

**A Report on
2nd program on Realising Hydrocarbon Vision 2030 for North East India
Held on 29th-30th November 2018 at Shillong**

The 2nd one and half day workshop on 'Realising Hydrocarbon Vision 2030 for North East India' was held at The Hotel Polo Towers, Shillong on 29th & 30th November 2018.

Inaugural Session: -



Lighting of Lamp during the 2nd Program on Realizing Hydrocarbon Vision 2030 for North East India



Dr R K Malhotra, Director General, FIPI delivering Welcome Address during the Inaugural Session

In the opening address **Dr R.K. Malhotra, Director General, FIPI** reiterated the key objective of North East Vision Document i.e. Leveraging Hydrocarbon sector for development of the region. He talked about the first programme organised by FIPI in 2017 at Kaziranga after the Vision document was released in 2016. He also mentioned that the second such programme organised by FIPI is to further review the progress and capture the challenges & constraints in the region. The major points discussed were the challenges faced by E&P companies to increase their exploration and production activities, supply of clean fuel, providing pipeline connectivity for LPG, Development of gas grid, generating employment etc.

There were three eminent Speakers in the opening session representing the major oil & gas companies operating in Assam.

1. **Shri Utpal Bora, Chairman & Managing Director -Oil India Ltd.**
2. **Shri S. K. Moitra, Director (Onshore) ONGC**
3. **Shri S. M. Vaidya, Executive Director IOCL**



Inaugural Session: (L to R) Mr T. K. Sengupta, Director (E&P) FIPI, Mr S. K. Moitra, Director (Onshore), ONGC, Mr Utpal Bora, CMD OIL and Mr. S. M. Vaidya, ED (Ops) IOCL

Shri S. M. Vaidya, Executive Director, IOCL in his opening speech reminded about the huge requirement of refinery by 2030 and the need of massive upgradation and use of natural gas in Refinery/power to have an optimised running of the refinery system.

While mentioning the NE vision related to downstream sector, he mentioned about the preparedness of refineries like Digboi, NRL, Guwahati & Bongaigaon for upgradation of the old refineries.

He also mentioned about the infrastructure upgradation for marketing of products like POL, Petrochemicals etc. He desired augmentation of the oil production by the upstream companies so that IOC can reduce the dependency on imported oil from outside for feeding the refineries located in Assam.

Shri S. K. Moitra, Director (Onshore), ONGC in his opening speech showed his aspiration of doubling the production from 4 MMT to 8 MMT, the target set in the vision document, by drawing analogy between reserve base of Assam & Rajasthan which is 450 MMT vs 251 MMT respectively. He mentioned that even Rajasthan with a lower reserve base is producing more than double production of Assam. So, there is no doubt that by induction of technology and removing small bottlenecks, North East can achieve the Vision targets.

He also requested his colleagues to convert challenges and constraints into opportunities by changing mind sets. He congratulated HOEC for introducing modular based structure for its onshore gas plant.

He opined that technology implementation can bring all the changes and requested FIPI to take up policy matters like Gas Marketing, pricing, Single window clearances etc.

In his inaugural speech **Sh. Utpal Bora, Chairman & Managing Director, Oil India Ltd.** mentioned that based on the recent reassessment of sedimentary basins reserve all over India, the potential is 42 billion tonnes of O+OEG & only

12 billion tonnes of O+OEG has been discovered. Out of 42 billion tonnes Assam Arakan basin holds 18% of it and out of 12 billion tonnes of discovered reserves A&A basin holds 16%. So there is a huge potential of yet to find reserve (YTF) in NE region.

He brought out the fact that the major challenges are in seismic imaging, lithology, drilling in fold belt areas.

He compared Assam Arakan basin with Cambay Basin and termed it as a Super basin in India. Lot of opportunity exists in developing the basin.

He mentioned that for all clearances onus is also with the operators. There is substantial improvement in local disturbances and all to work together to achieve the objective of vision document 2030.

Technical Sessions: -



Technical Session I: (L to R) Mr Pankaj Kakoti, CGM (G&R), OIL; Mr P Elango, MD, HOEC are the speakers; Mr P K Sharma, Director (Ops) OIL Chairing the session, Mr R L Sanga, Conservator of Forests, MOEF & CC, Mr R K Srivastava, GGM (G), ONGC are the speakers

1. Exploration, Production and Environment: -

In the beginning, Sh. P. K. Sharma Director (Operations) narrated his experience in OIL in E& P domain and informed how OIL is maintaining its production around 3 MMT for a long time from one major field and made turn around in production two times from a declining stage.

