional drilling in our on-shore assets, even off-shore and we are doing horizontal wells also. We have done horizontal wells in coal seams but we found that they are not economical. So, as far as technology is concerned, we are using all the technologies available for exploitation of coal as well as oil and gas in this country. So, the technology is available, the rigs are available and the expertise is available with ONGC. That is not an issue. The only issue is co-development. When we go for co-development, first CMM has to be taken out and then coal is to be extracted. But in case of CBM, we can't go simultaneously because we have to do a lot of fracking in that. When you are fracking, you don't know how far the fluid will go. It can travel upto 100 or 200 metres".

37. Asked by the Committee as to how much CBM has been taken out of the ground so far, the ONGC officials replied the following:

"As far as CBM is concerned, we are going for a test production only. It is about 6000-10,000 Cubic meter per day".

Elaborating further:

"Now, we have made CBM as an asset. Previously it was a basin. We are doing only exploration work. Now, we have established the reserves and based on these reserves we are going to extract the CBM. The plan is, by 2017 we will start production from Bokaro first. Then, we have the North Karanpura. From Bokaro we are envisaging about .7 mmscmd gas and from North Karanpura we

will be having about 3.5 lakh cubic meter of gas per day. That kind of production will be there. Similarly, when this co-development agreement is made with the SAIL, we will be producing about 3.5-4 lakh cubic meter of gas from Jharia block. Raniganj, we have another overlap issue because there is an air strip. We are working on how to make it viable. That work is going on from the ONGC side".

**K. New Role of Coal India Ltd. in CBM exploration and exploitation**

38. Government of India decided to accord the right to exploration and exploitation of CBM to CIL within its command areas on nomination basis. As per the decision of COS meeting on 10.07.2015 an Office Memorandum was issued by Ministry of Coal, dated 29.07.2015 allowing CIL for exploration and exploitation of Coal Bed Methane (CBM) from areas under coal mining lease allotted to Coal India Limited (CIL). Further, a notification was also issued by the MoPNG specifying modalities for CBM operation by CIL on 3rd November, 2015. However, certain issues pertaining to grant of Petroleum Mining Lease (PML), time schedule for submission of Field Development Plan (FDP) and related penalty clause, operational mechanism etc. needed further clarifications from MoPNG and the same are awaited.

39. Meanwhile initial steps have been taken up by CIL/CMPDI for identification of potential areas within CIL mining leasehold in Damodar Valley coalfields which appears to hold promising potential of CBM. In Raniganj Coalfield under Eastern Coalfield Ltd., a block of approximately 57 sq. km. in active mining areas has been delineated and an action plan has been drawn for commercial exploitation of CMM, for which, requisite activities are in progress. Moreover, another block in Jharia Coalfield under BCCL has also been demarcated and requisite activities are being taken up.

40. The experience gained by CMPDIL over the years enable in bringing out the following:

- "Good Gas content and producibility of CBM is restricted to mainly Damodar Valley Coalfields and to some extent in Sohagpur Coalfield.
- No encouraging result has been found till date while generating CBM specific data from coalfields other than Damodar Valley Coalfields under promotional/regional exploration.
- Majority of the coal resource in Damodar Valley is confined within 600m out of which about 70% is under CIL command for mining purpose. About 15-20% of

this coal resource has already been exhausted due to mining. CBM exploitation would be possible from such areas only.

- CMM exploitation on its own from any single average size coal mine would not be economically viable. Hence, it needs identification of contiguous area of few mines".

41. Thus, the present focus on CMM development from Coal Mining area is from Damodar Valley coalfields.

42. When the Committee wanted to know the status of clarifications sought by CIL regarding issues relating to grant of Petroleum Mining Lease (PML), time schedule for submission of Field Development Plan etc., the representative of Ministry of Petroleum and Natural Gas during the oral evidence submitted the following:

"Sir, on one major which has been mentioned that is to enable the November 2015 Notification to get implemented, actually the issue that had arisen was that for mining coal they already have coalmining lease and normally coal bed methane is governed by the Oilfields (Regulation and Development) Act, 1948 and the Petroleum and Natural Gas Rules, 1959. So, in this they had indicated that since they already have a mining lease, they should not have to take any mining lease. Based on the permission given by the Central Government the mining lease is actually issued by the State Governments. So, there would be confusion if they have to go back to the State Governments for petroleum mining lease in the same area where they have a coalmining lease. This aspect we have examined with the help of Director General of Hydrocarbons who regulates this activity and we have I think found a way forward. There is a section under which we can actually exempt this from requirement of having a separate petroleum mining lease.

What we are processing now as a solution will be subject to their of course paying the royalty for coal bed methane that gets extracted. Also the DGH will continue to monitor the reservoir etc., on the technical side and also take care of issues like abandonment at the end of exploitation of the coal bed methane. This is the solution we have in mind and we are processing. That should be through shortly. That will pave the way for a large area which is already under coalmine licence".

43. When the Committee asked about the notification permitting Coal India Ltd. to extract CBM in the coal fields allotted to it, the CMD of CIL submitted the following:

"Sir, so far as the coal bed methane is concerned, there are two blocks which are allotted. But the ONGC is the lead operator and the result is that in West Bengal they could not get mining lease because there is an overlapping area. In the

area of Jharia, in Parbatpur there is overlapping which is given to SAIL. Now there will be co-development agreement with ONGC. Primarily, CMPDI, the technological institute was declared as the lead, for main technology development they are still depending on ONGC. There are two or three models. One is simultaneous extraction, the other is sequential extraction. That means first we degasify, make it safe, then we go for mining. This simultaneous development, if it has to be done as the hon. Member has rightly pointed out, the technology is directional drilling. As you all know, the United States leads the technology on this. I won't like to comment on the technology; it would be premature. But there are two or three types of technologies which are prevalent. But we have not come to that stage yet. We could not extract coal bed methane. We did a small experiment with coal mine methane and it resulted in small generation of power. Now with these issues being sorted out, it will have to go for commercial exploitation. My submission is that Coal India has extracted coal, but these assets of gas, the hydrocarbon has not been exploited commercially very well".

44. When the MoPNG was requested to respond on the issue, namely, whether the operators of existing coal blocks can carry out CBM extraction in their blocks under existing policy and also whether they need to take separate permission from MoP&NG under HELP for CBM exploration, they provided the written submission as under:

"Ministry of Petroleum and Natural Gas vide notification dated 03.11.2015 has granted permission to CIL and its subsidiaries for exploration and exploitation of CBM in their Mining Lease areas. However operators of coal blocks other than CIL and its subsidiaries are not permitted to carry out CBM extraction in their blocks.

The Coal Ministry has observed that coal blocks had been allocated to Government companies other than CIL, both for specified end-use and for mining in some cases in pursuance of Section 3 (3) (a) of Coal Mines Nationalization (CMN) Act. These blocks have limited reserves and the allocatee has to plan the mining operations based on the requirement of the end-use plant. Since the allocated area of reserves is small when compared to the area allocated to CIL, the fulfilment of coal requirement for the end-use project of allocatee could get delayed if the company is allowed to take up simultaneous extraction of CBM. Since the allocation of blocks was for specific end-use, the block holder would have to ensure that the entire requirement of the end-use project is made as per the fixed time frame.

As regards cases where Government companies had entered into JV agreements with private companies, where the equity share of the Government companies were more than 51%, the coal block had been allocated for a specific end-use and as per the CMN Act, the same cannot be used for any other purpose.

