



सत्यमेव जयते

Ministry of Petroleum & Natural Gas  
Government of India



**DIRECTORATE GENERAL OF HYDROCARBONS**  
(Ministry of Petroleum & Natural Gas, Government of India)



# Hydrocarbon potential of blocks on offer under OALP, DSF and CBM bid rounds

**Investor Meet, Mumbai**  
**29<sup>th</sup> April, 2022**

*Dr. C Laxma Reddy*  
*ADG (Exploration)*  
*Directorate General of Hydrocarbons*



# Outline

**1**

**Indian Sedimentary Basins - Overview**

**2**

**Overview of OALP Regime**

**3**

**Blocks on offer under DSF-III bid round**

**4**

**Blocks on offer under CBM bid round**

**5**

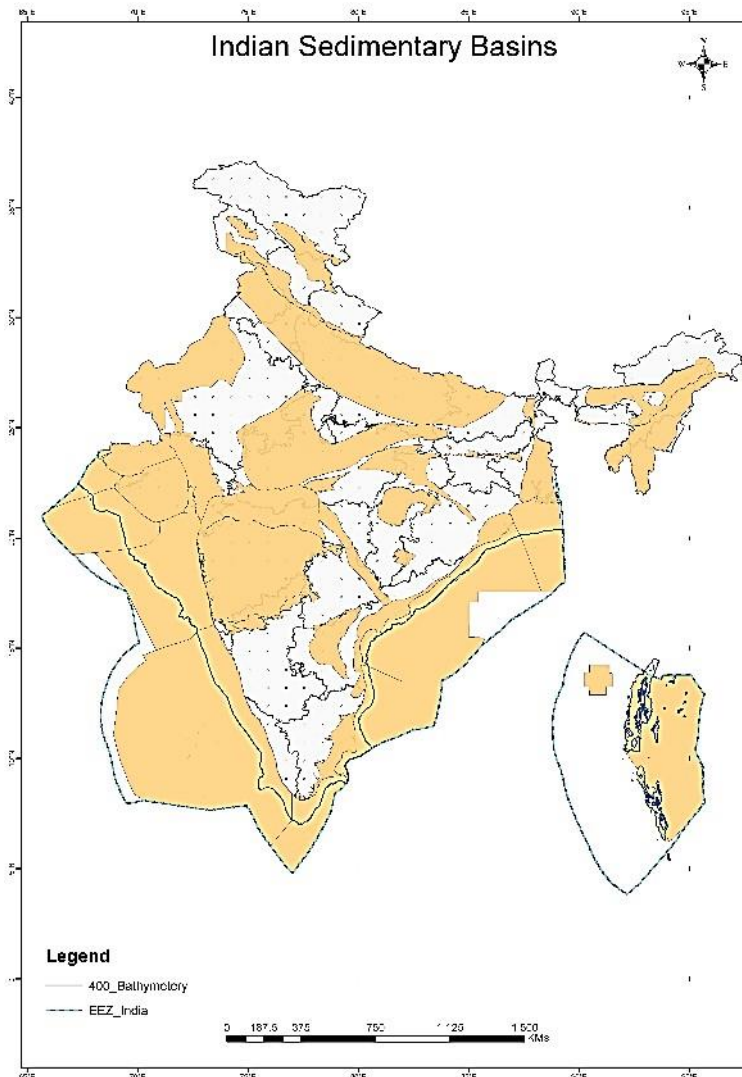
**Data Availability of blocks on offer**