In 1980s while the production of OIL was going down, due to improved logging technology OIL found reserves in deeper sands and also identified

thinner sands and thus could ramp up the production by more than 1 MMT and maintained 3 MMT production. Again in 1990s while production was going down, new discoveries in the adjoining area has helped to boost up the production.

With the discovery & development in Arunachal Pradesh, he believed OIL will be able to maintain the production rate at the same level. He believed that it's a combination of technology, idea generation and timely implementation of remedial measures. He also brought out the challenges in subsurface imaging in Mizoram & Tripura belt. This is a technological challenge and needs a solution as lot many prospects are lying in those areas.

- a) The first speaker in the session was **Shri Pankaj Kr. Kakoty CGM (G&R) OIL**. He reiterated the same view as of CMD OIL in the opportunity & potential in A&A basin. His presentation was on Exploration & Production potential of North East with emphasis on OIL's perspective. He presented about the details of acreage of OIL in A&A Basin and the details of structures & tectonics, stratigraphy, prognostic resources, established plays etc. He mentioned that OIL has extensive experience working in Upper Assam Basin especially in established plays viz., Eocene, Barail, Tipam and Girujan and having knowledge on the nature of the reservoirs; He also emphasised about the exploration strategies based on their learning.

He mentioned about the challenges prevailing in the basin particularly in the thrust fold belt areas which are mainly Geological Complexities, Deeper targets, Logistically difficult terrain, seismic imaging issues, Limited working window, Availability of land and statutory clearances (forest/wild life/other restricted areas) etc. He opined that a focus effort both in terms of technology and R&D by all stakeholders coupled with refinement of policies will ease the exploration activities in such areas.

- b) The second speaker of the session was **Shri P. Elango CEO of HOEC**. He started his speech with the developments made in the last one-year i.e. between last meeting at Kaziranga and this meeting at Shillong. He brought out the fact that HELP & OALP has been implemented and 19 blocks have been awarded in North East. After DSF-I, DSF -II is in progress and two rounds of road shows have been completed. In Mid-stream North East Gas grid has been launched, CGD is going on in full swing. He brought out the challenges i.e. environmental, limited weather window, land acquisition etc. He also mentioned that the experience gained during development of DIROK field by HOEC will be of immense value addition to them. The approach of handling Internal as well as external issues by doing boundary management, the modular plant technology brought for the first time in onshore Assam which cuts down the cost significantly has helped the company a lot. While analysing different clearances he mentioned that though environmental clearances are quite streamlined, the forest clearances are complicated and similar to open cast mining. This issue must be looked into by the relevant authorities.
- c) The third speaker of the session was **Shri R. K. Srivastava, Executive Director, ONGC**, who is currently head of E&D division of ONGC. He presented on "Hydrocarbon Exploration Potential & Future Development Plans of ONGC in North East".

In his presentation he started with few thought provoking questions to know “where we are and whither we tending”;

- Reduced Acreages,
- Policy Changes: New Game, New Rules-
- Reducing no of Discoveries
- Successes smaller, per well accretion reducing.

He presented the details of Assam Arakan basin, its basinal area, the geographical spread, the prognosticated resources. For ONGC its subdivided into Upper Assam North, Upper Assam South, Cachar & Tripura. In exploration strategy & future plans he targeted potential new & emerging plays like Assam Shelf basement, Kopili, Tura & Sylhet and in AAFB Miocene Bhuban and Bokabil plays, potential new frontiers like Nagaland, New areas in fold belt Tripura, Manipur & Cachar, Kapili valley & North Bank and Matured Plays field growth like exploration for established plays like Tipam, Barails in Assam shelf, Bokabil, Barails in Upper Assam South.

He also mentioned that due to difficult terrain and complexities different surveys with new technologies like AGG surveys, Thermal Geo Tomography have been implemented. New technologies implemented for logging, for recovery enhancement etc.

- d) The fourth speaker was **Shri R. L. Sanga, Conservator of Forests, Ministry of Environment, Forest & climate change, Govt of India at Shillong, Meghalaya**. His topic was Issues on Environmental & Forest Clearances. He presented on constitutional provisions, Forest and Environmental legislations, different forest conservation acts, different rules & regulations pertains to environmental clearances.

He mentioned that the oil companies generally linked up forest clearances, wild life clearances with environmental clearances and see it in the same basket. There should be a clarity on this and its important to have thorough knowledge of the different rules & regulations of the regulating authority and ensuring adherence to the same while applying for environmental clearances.