In view of the facts mentioned above granting rights to exploit CBM to other Government companies (other than CIL) has not been considered.

HELP is applicable to Oil and Gas operators for exploration and exploitation of all types of Hydrocarbon resources (Conventional and Unconventional both) in respect of blocks / fields awarded to them in future".

45. When asked whether Coal India has the vertical drilling technology in house, the official of Ministry of Coal submitted the following during the oral evidence:

"As you rightly pointed out, the advantage of directional drilling is always there. That is why ONGC is into the picture in all these CBM blocks where Coal India is associated. They are the technology leaders. In addition to the vertical wells, we also have horizontal wells inside the wells and that is where the mines are operating. We adopted the method with inclined drills and also horizontal drills for degasifying the seams earlier. Today, we are trying to harness it for commercial purposes. Where there are virgin seams, they are already utilizing the technology. That is why in the MOU which was signed in 1997, it was also mentioned that for the lower seams that is below 300 metre depth, the inclined wells and also directional wells can be used.

#### **L. Transportation of Gas**

46. When the Committee desired to know as to how is the CBM transported from these production areas and whether the infrastructure for transportation is developed in all the CBM blocks, the Ministry of Petroleum and Natural Gas has submitted the following in its written reply:

"CBM produced from these blocks are being sold off to customers in the vicinity of these producing blocks. In Jharia CBM block, CBM produced is being sold off by filling CBM in cascades and transported on trucks. In Raniganj East CBM block, contractor (Essar Oil Limited) has constructed pipelines from Gas Collecting Station/Gas Gathering Station to individual vendors. Similarly, operator of Raniganj South CBM Block – GEECL has built pipelines from its GCS/GGS to individual customers. Reliance Gas Pipeline Limited (RGPL), one of the subsidiary of RIL is laying around 300 KM of natural gas pipeline from Shahdol in Madhya Pradesh to Phulpur in Uttar Pradesh to transport gas from RIL's CBM blocks (Sohagpur East and West)".

47. Asked by the Committee as to which sectors are using the natural gas from the CBM blocks, the Ministry of Petroleum and Natural Gas has submitted the following in its written reply:

"The following sectors are mainly using natural gas from the CBM blocks:

- a. Iron and Steel (utilized for Energy purposes)
- b. Ceramic Industry ( As Energy Source)
- c. Transport industry (CBM is being converted to CNG and utilized for local transportation)
- d. Fertilizer industry (Methane is being used as Feedstock)
- e. Power generation (internally by the contractor)
- f. Chemical industry(utilized as feedstock and for Energy purposes)
- g. Food products (utilized for Energy purposes)".

48. When the Committee sought details of the plan of the Ministry for developing transportation infrastructure such as constructing pipelines in order to ensure holistic development of CBM, the Ministry in its written reply submitted the following:

- a. "In most of the CBM blocks in development phase, gas infrastructure to evacuate gas from the block is yet to be constructed. As on date there is no to pipeline to evacuate CBM produced from CBM Blocks-Jharia, Bokaro and North Karanpura. However, commercial production from these Blocks are yet to start.
- b. Petroleum and Natural Gas Regulatory Board (PNGRB) on July 11, 2013 has authorised RIL to lay the pipeline from Shahdol in Madhya Pradesh to Phulpur near Allahabad in Uttar Pradesh to transport CBM from RIL operated CBM blocks (Sohagpur East and West). The pipeline is nearing its completion and will be completed within 2016.
- c. Furthermore, MoPNG has expedited the proposed national pipeline network of 2539 km by GAIL (Jagdishpur-Phulpur-Haldia) connecting eastern India to the national gas grid to evacuate the CBM produced from the region. Phulpur-Haldia/Dharma pipeline undertaken by GAIL is to be completed in three phase. Phase-I(755 KM) –Phulpur-Dhobi(Gaya) with Varanasi, Gorakhpur, Barauni& Patna Spurlines are expected to be completed by December 2018.Phase-II(1201 km)- Dhobi-Sindhri&Bokaro-Ranchi-Angul-Dharma with Bhubaneswar, Paradip, Rourkela & Cutackspurlines & Phase-II(583 Km)- Sidhri-Hadia with Jamshedpur, kolkata and Durgapur Spurlines are expected to be completed by December 2019 and December 2020 respectively".

#### **M. Pricing of CBM Gas**

49. The information furnished by the Ministry about the pricing formula for the produced CBM natural gas is given below:

"The sale and pricing of Natural Gas from CBM blocks is defined under Article 18 of the CBM Contract. Relevant portion is given below.

**Article 18.1:** Subject to Article 18.2, the Indian Domestic market shall have the first call on the utilization of CBM pursuant to CBM Operations and produced from Field/Development Area. Accordingly, any proposal by the Contractor

relating to Commercial assessment and production of CBM from a field/Development Area shall be made in the context of the Government Policy for the utilization of CBM/Natural Gas. The Contractor shall have the freedom to sell CBM at Arm's Length Prices in the domestic market pursuant to this Article.

**Article 18.2:** Contractor shall have the right to use CBM produced from a Field/Development Area for the purpose of CBM operations including power generation for CBM Operations.

**Article 18.5: Valuation of CBM**

**Article 18.5.1:** The Contractor shall endeavour to sell all CBM produced and saved from the Field/Development Area of Arms-Length Prices to the benefit of Parties to the Contract.

**Article 18.5.2** Notwithstanding Article 18.5.1, CBM produced from the Field/Development Area shall be valued for the purpose of this contract as follows:

- (a) CBM which is used as per Article 18.2 or flared with the approval of the Government or re-invested shall be ascribed a zero value;
- (b) CBM which is sold to the Government or to the State Government(s) in lieu of either Production Level Payments (PLP) or Royalty shall be valued at the prices actually obtained; and
- (c) CBM which is sold or disposed of otherwise than in accordance with paragraphs (a) or (b) above shall be valued on the basis of competitive Arm's Length Sales in the region for similar sales under similar conditions.

**Article 18.6:** The formula or the basis on which the CBM prices shall be determined pursuant to Article 18.5.2 shall be approved by the Government prior to the sale of the CBM to consumers/ buyers within sixty (60) Business Days from the receipt of proposal or from the date of receipt of clarifications/additional information, where asked for by the Government. Such approval(s) from the Government shall be required to be obtained by the Contractor on one time basis prior to execution of such sale/purchase agreement(s) for the CBM and subsequent modification(s), if any, in this regard. For granting this approval, the Government shall take into account the prevailing policy, if any, on pricing of CBM including any linkages with traded liquid fuels, and it may delegate or assign this function to a regulatory authority as and when such an authority is in existence and in place".

50. The cost of production as reported by the operators is as below:

Operator	Block	Cost of production of a unit of CBM
GEECL	Raniganj South	Rs 21 / SCM (\$ 10.10/mmbtu)
RIL	SP (West)-CBM-2001/1	Commercial Production yet to start
	SP (East)-CBM-2001/1	Commercial Production yet to start
ESSAR	RG (East)-CBM- 2001/1	US\$ 3.12 / MMBtu
ONGC	Jharia	Commercial Production yet to start

"Cost of production is high in the initial stages of production as per well CBM productivity is low in the range of 5000 SCMD. As the number of producing wells increase in the block, the cost of producing CBM in a block decreases. The cost of production may be impacted by following factors:

- a. Water management facilities to treat produced water
- b. Land acquisition for acquiring land for drilling large number of wells
- c. Long distance of pipelines to be constructed to evacuate produced CBM
- d. Compression and Re-compression costs".