**6**

**Overview of Bidding Process**



# Sedimentary Basins: Geographical area

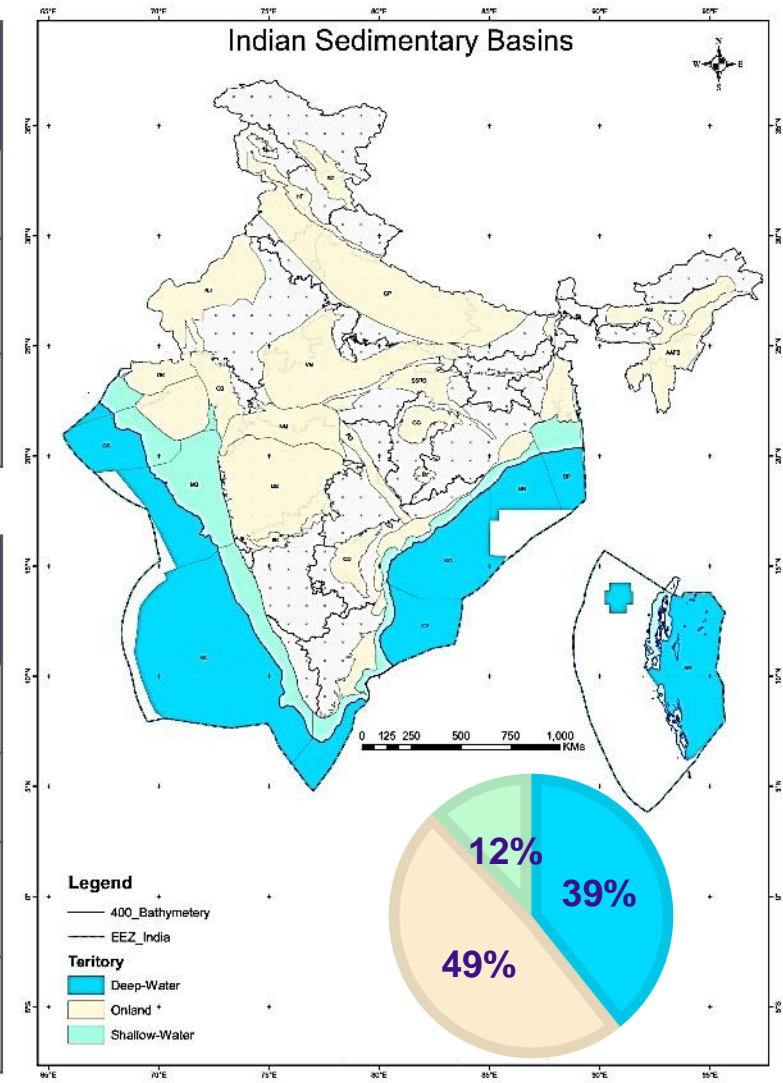


## Geographical Area (approx.) (million square kilometer)

Mainland & Islands	3.29
Exclusive Economic Zone (EEZ)	2.36
Sedimentary Basin	3.36

## Geographical Area (approx.) (million square kilometer)

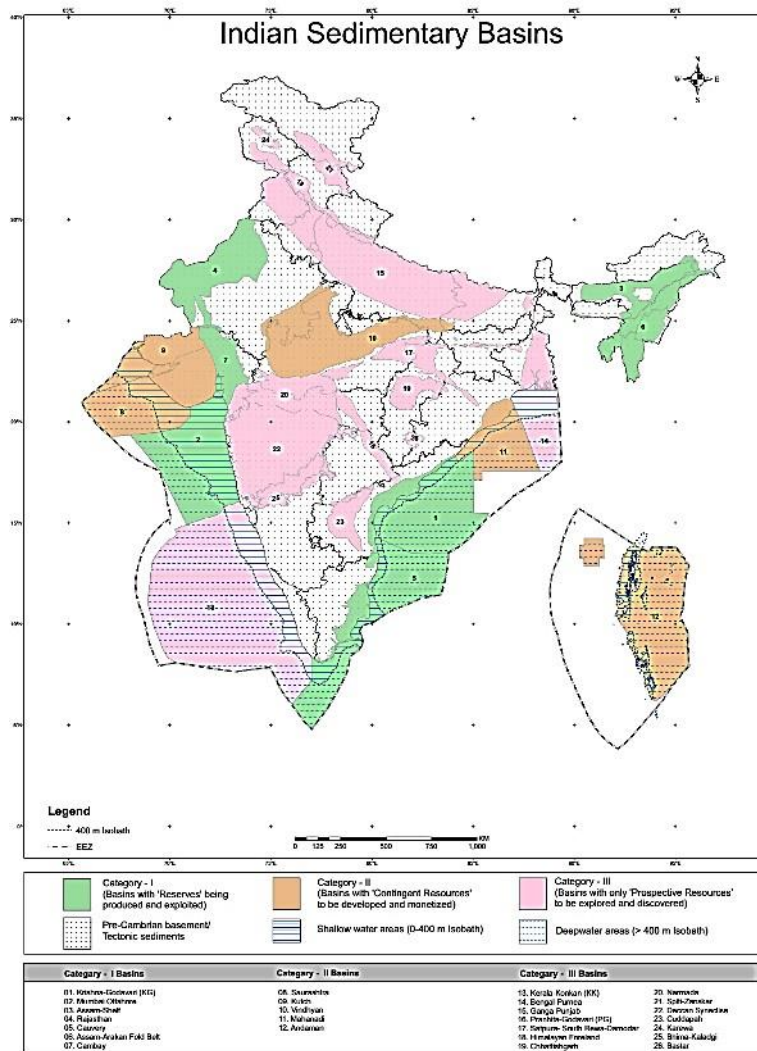
Onland part	1.63
Offshore part	1.73
Shallow water (Up to 400m water depth)	0.41
Deepwater (Beyond 400m water depth)	1.32