He stressed upon that application for environmental clearance at the planning stage of the project in order to avoid unnecessary delay.

He suggested that following measures to be undertaken by the Oil & Gas companies for a speedy disposal of FC clearance under FC clearance act:

- Strengthening of concerned section dealing with Forest Clearance.
- Better liaison with GIS technician (Shape/kml file issue, GPS data, etc).

- Better liaison between user agency and respective State Forest Department/State Govt.
- State Govt/User agency should be updated with recent guidelines/ rules framed by Central Govt.

Issues:

The following important issues emerged during the discussion/deliberations held in the above session:

1. **Though there are enough opportunities and huge potential of yet to find reserves, the major challenges are in seismic imaging, lithology, drilling in fold belt areas.**
2. **Subsurface imaging in Mizoram & Tripura Belt-technology challenges**
3. **Geological complexities**
4. **Deeper targets**
5. **Logistically difficult terrains**
6. **Clearance in land, environmental clearance. Forest clearances etc. Forest clearances are complicated and similar to open cost mining-need relook**
7. **Availability of land and statutory clearances (forest/wildlife/other restricted area)**
8. **Limited working window**

Solution:

Focussed effort by all stakeholder both in terms & technology and R&D coupled with refinement of policies will ease exploration activities in such areas.

2. Refining, Petrochemical, Marketing, Pipeline and Gas



Technical Session 2: (L to R) Mr Santanu Bhar, DGM (TS) IOCL making the presentation; Mr N K Bansal, Director (OR&M) FIPI and Mr S M Vaidya, Executive Director (Ops) IOCL were the Co-chair and Chairman of the session, Mr Prantik Sharma, CM (Mktg) BCPL and Mr Rupam Goswami Chief Manager (TS, E&E) NRL were the speakers

a) Refining

i) Capacity Expansion Projects

NE region has four operating refineries with total 7.0 million MT per annum (MMTPA) capacity. Refineries have processed approximately 6.9 MMTPA crude in 2017-18. Refineries are receiving approx. 4.2 MMTPA crude from Assam fields of OIL and ONGC and balance imported crude (for Bongaigaon and Guwahati

Refineries) from Barauni by reverse pumping in OIL pipeline and Rail respectively.

(All figures in MMTPA)

Refinery	Capacity	Processing during 2017-18	Capacity envisaged in NE Vision 2030
Indian Oil			
- Bongaigaon Refinery (BGR)	2.35	2.40	4.50
- Guwahati Refinery (GR)	1.00	1.02	1.70
- Digboi Refinery (AOD – DR)	0.65	0.67	0.65
Numaligarh Refineries Ltd. (NRL)	3.00	2.81	9.00
Total	7.00	6.90	15.85

Inadequate availability of Assam crude is adversely impacting the capacity utilisation of NE refineries.

Indian Oil (IOC) and NRL have initiated the actions to expand their refining capacities. NRL is laying a 1400 km. crude oil pipeline from Paradip Port in Odisha using IOC SPM to receive the crude, to Numaligarh via Siliguri BGR and GR at the cost of Rs 5000/ cr. to transport imported crude to BGR, GR and NRL. A storage terminal of NRL will also be added at Paradip Port. A tripartite MOU has been signed and route survey has been completed.

Reverse pumping to Guwahati is expected to start by March 2019. Augmentation of OIL pipeline from Barauni to BGR for reverse pumping of 3.0 MMTPA crude (current 2.0 MMTPA) will be completed by early 2020.

Pre project activities like configuration studies, EIA for EC, site preparation etc. have started. CCEA approval is awaited for NRL project. Capacity expansion project expected to be completed by 2024 when crude pipeline from Paradip is expected to be available.

ii) Technological Upgradation Projects

NE refineries are also revamping their configuration to produce BS VI fuels as per BIS specs. by end-2019. Beside, IOC is also adding CRU in GR and Indmax in BGR which will improve LPG availability in NE along with overall profitability. These projects are expected to be completed by early 2022 and Nov. 2019 respectively.

iii) Assam Bio-Refinery

NRL is also implementing a bio-refinery project to produce ethanol from bamboo. EC clearance for this project has been obtained. A company 'Assam Bio-Refinery Pvt. Ltd.' has been incorporated on 4th June 2018 after the JV agreement is signed on 25th April 2018 between NRL, M/s Fortum 3BV, Netherlands and M/s Chempolis Oy, Finland. EPCM awarded with mech. completion by January 2021.

iv) Issues

Due to non-availability of adequate quantity of crude oil from NE fields currently and in near future, Refineries in NE will continue to face lower capacity utilisation. Refineries accordingly planning for capacity sustenance with imported crude oil.