51. When the Committee pointed out that Essar is selling CBM gas at \$ 3.06 per MMBTU, while GECL is selling at \$ 10.45 per MMBTU and asked the Ministry to explain the pricing of CBM produced by different operators, the official of the Ministry of Petroleum submitted the following:

"Sir, original CBM contracts, each contract had provision that the price will be approved by the Government separately for each block. Initially different prices were approved for different CBM blocks. In 2014 when the gas pricing guidelines, then it covered also the CBM blocks".

Elaborating further:

"In 2014 gas pricing guidelines also covered the CBM blocks. We are reviewing the whole policy because CBM contracts, as mentioned, are not on the production sharing basis. They are basically revenue sharing contracts. It requires a large number of small wells to be drilled as against the conventional wells where a well produces a large quantity of gas. So, looking into all these things, we had stakeholder's consultation and we are reviewing the whole policy of CBM blocks, particularly pricing and marketing etc. That matter is under consideration of the Government and we hope, soon we will be able to come with a policy".

## **N. Issues in CBM Development**

52. Information received from Ministry of Petroleum regarding issues in CBM development is given below:

- i) **"Overlap Issues with Coal Blocks/ Oil/ Gas/ Other projects:**  
Coal Blocks were allocated overlapping existing CBM Blocks to different companies. There is another instance of an Airport Project has been permitted overlapping existing CBM block. Often this type of overlap has led to non-grant of PEL/PML for CBM Blocks by State Government. This has hampered progress of CBM development in India.

- ii) **Land Acquisition and Water handling problems:** Due to large number of required wells for efficient drainage of CBM, land acquisition challenges are severe. CBM Blocks in Jharkhand, Chhattisgarh and Madhya Pradesh are in remote and primarily tribal area & mostly falls in tribal land area. In addition, poor land record and multiple holding also increases the challenges of land acquisitions.  
CBM wells produce large volumes of water during the initial period to lower the pressure in the coal seams till the critical adsorption pressure and as the quantities of produced water decline the gas production increases. Cost to dispose of the produced water is a significant expense compared to that of conventional development due to the presence of high TDS and salinity.
- iii) **Grant of PML/PEL from State Govt.** Grant of PEL/PML (on recommendation of central Government) falls within jurisdiction of State Governments. This is sometimes delayed. Follow up from central Government/Operators become necessary for such grant.
- iv) **Grant of Statutory Clearances (CTE/CTO/EC):** Necessary statutory clearance viz. Environment clearances (from MoEF) and grant of Consent to establish (CTE)/ Consent to Operate (CTO) from State Governments are sometimes delayed. These delays also hamper CBM activities.
- v) **Gas Infrastructure:** CBM fields are distant and isolated. Integrated gas pipeline infrastructure is a critical issue. CBM Blocks in Jharkhand, Chhattisgarh and Madhya Pradesh are in remote and primarily tribal area and do not have any nearby industrial belt for local consumption of CBM".

#### **O. Role of Directorate General of Mines & Safety (DGMS)**

53. DGMS is entrusted with the safety of operations of CBM blocks. CBM Fields are regulated under Oil Mine Regulation (OMR) Act. Asked to furnish a note on the role of Directorate General of Mines & Safety (DGMS) in CBM, the DGMS in its written reply submitted the following:

"The exploitation of Coal Bed Methane and Oil & Natural Gas are under the administrative control of Ministry of Petroleum. It is governed by relevant laws like Oil Fields (Regulations and Development Act, 1948) and Petroleum and Natural Gas Rules, 1959 framed there under. The safety aspects of Coal Bed Methane are governed by the Oil Mines Regulation, 1984.

#### **Some Issues related to Safety**

Coal Bed Methane is available in the coalfields where extraction of coal is also carried out. The issue of simultaneous operations of Coal Bed Methane in the areas where Coal Mines are being operated bears have certain limitations. When coal mining activities and CBM operations are carried out simultaneously, it need to be ensured that coal mine operators are an active participant in CBM activities so that responsibilities vis-à-vis safety are shared by both.

DGMS already opined that there are no objections on simultaneous operations of Coal Bed Methane (CBM) and coal mining. However, there are possibilities of damage of gas wells due to blasting/caving/ subsidence of overlying strata, influx of inflammable gases, creation of explosive atmosphere in coal mines resulting in explosion/fires during simultaneous extraction of coal and CBM in the same vertical boundary by two different owners.

In India, though there is scope for simultaneous operations of CBM and coal exploitation, multiple ownership for simultaneous exploitation of CBM and other mineral is undesirable for the life and safety and health of the persons employed therein. The operation of exploration, exploitation and reclamation of mineral may be undertaken in sequence one after the other by different lessees so as to avoid danger of one operation getting transferred to the other.

In coal mines, where multi seam activities are in operation, pillars of different seams may not be exactly below each other. In such cases, it may not be possible to drill CBM wells accurately only through the pillars. It can be dealt if accurate information is available regarding location and dimension of the coal pillars are available or established by modern investigation methods like computer simulation of strata, etc.

Whenever there are situations for extraction of minerals i.e. CBM and Coal by more than one owner/company over the same leasehold area, prior safety audit is required in such cases.

Safe Operating Procedures (SOP) for each operation need to be developed based on assessments of risks".

54. When asked to explain how CBM will be extracted without mining of Coal as Coal mining may lead to Green house gas emissions which the country has agreed to reduce as signatory to COP21, the Official of the Ministry of Coal during the oral evidence submitted as under:

"..... I will clarify this to you. When I extract gas from virgin seams, we call it as Coal Bed Methane where there is no mining going on. When I am operating a coalmine and when I encounter gas emissions, then I am ventilating it into the atmosphere. When I use it for commercial extraction purpose, then the actual production and development of gas comes into the picture. Gas is anyway associated with the seams. We are already extracting as from virgin seams, Coal Bed Methane, without disturbing the seams, in the sense by means of putting either vertical wells or horizontal wells. There is a technology which we are practically using".

Elaborating further, the official added the following:

"..... the most important thing while extracting coal is safety. When gasification is there, there is a potential hazard of explosion inside the mines. Therefore, we

have to clear that gas either through good ventilation or by means of advanced porous to extract it from the face. Therefore, while extracting coal, we have to take all the measures to clear the working areas clear of gas. We call that as Coalmine Methane where already seams have been opened. Therefore, we are now planning to extract such available gas on commercial lines. When we are talking about extracting it on commercial lines, then all those rules of the Ministry of Petroleum and Natural Gas are applicable, and the DGH is the regulator for that one. The Ministry of Petroleum is the authority for permitting such acts. They have already given their consent".

55. When the Committee enquired as to whether there is any possibility of simultaneously extracting CBM from the deeper coal seams in the existing coal fields where coal production is going on, the Ministry of Petroleum and Natural Gas furnished the following in its written reply:

"Simultaneous extraction of coal and CBM from the same contract area is possible only if sufficient areal distances are maintained between coal mining and CBM operations. Mining of coal is done by open cast and underground mining. Surface mining of coal involves blasting the surface coal mines with the help of dynamites which may compromise the integrity of well tubulars and surface facilities of CBM operations and thus pose an imminent safety hazard.

