

Alternate Route Analysis through Forest Land

Short narrative of the proposal:

The Block AAP-ON-94/1 (mining lease area 110 sq. km) is located in Tinsukia district of Assam. The Joint Venture (JV) Consortium of the Block comprises of **Hindustan Oil Exploration Company Limited (HOEC)**, Oil India Limited (OIL) and Indian Oil Corporation Ltd (IOCL). HOEC is the Operator and Oil India Limited is the Licensee of the Block. Based on the Dirok Discovery and subsequent drilling of appraisal wells in the Block, which produced hydrocarbon from multiple sands from Girujan Formation; the Ministry of Petroleum and Natural Gas (MoPNG) has approved the Dirok discovery as commercial. Based on the Declaration of Commerciality (DoC) report,

Proposed Activity of the Project:

The consortium now planned the following activities:

- Existing three wells (Dirok 1, Dirok 2 and Dirok 4) will be put on production
- Three new development wells (Dirok 5, 6, 7) will be drilled and completed as producer wells
- Setting up of Gas Gathering Station (GGS) within the premises of existing Dirok 4 well site.
- Setting up of Gas Processing Plant (GPP) at Bor Powai.
- Pipeline from Dirok GGS to Bor Powai GPP to evacuate gas from Dirok field.
- Gas Pipeline from Bor Powai GPP to existing OIL operated GGS at Kusijan.
- Pipeline from Bor Powai GPP to existing IOCL refinery at Digboi for oil condensate.

Out of all this activities, a section of gas pipeline from Bor Powai GPP to existing OIL operated Kusijan GGS passes through Forest land of Digboi R.F. and Upper Dehing (West Block) R.F.

During planning of the project, footprint of the project on forest had been duly considered and reduced to the maximum possible limit. A comparative representation of footprint of the Project on Forest as well as no forest land has been provided in the following table.

Project Aspects	Project Footprint Within Non forest Area	Project Footprint Within Forest Area
Length of Pipeline	26.15 Km	8.074km
Total Requirement of Land for the pipeline stretch	13.613 ha	4.8444 Ha

Justification for using forest land:

OIL operated Kusijan gas gathering station (GGS) is buyer's Off-take Point for gas processed at HOEC gas processing plant (GPP) planned at Bor Powai near Digboi.

As Kusijan GGS is located within Upper Dehing (west block) reserve forest, avoiding laying pipeline through forest land is absolutely un avoidable. Three right of way (ROW) were analysed for laying underground pipeline from Bor Powai GPP to Kusijan GGS. Details of both of the ROW are provided below.

ROW Alternative 1

A pipeline ROW was considered, which will pass from Bor Powai to Digboi along the ROU of NH 38, then along the ROU of Digboi – Duliajan road and will enter Kusijan GGS through the ROU of approach road of Kusijan GGS from Digboi – Duliajan road. Total length of this pipeline would have been close to 14 km. About 1.8 km of the pipeline will pass through forest land, before entering Kusijan GGS.

Densely populated settlement of Digboi comes within this ROW. Apart from that some schools, hospitals and railway line are also present within this route.

ROW Alternative 2

An 8.5km pipeline ROW was considered from Bor Powai GPP to Kusijan GGS. After exiting the GPP the pipeline pass through agricultural land and tea garden for about 4km and then it enters forest land near Golai village. About 4.5 km of this pipeline passes through Digboi R.F. and Upper Dehing (west block) R.F. before entering Kusijan GGS.

No settlement are located along this ROW and this is the shortest possible pipeline route from BorPowai GPP to Kusijan GGS. But 4.5km of the pipeline section passing through the Digboi Reserve forest and Upper Dehing Reserve Forest (West Block) would result in fragmentation of forest that may lead to some adverse effects like:

- Pipeline through virgin natural forest will lead to felling of old mature trees.
- Fragmentation of top canopy may lead to isolation of arboreal species population like Hoolock Gibbon.
- Pipeline through the middle of the forest may open up access routes deep inside the

forest that may lead to encroachment inside the forest, illegal felling of trees and poaching.

ROW Alternative 3

Another alternate pipeline was considered along the edge of the forest. The total length of the pipeline in this case is around 12.0km. Here also the pipeline after exiting Bor Powai GPP passes through agricultural land and tea garden for about 4km and then it enters forest land near Golai village. Then after entering the forest, instead of passing through deep dense virgin forest, passes along the edge of the forest for about 8.074km before entering the Kusijan GGS.

Following are the advantages of this pipeline:

- Fringes of forest lands are highly disturbed due to anthropogenic pressure and density of mature tree is very low. So passing pipeline along the edge of the forest will reduce the number of mature tree felling.
- There are no settlement along this ROW and densely populated Digboi town will also be avoided.

Selection of the Alignment

Alternate 1 would have avoided entering into deep forest and tree cutting but densely populated settlement of Digboi comes within this ROW. Keeping under consideration safety of people living in Digboi town and settlement, school, hospitals along Digboi – Duliajan road this pipeline was considered not suitable from a safety perspective.

Alternate 2 would have been the shortest pipeline and would have avoided human settlement of Digboi by passing through deep forest. But by fragmenting Virgin forest this pipeline route may compromise the long ecological stability of the forest and may possess threat to wildlife. As a result, this pipeline route was considered not suitable from an ecological perspective.

A longer portion of alternate 3 (8.074km) is passing through forest when compared to Alternate 2 (4.5km) and Alternate 1 (1.8), but as the pipeline is passing through the fringe of the forest, it is avoiding virgin forest from being fragmented. Also this pipeline will reduce impact in pristine deep forest by passing through already disturbed fringe region. Moreover, laying this pipeline through the edge of the forest will avoid densely populated human settlement of Digboi. Keeping under consideration safety of people living in Digboi town and settlement along Digboi – Duliajan road and long term Ecological viability of pristine rainforest **ROW Alternate 3** was selected over ROW Alternate 1 and ROW Alternate 2.

Planned Measures to Reduce Impact of Pipeline

- ROU of pipeline within reserve forest will be reduced from 10m to 6m.
- Pipeline ROU in reserve forest is aligned in a way to reduce tree cutting.
- Support of wildlife expert and forest department will be taken, to plan and build appropriate structures such as tree ladder, to prevent habitat fragmentation of hoolock gibbon.

Figure 1: Alternative Pipeline Alignments for Dirok Development Project