GR, surrounded by hills does not have sufficient land for capacity expansion and technology projects. Approvals from the State authorities are necessary for developing land by cutting hills which involves considerable cost also.

Guwahati Refinery has considered for installation a boiler based on pet coke firing (CFBC boiler). This is to create alternate disposal of pet coke in case of low market demand and thereby ensure uninterrupted run of refinery. Construction of the boiler is held due to Environment And Forest Department of Assam Government in July 2018 issued orders prohibiting use of pet coke as fuel in District Kamrup. In Aug' 18, GR also received a notice from PCBA directing to stop the activities related to CFBC boiler project.

b) Pipelines

i) Crude Oil Pipelines

Status of Paradip-NRL and Barauni – BGR crude pipelines has been given in the above section on '**Refining**'.

ii) Product Pipelines

Out of five proposed projects related to white oil product pipelines (including Indo—Bangla Friendship Pipeline), NRL will execute four of them and are related to post expansion evacuation of products scenario. IOCL is considering one project for Guwahati-Lumbding-Silchar-Imphal project for MS/HSD/SK/ATF.

IOCL is also carrying out technical feasibility study for Numaligarh -Dimapur-Imphal LPG Pipeline.

- **Indo- Bangla Friendship Pipeline (IBFPL)**

This 10 inch dia. 129.5 km. long product pipeline with 1.0 MMTPA (HSD) capacity will connect NRL's Siliguri terminal to Parbatipur terminal in Bangladesh. NRL will execute only 5.16 km. stretch in India and rest will be financed and constructed through MEA using their resources. MEA has approved grant of 285.24 cr. to fund Bangladesh portion. EIA for NRL portion is in progress. EIL has been given EPCM Consultancy service contract. Design and engineering of Pipeline system in progress.

- **Other Proposed Product Pipelines**

Proposed POL Pipeline	Owner /executor	Length (Km)	Latest Status
Numaligarh – Siliguri Expansion (6 MMTPA)	NRL	654	DFR & Route Survey completed
Numaligarh – Dimapur -Imphal	NRL	304	Feasibility Study planned. Extending up to Moreh is being examined. Alternate is that pipeline can join proposed Guwahati-Lumbding – Silchar-Imphal line of IOC at Lumbding and then extend to Moreh
Numaligarh- Gohpur- Itanagar (0.5 MMTPA)	NRL	54	Feasibility Report prepared for the Numaligarh -Gohpur section (32 km.) as it is more feasible to have terminal at Gohpur and supply to Itanagar by Road.
Guwahati-Lumding- Silchar-Imphal (1.2MTPA)	IOCL	610	Detail engineering survey is in progress. Applied for VGF.

Multiproduct Pipeline projects in NE, beside environmental and forest approvals, will encounter technical design problem matching with relatively low product demand and undulating /hilly terrain. Some pipelines may not be feasible up to the last mile-stone due to the reason of appropriate batch length.

c) Infrastructure

i) LPG Storage & Bottling Capacity Expansion

IOCL has already completed the additional storage capacity projects of 3300 MMT at North Guwahati, Silchar, Sekmai and Dimapur LPG BP. Beside this 180000 MTPA BP added at Gopanari, Silchar and Bongaigaon BP.

BP capacity of about 150000 MTPA is being added by augmenting the capacity at North Guwahati (120-180 TMTPA) and new BPs at Bodhjungnagar (60 TMTPA), Barapani (30 TMTPA). These projects are in the various stage of implementation. North Guwahati project will be completed by December 2018 and BP at Bodhjungnagar is expected to completed by September 2019. Environmental clearance for Barapani is expected by February 2019.

ii) Proposed and on-going major POL Infrastructure by IOCL:

Proposed POL Infrastructure	Status
Additional POL tankages at Betkuchi. No of Tanks: 9 tanks to 12 tanks 3 new Tanks: one for MS & two for HSD	EC expected by Jan 2019 and facilities commissioning target is 36 months from EC.
New POL tankage at Monairband, Silchar No. of tanks: 8 nos of new tanks (MS, HSD, SKO & ATF)	65% complete, Mechanical Completion by June'19
Rail receipt facilities at Imphal, Manipur	Land acquisition in progress. Will come after 2020-21 after Rail head commissioning.
Rail receipt facilities at Doimukh, Arunachal Pradesh	85% completed, Exp Commissioning by Jan'2019
ATF handling facilities at Lumding terminal, Assam	95% completed, Exp commission by Dec'18.
Revamping of facilities POL Depot at Dimapur, Nagaland. 2 nos new tanks: MS & HSD	Layout plan with additional Tankage has been finalised. Tankage has been finalised. Board approval expected by Mar'19.