Underground coal mining in the same area where CBM operations are taking place will pose similar safety issues as there is always a possibility of vertical inter-connectivity of coal seams through which CBM in the deeper depths may diffuse/escape into the upper coal seams thereby posing a serious health and safety hazard to the mining operations.

Following are the benefits if methane is drained from coal mines before mining operations:

- a. Enhance coal productivity because of less frequent downtime or production slowdowns caused by gas;
- b. Decrease fan operating costs because of reduced air requirements for methane dilution;
- c. Reduce shaft sizes and number of entries required in the mains,
- d. Increase tonnage extracted from a fixed-size reserve as a result of shifts of tonnage from development sections to production sections;
- e. Decrease dust concentrations due to reduction of velocities at the working face;
- f. Improve mine safety resulting from lower methane contents in the face, returns, gobs and bleeders;
- g. Reduce problems with water;
- h. Improve worker comfort through reduction of velocities in the working faces; and

- i. Provide miscellaneous other benefits. Other benefits, such as reduced dust concentration, improved safety, or improved worker comfort, are difficult to estimate; while they constitute a real and significant benefit.

It is therefore in the interest of safety that CBM operations precede coal mining operations in an area. However, in case the contract area is sufficiently large coal mining and CBM operations can be carried out simultaneously by keeping sufficient areal distance.

The MoC has shared a draft Co-development agreement between the coal miners and CBM Operators. Same is being examined in DGH in consultation with CBM Operators".

56. When the Committee sought to know the possibility of co-development of CBM and Coal by the operators having permission to extract CBM, the representative of Ministry of Petroleum and Natural Gas submitted the following during oral evidence:

"The second aspect is the issue of co-development agreement. As Hon. Chairman has rightly pointed out, while there are possibilities of doing co-development, there are also issues of concerns about safety. So, one group of some senior officers had gone and visited some areas and they had given a recommendation in this regard. Our joint team which has been constituted is also working out a co-development agreement. This work is also in progress. We expect to reach the culmination shortly.

In co-development, it is not only Coal India but some other entities are also given coal blocks. For example, SAIL has been given significant coal blocks where there is overlap with ONGC. Together they are trying to sort out the issues and arrive at a co-development agreement for that area".

57. When the Committee enquired as how would Unified License under Hydrocarbon Exploration Licensing Policy (HELP) promote exploration of CBM and when will the Ministry award the next round of blocks for CBM extraction, the Ministry of Petroleum and Natural Gas in its written reply submitted the following:

"The uniform licence under Hydrocarbon Exploration Licensing Policy (HELP) will enable the contractor to explore conventional as well as unconventional oil and gas resources including CBM, shale gas/oil, tight gas and gas hydrates under a single license. There will be no future separate round for bidding of CBM blocks. Under HELP, a licensee will have the right to extract conventional (crude oil and Natural Gas) and unconventional hydrocarbons (CBM, Shale Gas, Tight Oil, Gas Hydrates) from the same block/contract area. The work on Notice inviting offer (NIO), Bid evaluation Criteria (BEC) & Model Revenue Sharing Contract (MRSC) being undertaken by MoPNG in consultation with DGH".

58. On the issue of existing allottees of coal block being provided right to extract CBM from their mines the Ministry of Coal in their written reply stated as under:

“Section 3 (3) (a)(III) of CMN Act specifies the eligibility of taking up mining for a specific end-use. The coal block is allotted to a particular company for a particular end-use. If the company so allocated, is now allowed to take up extraction of CBM from the same area, the requirement of the end-use plant for coal may get delayed and the company may have to source the coal from somewhere else whereas the conditions of allocation of blocks specifically mentioned about the time-frame for development of the block and year-wise production vis-à-vis the projected requirement of End-User Plant (EUP). Since the allocation of block is for a specific purpose, the block holder cannot be allowed to diversify the purposes other than mining of coal for specific end-use. In view of the above, there is no plan to allow the existing allottees of coal blocks rights over CBM in their coal fields”.

**P. Recent initiatives to accelerate production and exploitation of Coal Bed Methane reserves in the country**

59. Enhancing CBM production is one of the priority areas identified by the Ministry to increase domestic gas production. Government is actively engaged in partnership of State Governments to remove impediments which hamper the development of CBM in the country such as getting statutory clearances, getting PEL/PML from the state governments and overlapping issues with coal bearing areas. During last one year, a series of efforts have been initiated to resolve these issues to expedite development of CBM blocks, as given below:

- i) "CBM activities are reviewed in the Ministry periodically. Committee of Secretaries also reviewed the same.
- ii) A Core Group comprising officials from MoPNG, MoC, DGH, ONGC, DGMS and SAIL has been constituted. The Core group deliberated on the issue of Co-development of CBM & Coal in the same area with a view to finalize the Co-development agreement between coal miner and CBM Operator to resolve the issue of overlapping.
- iii) Further, to increase the area under CBM exploration, Government has issued a notification in November, 2015, allowing CIL and its subsidiaries to explore and produce CBM from the coal mining lease areas held by them.
- iv) A group of Officers from CIL, DGH, MoC & MoPNG are working to frame modalities for exploitation of CBM by CIL.
- v) At the instance of this Ministry a CBM workshop was organized by “Petrofed” wherein, issues related to CBM production were deliberated and discussed by all stakeholders viz. DGH, CBM Operators and CIL”.

60. When the Committee enquired about the kind of mechanism available for coordination between Ministries of Petroleum and Natural Gas and Coal, the representative of Ministry of Coal during the oral evidence submitted the following to the Committee:

"About coordination between coal and Petroleum and Natural Gas Ministry, particularly for this issue, there is already, under a Joint Secretary, a Committee which looks into this. In fact, all the movements have taken place after the November, 2015 notification. It is because of due deliberation and shortly, as my colleague from the Petroleum Ministry said that, the orders will be there. The main emphasis on that was because of the reason that again going by the same thing, that for the same resource, two leases were not required procedurally. Sir, your suggestion is absolutely fine except for one small thing that when a third SPV comes then the lease in the name of the third party will become an issue. We do not want further complication in that. That was the only thing".

Elaborating further, the Ministry stated in written submission:

"At present we do not have any proposal to set-up a nodal agency for CBM exploration and evacuation. However, MoP&NG vide OM dated 22.12.2015 has constituted a core group under the chairmanship of Joint Secretary (Exp) comprising representatives of Ministry of Coal, SAIL,ONGC and DGMS. The core group will examine the possibility of simultaneous yet safe extraction of CBM as well as coal from the same block.

At present DGH coordinates amongst different agencies viz. MoP&NG, MoC, CMPDI, GSI and other various Stakeholders. In order to achieve better coordination DGH has constituted a CBM Group consisting of experienced and skilled officials of DGH with responsibility to coordinate actively with these agencies."

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**PART - II****OBSERVATIONS / RECOMMENDATIONS****Recommendation No. 1****Comprehensive Policy for Coal Bed Methane**

The Committee note that the Government had formulated Coal Bed Methane (CBM) policy in 1997 with an objective of commercial exploration of CBM in the country. Under this policy, CBM is explored and exploited under the provisions of Oil Fields (Regulation and Development) Act 1948 (ORD Act 1948) and Petroleum & Natural Gas Rules 1959 (P&NG Rules 1959), administered by the Ministry of Petroleum & Natural Gas (MoPNG). Following the policy, the MoPNG and the Ministry of Coal (MoC) entered into an MoU after which Directorate-General of Hydrocarbons (DGH), in close interaction with Ministry of Coal and Central Mine Planning & Design Institute Limited (CMPDIL), carved out potential CBM blocks. Four rounds of CBM bidding have been undertaken in the year of 2001, 2003, 2005 & 2008 resulting in award of 33 CBM Blocks covering 16,613 sq. km. The Committee note that current domestic production of CBM is only 1.07 MMSCMD in 2015-16 and expected to increase to 5.77 MMSCMD by 2017-18. The Committee find that many of the CBM blocks could not be brought under production either due to poor prospectivity or because of the overlap issues relating to multiple agencies and the problems of coordination.