d) North East Gas Grid (NEGG)



Technical Session 3: (L to R) Mr Jayanta Hazarika GM, Pipelines, OIL making the presentation; Mr Randhir Kumar DGM (P) IOCL and Dr Deben Buragohain, CEO IGGL were the Speakers and Mr A K Bhattacharya Sr. CGM, NRL was Chairing the session

i) Overview

The natural gas grid in North east is planned to connect with upcoming Barauni-Guwahati natural gas pipeline as a part of Urja-Ganga scheme. The grid would also connect to sustainable and viable gas sources in North-east.

As per the plan on the Vision Document, The Gas Grid Project connects eight North- Eastern States; Assam, Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Nagaland,

Tripura and Sikkim, to the National Gas Grid through Barauni-Guwahati Gas Pipeline. From Guwahati, the pipeline extends to Numaligarh, Dimapur, Kohima and Imphal in one direction; Shillong, Silchar, Aizawl and Agartala in the second direction and to Itanagar in the third direction. Gangtok gets connected to Siliguri from the gas pipeline coming from Barauni to Guwahati.

ii) Project Features

The total length of NEGG is 1656 KM with trunk line of 1453 KM; spur line 33 KM and Feederliner connecting 9 indigenous sources (7 in Assam and 2 in Tripura) in NE 170 KM. Pipeline throughput is expected at 4.75 MMSCMD although achievable capacity will be 16 MMSCMD. In addition to this, receipt and dispatch terminal with compressor station will also be provided along with Grid route.

Affordability Study by IGGL indicate \$11/MMBTU price at the customer end represent the most realistic demand scenario to achieve this IGGL must get 60% VGF on capex and 440% subsidy on RLNG cost in line with domestic gas in NE. With these concessions landed price of RLNG at Guwahati will be \$8/MMBTU with \$2.97/MMBTU Grid tariff.

iii) Issues

In order to initiate the pipeline laying work, fast-track forest and NHA clearances are essential. Govt. should also expedite the approvals for investments and grant of 60% VGF and other incentives. PNGRB has already granted the provisional approval to develop this Grid across all the States of NE on nomination's basis.

e) Petrochemicals

BCPL is capable of producing 220000 of LLDPE/HDPE and 60000 Tonnes of polypropylene per annum. Besides small quantities of pyro, gasoline and fuel oil. However, BCPL's market share is 15% in polyethylene and 85% in polypropylene in NE.

BCPL express that rising income of middle class promotion of industry through Govt. initiative have potential to increase polymer consumption in NE. However, at present most of the plastic industry located in Assam mostly around Guwahati and some around Tinsukia. NE states should develop polymer plastic parks to promote the development of plastic wares and more consumption of these polymers from local production sources.

Valedictory Session:-



Valedictory Session: (L to R) Dr R K Malhotra, Director General, FIPI, Moderator; Mr P K Sharma, Director (Ops) OIL; Mr A K Bhattacharya, Sr CGM, NRL and Mr S M Vaidya, ED, IOCL were the panellists.

In the Valedictory Session of the program Shri P. K. Sharma, Director (Operations), OIL, Shri S M Vaidya, Executive Director, IOCL and Shri Apurba Kr Bhattacharya, Sr. CGM, NRL participated as panellists. The session was moderated by Dr. R. K. Malhotra, DG, FIPI. The panel speakers gave summary and Key Takeaways from the sessions on Upstream, Midstream and Downstream held during the

program. They also presented the overall opportunities available in NE Region, the challenges faced by the industries and the possible remedial measures and viable solutions to make the vision 2030 feasible.

In the end, session was opened to delegates for their views/suggestions/comments etc. & different ideas for improvement. Shri T.K. Sengupta, Director (E&P) FIPI mentioned that in future programmes representatives from service industry also need be roped in to share their views as they are the main service provider to make the vision 2030 feasible. He also opined that as ONGC & OIL is working in the same basin, they can jointly work on common areas of technical challenges to achieve a common solution and also share their technical strength & weakness generated in handling the problems.

Dr R K Malhotra, Director General FIPI thanked everyone for their participation and also announced that the next program in the series will be held in September 2019 at Gangtok.

The vote of thanks was given by Shri N.K. Bansal Director (Refinery & Marketing) FIPI.

The program was a grand success.



Group Photograph of the participants of the NE Vision 2030 program