The Committee feel that the policy pronounced in 1997 has not been able to achieve its objective of production of CBM to the promised potential in the country. In view of the newer techniques of assessment and exploration and drilling of CBM have significantly improved, the Committee, therefore, feel that there is need to formulate a new comprehensive CBM policy consistent with developments in regulatory regimes and also taking into account the performance of the existing policy. In Committee's view, the new policy should address the current lacuna in coordination among different agencies as well as issues such as simultaneous mining of coal and CBM, evacuation of CBM, use of

**CBM from existing coal mines, pricing of CBM, making available additional acreages for CBM exploration, etc. The Committee, therefore, recommend that the Government should bring out a revised and new CBM policy at the earliest after due consultations with various stakeholders.**

## Recommendation No. 2

### Reassessment of CBM

The Committee note that while formulating the strategy for CBM exploration and production, the information docket and data packages were prepared for very limited areas by Geological Survey of India (GSI). The computation was done primarily on empirical basis reconciling the same with meager data available on gas desorption. The assessment of the CBM was done in the nineties and on the basis of such data, the Directorate-General of Hydrocarbons (DGH), Central Mine Planning and Design Institute Limited (CMPDIL) and the Geological Survey of India (GSI) had undertaken a joint assessment exercise and had prognosticated 91.8 TCF of CBM in the Country. Using the same data 33 blocks were awarded for commercial extraction of CBM gas. After that no exercise to assess the new CBM potential in the country has been undertaken so far. The Committee feel that the previous assessment and prognostication needs review and there is an urgent need for reassessment of CBM availability in the country for better understanding of CBM potential. Out of the total 33 blocks awarded, only 4 blocks have reached to exploration phase and 4 have been relinquished and 14 are under relinquishment by the operators mostly on account of poor CBM potential. One reason for poor performance of CBM projects could be the offering of CBM blocks on the basis of inadequate prognostication data about CBM. The Committee observe that despite availability of huge coal reserves and associated CBM, the Government have not taken up the CBM exploration programme seriously. Moreover, the reassessment of CBM potential has not been included in 'Reassessment of Hydrocarbons Resources' exercise being undertaken by DGH. The Committee feel that there is an urgent need of better prognostication of CBM availability in the entire 56 thousand sq. km. area of Gondwana Basin and therefore, recommend that reassessment of CBM must be included in the ongoing hydrocarbon reassessment exercise of the DGH along with CMPDIL and GSI and necessary funds may be allotted for the purpose.

### **Recommendation No. 3**

#### **Task force for technology sourcing for CBM**

The Committee note that the technology needed for Coal mining from Coal blocks and for drilling of coal seams for evacuation of CBM are different. The drilling required in the CBM evacuation is directional in nature as the drilling has to follow coal seams which is similar to the kind of horizontal drilling used by the Oil PSUs for exploration and production of crude oil and natural gas. They however, feel that though the technology relating to CBM evacuation is available in the country, it is not being put to use particularly where simultaneous extraction of CBM in active coal mines is possible because of issues relating to coordination and overlapping of jurisdiction among the agencies concerned. The Committee note that ONGC, being the leader in exploration technology in crude oil and natural gas in the country, has the capability to fulfill such technical requirements whereas, the Coal India Limited (CIL) which has received permission to carry out CBM extraction in its Coal fields, lack such expertise, appropriate drilling technology is required for simultaneous extraction of CBM gas in active mines by Coal India which has large Coal blocks in its control and therefore, there is a need to look at the issue of technological requirement with regard to CBM. While CIL and ONGC can cooperate in drilling of Coal Bed seams for extraction of CBM in CIL Coal blocks for the present, the Committee recommend that an empowered task force with appropriate accountability be constituted so that appropriate technology can be decided upon by Coal India Limited (CIL) to carry out extraction of CBM at the earliest from its Coal blocks.

#### **Recommendation No. 4**

##### **Inter-Ministerial Coordination Mechanism for CBM**

The Committee note that the CBM extraction involves coordination among various agencies like Ministry of Coal, Directorate General of Mines and Safety (DGMS) in Ministry of Labour & Employment, Ministry of Environment and Forests for clearances, etc. The Committee also note that due to overlapping issues, many of the CBM blocks have been stuck for the last two decades. This indicates a serious lack of coordination mechanism among the different Ministries. However, during the last two years, there has been an improvement in coordination and MoPNG has constituted a core group on 22.12.2015 under the Chairmanship of Joint Secretary (Exploration) in the MoPNG comprising representatives of Ministry of Coal, SAIL, ONGC and DGMS. The Committee, however, feel that there is a need for institutionalized mechanism at higher level and therefore, recommend that an inter-ministerial Committee at Secretary level may be formed in order to resolve the issues between different agencies.

## **Recommendation No. 5**

### **Awarding of new and Relinquished CBM Blocks**

The Committee note that after formulation of CBM policy in 1997 and using the assessment data prepared by GSI in the late 1990s, four rounds of bidding for 33 CBM blocks were held in the year 2001, 2003, 2005, and 2008 were awarded. Out of these 33 blocks, four have been relinquished while eighteen more CBM blocks are under relinquishment. Of these, five are being relinquished on account of delay in obtaining statutory licenses while thirteen are being relinquished due to poor CBM prospects. In the existing policy, the allocation of block was done for a specific end use purpose and therefore, allottees of coal blocks are not allowed to explore CBM in their coalfields. The Committee also note that since 2008, no new blocks have been awarded and henceforth, the new blocks for CBM would be awarded under the new Hydrocarbon Exploration Licensing Policy (HELP), which will entitle right over all hydrocarbon resources existing in that block or contract area. The Committee feel that there is a need for awarding of new blocks and re-awarding the blocks relinquished due to delay in getting statutory clearances so that work can be started at the earliest. The Committee, therefore, recommend that Ministry may initiate action to award new CBM blocks in the remaining coal mining areas at the earliest under the HELP regime and also re-awarding of the 5 relinquished blocks.

## Recommendation No. 6

### Release of more areas for CBM mining

The Committee note that India has the fourth largest proven coal reserves in the world. After the assessment of CBM potential in the nineties and formulation of CBM policy in 1997, several potential CBM blocks were carved out and allotted to companies for development. The blocks which were identified for CBM development are Coal blocks where Coal mining was not envisaged for the next 15-20 years. The Committee further note that the country has a total of 52000 sq km area under Gondwana basin of which about 26000 sq km area was identified for CBM operations. However, in the four bidding rounds in 2001, 2003, 2005 and 2008, when 33 CBM blocks were awarded, they covered only 16600 sq km area. It means that about 9400 sq km area or about 35% of the originally identified area with CBM potential are yet to be released for CBM operations. Moreover, in the light of relinquishing of huge identified areas due to poor availability of CBM, it is evident that the prognostication done in 16600 sq. km. area was also not upto mark for the purpose of CBM availability. So far as the production of CBM is concerned, it was 0.625 MMSCMD in 2014-15 and is projected to go up to 5.77 MMSCMD in 2017-18. The Committee are sure that the projected production is much below the potential and expect the Ministry of Petroleum and Natural Gas to set higher targets. The Committee note that since late 1990s, no new area has been awarded for extraction of CBM in the country and feel that there is an urgent need to bring in more areas for CBM extraction. The Committee, therefore, recommend that MoPNG and MoC should jointly conduct this exercise and identify new areas that can be released for CBM extraction either on standalone or co-development basis.

## **Recommendation No. 7**

### **Formula for CBM Pricing**

The Committee note that Coal mining in the CBM blocks comes under the control of the Ministry of Coal and CBM being a natural gas, its pricing is determined in accordance with the guidelines of the Ministry of Petroleum and Natural Gas. The Committee also note that the prices of CBM were approved by the Government on a case to case basis. As per current data, the domestic CBM gas is being sold at US\$3.4/MMBTU (in Raniganj East) and at US\$15.5/MMBTU (in Raniganj South) and at US\$6.01/MMBTU from Jharia CBM block. However, pricing of CBM has been brought under Hydrocarbon Exploration Licensing Policy (HELP) formulated in 2014 where formula for arriving at the prices for natural gas including CBM is given. The Committee observe that under HELP, the current price of natural gas comes to around \$3.06 MMBTU which appears very low as compared to the prices of CBM being charged by the existing producers. The Committee, therefore, recommend that the Ministry should formulate a separate pricing and marketing mechanism for CBM keeping in mind the various variables in CBM operations such as availability of small volume of gas, number of drillings required due to low productivity, remote location, dewatering etc. and also to incentivize the CBM producers.

### **Recommendation No. 8**

#### **Developing Safety Guidelines/Standard Operating Procedures (SOP) for simultaneous CBM extraction**

The Committee note that as per existing practice, CBM is allowed to be extracted only from virgin coalfields. In the active coal mines, the methane gas is ventilated in the air as Coalmine Methane (CMM) which is a green house gas which not only damages the environment but also results in wastage of valuable natural gas which can be used more productively. The Committee note that the coal blocks which were identified in 1997 for CBM exploration, were awarded on the basis that there will be no mining of coal in those blocks for next 20 years. At present, both coal mining and CBM mining are being done separately. The Committee also note that simultaneous mining of coal and CBM is being done in other countries and it is possible in India also where sufficient areal distances are maintained between coal mining and CBM operations. Such a step will not only help achieve our commitments under COP-21 but also augment our natural gas production. The Committee further note that DGMS have opined that simultaneous operation of coal mines and extraction of CBM from the same mine may be undertaken after proper formulation of safety guidelines and development of standard operating procedures. The Committee, therefore, recommend that Ministry of P&NG may develop safety guidelines and Safe Operating Procedures (SOPs) for simultaneous production of coal and CBM at an early date after thorough consultations with all the stakeholders.

### **Recommendation No. 9**

#### **Grant of Timely clearance for CBM mining**

The Committee note that out of 18 CBM blocks relinquished by the operators out of total 33 allotted blocks, as many as five CBM blocks covering about 3868 sq km area were relinquished on account of delay in grant of statutory licenses. The Committee also note that a total of 30 clearances are required to be obtained by the companies which are awarded CBM blocks before they can start their operations. Out of the total of 30 clearances, 11 are granted by the Central Government or its agencies while the remaining 19 clearances are granted by the State governments or their agencies. The Committee further note that from exploration to production phase, average gestation period of a CBM block is 13 years assuming timely grant of clearances. The delay in granting of clearances adds to the time delay and cost of CBM extraction thereby further affecting the viability of CBM. The Committee, therefore, recommend that the Ministry may develop a mechanism to facilitate timely grant of clearances by taking state governments onboard in order to expedite the CBM operations in the country.

### **Recommendation No. 10**

#### **Allottees of coal blocks getting rights to CBM automatically**

The Committee note that as per the existing system of award of CBM blocks, there is scope for overlap between companies with one company having rights over coal while another company having rights over CBM. This situation is unsustainable and has given rise to delays and as a result, production has suffered. The Committee further note that the ONGC was given CBM blocks in Jharia and Raniganj on nomination basis in 1997 but the production in those two blocks could not start because of the overlap issues with the ECL, a private coal operator in that area. After the cancellation of Coal block by the Supreme Court, the coal block has now been given to SAIL and ONGC is hopeful of reaching an agreement with them soon to start the production. The Committee, therefore, feels that such situation occurs because of lack of clearance for simultaneous drilling of coal and CBM even though the same is possible. The Committee are disappointed that the Ministry of P&NG and Ministry of Coal have not sorted out the issue of overlapping during the last two decades and only in the last two years, there seems to be some forward movement. The Committee desire that the current licensing policy and the contract provisions should be amended to do away with separate requirement for an operator to apply for CBM extraction after obtaining license for coal mining and vice versa. The Committee recommend that Government may formulate a simple procedure to grant coal block allottees, if they so desire, rights for extraction of CBM under HELP.

**Recommendation No. 11****Developing infrastructure for evacuation of CBM**

The Committee note that the infrastructure required for developing the pipelines network to evacuate CBM is not available in the CBM fields located in remote areas. However, the Committee also note that Reliance Industries Limited (RIL) has been authorised to lay pipeline between Shahdol in Madhya Pradesh and Phulpur in Uttar Pradesh for transporting CBM from RIL operated CBM blocks. Some other pipelines by GAIL have also been approved by the MoPNG for CBM transportation. The Committee feel that since CBM production blocks are in remote areas and there is lack of infrastructure in those areas, CBM has to be productively utilized in the neighbouring areas. The Committee, therefore, recommend that the CBM produced in such areas where pipelines are not available, may be used in the neighbouring areas for promoting City Gas Distribution (CGD) projects or may also be sold to the industries located in those areas. The Committee further desire that the MoPNG/MoC should explore the possibility of gainfully using the water from the CBM wells due to dewatering after appropriate treatment.

New Delhi;  
August, 2016  
Shravana, 1938 (Saka)

**PRALHAD JOSHI,**  
*Chairperson,*  
*Standing Committee on*  
*Petroleum & Natural Gas.*

**Appendix I****Details of companies buying CBM gas along with price thereof.**

- (i) Jharia CBM Block: Gas is being sold to M/s. CC&L at the rate of USD 6.01/ MMBTU
- (ii) Raniganj (South) operated by GEECL [June 2016]

<b>CUSTOMER NAME</b>	<b>GAS SALES RATE (USD/MMBTU)</b>	<b>SECTOR</b>
Stollberg India Pvt Ltd	11.5025	Manufacture
Ranmak Works Pvt Ltd	9.5000	Manufacture
BST Infratech Ltd	7.4510	Manufacture
Baba Structural Pvt Ltd	7.4510	Manufacture
MP Plast	17.9068	Manufacture
Shree Balajee Glass Manufacturing Pvt. LTD.	13.6092	Manufacture
Metaflux Company Pvt Ltd	13.7378	Manufacture
VedehiCeremics Private Limited	12.9368	Manufacture
BRAHM (ALLOYS) PRIVATE LIMITED	10.2451	Manufacture
Maithan Ceramic Ltd.	10.7760	Manufacture
Sterile Extrusions Private Limited	11.8285	Manufacture
Baba Ispat Pvt Ltd	9.4535	Manufacture
Ruhr Ispat Pvt Ltd	9.0809	Manufacture
Super Smelters Limited	8.2050	Manufacture
Moreish	13.4304	Manufacture
Indian Oil Corporation Ltd	15.5837	Road Transport
Bharat Petroleum Corp Ltd	15.5837	Road Transport
Cash Sale CGS	15.5837	Road transport
Arti Bakery Pvt Ltd	9.2544	Manufacture
Arti Bakery Pvt Ltd	9.4598	Manufacture
Angel bakery Pvt Ltd	9.2544	Manufacture
Angel bakery Pvt Ltd	9.4598	Manufacture
Steel Authority of India Ltd. (Burnpur)	9.9335	Manufacture
Steel Authority of India Ltd. (Burnpur)	9.9335	Manufacture
Steel Authority of India Ltd (Kulti)	9.9335	Manufacture
Steel Authority of India Ltd (Kulti)	9.9335	Manufacture
Pitambar Food Product (P) Ltd	9.3004	Manufacture
Pitambar Food Product (P) Ltd	9.5089	Manufacture
Shyam Ferro Alloys Limited	10.1536	Manufacture

(iii) RG (East)-CBM-2001/I [Raniganj East] operated by EOL [June 2016]

<b>CUSTOMER NAME</b>	<b>GAS SALES RATE (USD/MMBTU)</b>	<b>SECTOR</b>
Mackeillspat& Forging Ltd	3.40	INDUSTRIAL
Graphite India Ltd	3.40	INDUSTRIAL
Bhagatjee Steels Pvt Ltd	3.40	INDUSTRIAL
RiteshTradfin Ltd	3.40	INDUSTRIAL
Philips Carbon Black Ltd	3.40	INDUSTRIAL
SriParasnath Re-Rolling Mills Ltd	3.40	INDUSTRIAL
SRMB srijan Limited	3.40	INDUSTRIAL
Adhunik Industries limited	3.40	INDUSTRIAL
Adhunik Corporation Limited	3.40	INDUSTRIAL
Shyam Steel Industries Ltd	3.40	INDUSTRIAL
Shyam Ferro Alloys Limited	3.40	INDUSTRIAL
Alloy Steels Plant	3.40	INDUSTRIAL
Durgapur Steel Plant	3.40	INDUSTRIAL
SPS STEELS ROLLING MILLS LTD.	3.40	INDUSTRIAL
C. P. Re- Rollers	3.40	INDUSTRIAL
Amit Metaliks Ltd	3.40	INDUSTRIAL
VSP Udyog Pvt Ltd	3.40	INDUSTRIAL
Alaknanda Sponge Iron Limited	3.40	INDUSTRIAL
ShivamMeletech Pvt Ltd	3.40	INDUSTRIAL
Brahm Alloys Ltd	3.40	INDUSTRIAL
Venky Hi- tech Ispat Ltd	3.40	INDUSTRIAL
Vaishnavilspat Ltd	3.40	INDUSTRIAL
Maha Gauri Strips Pvt Ltd	4.40	INDUSTRIAL
Matix Fertilizer and Chemicals Ltd	3.40	INDUSTRIAL

**MINUTES**  
**STANDING COMMITTEE ON PETROLEUM AND NATURAL GAS**  
**(2015-16)**  
**EIGHTEENTH SITTING**  
**(29.06.2016)**

The Committee sat on Wednesday, the 29 June, 2016 from 1130 hrs. to 1300 hrs. in Committee Room 'C', PHA, New Delhi.

**PRESENT**

**Shri Pralhad Joshi - Chairperson**

**MEMBERS**

**LOK SABHA**

- |    |                             |
|----|-----------------------------|
| 2  | Dr. Ravindra Babu Pandula   |
| 3  | Shri P.K. Biju              |
| 4  | Shri Elumalai V             |
| 5  | Dr. Thokchom Meinya         |
| 6  | Smt. Pratima Mondal         |
| 7  | Shri Arvind Sawant          |
| 8  | Dr. Bhola Singh (Begusarai) |
| 9  | Shri Rajesh Verma           |
| 10 | Shri Om Prakash Yadav       |
| 11 | Shri Laxmi Narayan Yadav    |

**RAJYA SABHA**

- |    |                          |
|----|--------------------------|
| 12 | Smt. Raneer Narah        |
| 13 | Shri Prabhat Jha         |
| 14 | Shri Bhubaneshwar Kalita |

**SECRETARIAT**

- |    |                    |                        |
|----|--------------------|------------------------|
| 1. | Shri A.K.Singh     | - Additional Secretary |
| 2. | Dr. Ram Raj Rai    | - Director             |
| 3. | Shri H.Ram Prakash | - Additional Director  |
| 4. | Shri Sujay Kumar   | - Under Secretary      |

**Representatives of the Ministry of Petroleum & Natural Gas**

- |   |                           |                        |
|---|---------------------------|------------------------|
| 1 | Shri Kapil Dev Tripathi   | - Secretary            |
| 2 | Shri Ajay Prakash Sawhney | - Additional Secretary |
| 3 | Shri Amar Nath            | - Joint Secretary      |
| 4 | Shri Alok Chandra         | - Advisor (IFD)        |

**Representatives of the Ministry of Coal**

- |   |                   |                      |
|---|-------------------|----------------------|
| 1 | Shri D. N. Prasad | - Advisor (Projects) |
|---|-------------------|----------------------|

### **Representatives of Public Sector Undertakings and other Organisations**

1	Shri Ved Prakash Mahawar	-	Director (Onshore), ONGC
2	Shri S. Mahapatra	-	Director (Exploration), OIL
3	Shri Mahendra Pratap	-	Dy. DG, DGH
4	Shri D.K. Rawat	-	Head Alternate Energy, DGH

2. At the outset, Hon'ble Chairperson welcomed Members of the Committee and officials of the Ministry of Petroleum and Natural Gas/ PSUs and Advisor (Projects) in the Ministry of Coal to the sitting of the Committee. Thereafter, the representative of the Ministry of P&NG briefed the Committee on the subject "Production of Coal Bed Methane" by a power point presentation.

3. During the course of discussion, Members sought clarifications on various issues relating to the subject such as comprehensive assessment of CBM potential, allocation of coal blocks for extraction of CBM, status of mining leases for CBM, relinquishment of CBM blocks due to poor CBM prospects or delay in environmental clearances, pricing policy of CBM gas, percentage of CBM in the total production of natural gas in the country, extraction of CBM gas from virgin coal fields as well as existing coal fields under mining, having jurisdiction of multiple agencies over various aspects of extraction of CBM gas and resultant coordination issues, royalties accruing out of CBM production, safety regulations for CBM extraction, etc. Further, issues like formulation of CBM policy, estimated CBM reserves, social and environmental impact of CBM extraction in the mining localities, CBM potential in the North-Eastern States, etc. also came up for discussion.

At the end of deliberations of the Committee, Hon'ble Chairperson directed the officials of the Ministry to furnish written replies to the questions of Members which remained unanswered during the sitting to the Secretariat within a fortnight.

4. A verbatim of the proceedings of the sitting has been kept in the records.

**The Committee then adjourned.**

**MINUTES**  
**STANDING COMMITTEE ON PETROLEUM AND NATURAL GAS**  
**(2015-16)**  
**NINETEENTH SITTING**  
**(13.07.2016)**

The Committee sat on Wednesday, the 13 July, 2016 from 1100 hrs. to 1250 hrs. in Committee Room 'D', PHA, New Delhi.

**PRESENT**

**Shri Pralhad Joshi - Chairperson**

**MEMBERS**

**LOK SABHA**

- |    |                             |
|----|-----------------------------|
| 2  | Dr. Ravindra Babu Pandula   |
| 3  | Shri P.K. Biju              |
| 4  | Shri Kalikesh N. Singh Deo  |
| 5  | Shri Elumalai V             |
| 6  | Dr. Thokchom Meinya         |
| 7  | Smt. Jayshreeben Patel      |
| 8  | Shri Arvind Sawant          |
| 9  | Dr. Bhola Singh (Begusarai) |
| 10 | Shri Ravneet Singh          |
| 11 | Shri Om Prakash Yadav       |
| 12 | Shri Laxmi Narayan Yadav    |
| 13 | Shri A.T. Nana patil        |

**RAJYA SABHA**

- |    |                          |
|----|--------------------------|
| 14 | Smt. Raneer Narah        |
| 15 | Shri Prabhat Jha         |
| 16 | Shri Bhubaneshwar Kalita |

**SECRETARIAT**

- |    |                    |                        |
|----|--------------------|------------------------|
| 1. | Shri A.K.Singh     | - Additional Secretary |
| 2. | Dr. Ram Raj Rai    | - Director             |
| 3. | Shri H.Ram Prakash | - Additional Director  |
| 4. | Shri Sujay Kumar   | - Under Secretary      |

**Representatives of the Ministry of Petroleum & Natural Gas**

- |   |                           |                        |
|---|---------------------------|------------------------|
| 1 | Shri Ajay Prakash Sawhney | - Additional Secretary |
| 2 | Shri Prashant Lokhande    | - Director             |
| 3 | Shri Malay Rudra          | - DGM, CC-5            |
| 4 | Shri Subhash Chand Bassi  | - Chief Geologist      |

### **Representatives of the Ministry of Labour & Employment**

- |   |                          |   |                                       |
|---|--------------------------|---|---------------------------------------|
| 1 | Shri Heera Lal Samariya  | - | Additional Secretary                  |
| 2 | Shri Partha Pratim Mitra | - | Principal Labour & Employment Advisor |
| 3 | Shri Rahul Guha          | - | Director General of Mines Safety      |

### **Representatives of the Ministry of Mines**

- |   |                   |   |                                   |
|---|-------------------|---|-----------------------------------|
| 1 | Shri K. Premchand | - | Deputy Director General (Geology) |
|---|-------------------|---|-----------------------------------|

### **Representatives of the Ministry of Coal**

- |   |                    |   |                    |
|---|--------------------|---|--------------------|
| 1 | Shri A.K. Dubey    | - | Special Secretary  |
| 2 | Shri D.N. Prasad   | - | Adviser (Projects) |
| 3 | Shri Peeyush Kumar | - | Director (Tech.)   |

### **Representatives of Public Sector Undertakings and other Organisations**

- |    |                             |   |                                     |
|----|-----------------------------|---|-------------------------------------|
| 1  | Shri Ved Prakash Mahawar    | - | Director (Onshore), ONGC            |
| 2  | Shri Anurag Gupta           | - | GM, DGH                             |
| 3  | Shri D.K. Rawat             | - | Head Alternate Energy, DGH          |
| 4  | Shri Abhay Sharma           | - | Coordinator-CBM, DGH                |
| 5  | Shri Ashwani                | - | Nodal Officer (CBM), DGH            |
| 6  | Shri Suthirtha Bhattacharya | - | Chairman, CIL                       |
| 7  | Shri Sekhar Saran           | - | CMD, CMPDIL                         |
| 8  | Shri N. Kumar               | - | Director (Tech.), CIL               |
| 9  | Shri T.K. Sinha             | - | GM (PMD), CIL                       |
| 10 | Shri A.K. Tripathi          | - | Chief Manager (Geology/CBM), CMPDIL |
| 11 | Shri Arunava Saha           | - | Sr. Manager (Geologist), CIL        |

2. At the outset, Hon'ble Chairperson welcomed Members of the Committee and officials of the Ministry of Petroleum and Natural Gas, Ministry of Coal, Ministry of Labour and Employment (DGMS), the Ministry of Mines (GSI) and the PSUs. The Chairperson highlighted Direction 55 to the witnesses regarding the need to keep the discussion confidential until a report is presented to Parliament. Thereafter, the representative of the Ministry of Coal briefed the Committee on the subject "Production of Coal Bed Methane" through a power point presentation.

3. During the course of discussion, Members sought clarifications on various issues relating to the subject such as total CBM bearing area, high number of clearances required for CBM extraction, measures for tackling safety as well as regulatory issues (requiring separate lease for mining CBM when the operators already have lease for

coal mining), developing standard safety protocol for simultaneous extraction of CBM with coal mining, technical aspects for drilling of CBM wells, coordination among different stakeholders in the CBM sector, assessment and reassessment of coal and CBM, etc came up for discussion. Further, the issues of including CBM in the reassessment of hydrocarbon resources exercise and bringing CBM blocks for auction under the Hydrocarbon Exploration Licensing Policy were also discussed by the Committee.

4. A verbatim of the proceedings of the sitting has been kept in the records.

**The Committee then adjourned.**

**MINUTES**  
**STANDING COMMITTEE ON PETROLEUM AND NATURAL GAS**  
**(2015-16)**  
**TWENTY SECOND SITTING**  
**(09.08.2016)**

The Committee sat on Tuesday, the 9 August, 2016 from 1500 hrs. to 1530 hrs. in Committee Room 'C', Parliament House Annexe, New Delhi.

**PRESENT**

**Shri Pralhad Joshi - Chairperson**

**MEMBERS**

**LOK SABHA**

- |    |                             |
|----|-----------------------------|
| 2  | Smt. Rama Devi              |
| 3  | Shri Elumalai V             |
| 4  | Shri Naranbhai Kachhadiya   |
| 5  | Dr. Thokchom Meinya         |
| 6  | Smt. Jayshreeben Patel      |
| 7  | Shri Arvind Sawant          |
| 8  | Dr. Bholu Singh (Begusarai) |
| 9  | Shri Om Prakash Yadav       |
| 10 | Shri Laxmi Narayan Yadav    |

**RAJYA SABHA**

- |    |                           |
|----|---------------------------|
| 11 | Shri Bhubaneshwar Kalita  |
| 12 | Shri Garikapati Mohan Rao |

**SECRETARIAT**

- |    |                     |   |                      |
|----|---------------------|---|----------------------|
| 1. | Shri A.K. Singh     | - | Additional Secretary |
| 2. | Dr. Ram Raj Rai     | - | Director             |
| 3. | Shri H. Ram Prakash | - | Additional Director  |
| 4. | Shri Sujay Kumar    | - | Under Secretary      |

2. At the outset, the Hon'ble Chairperson welcomed Members and introduced newly nominated Member to the sitting of the Committee. The Committee then took up for consideration the Draft Report on the subject 'Production of Coal Bed Methane (CBM)'. Members suggested minor changes in some of the recommendations and authorised the Chairperson to do the necessary changes in the Report.

3. The Committee then authorised the Chairperson to present/lay the Report in both the Houses of Parliament.

**The Committee then adjourned.**