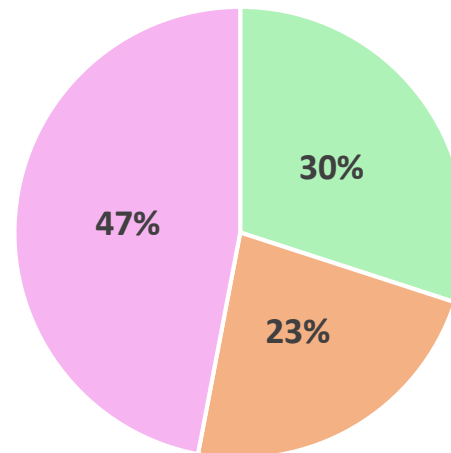




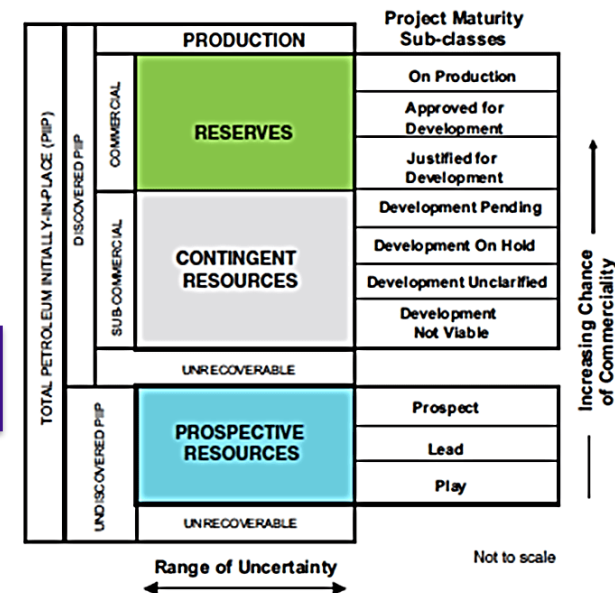
# Sedimentary Basins - Category



■ Category I ■ Category II ■ Category III



PRMS 2018 revised



## Category Description

### Category I

**Basins are commercially producing hydrocarbons**

- 7 basins producing conventional hydrocarbons
- 1 basin producing coal-bed methane

### Category II

**Basins have discoveries, not yet commercially developed**

- 5 basins have established conventional hydrocarbons

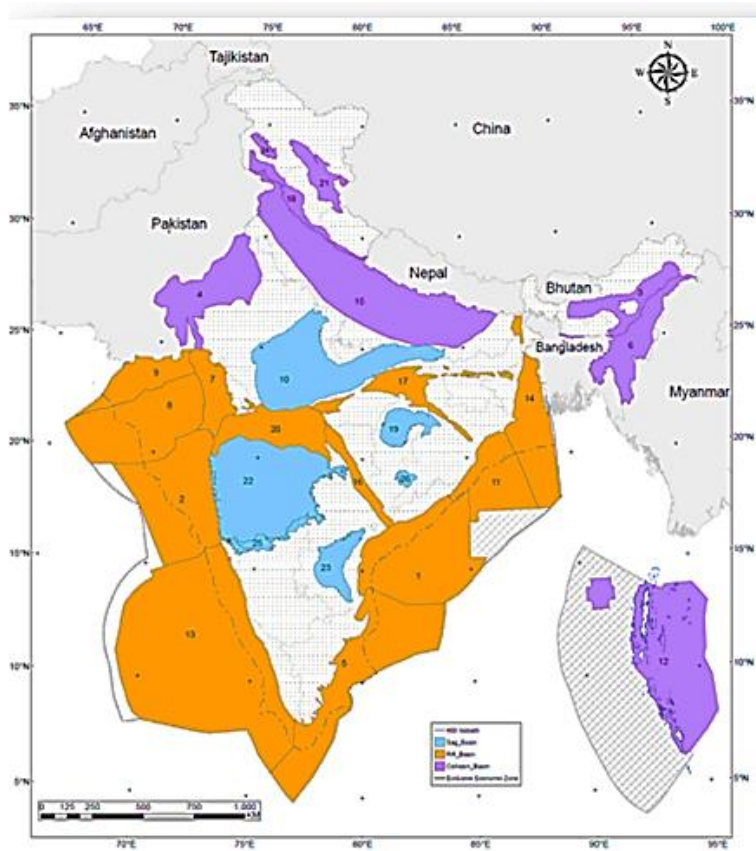
### Category III

**Basins have no discovery yet, less explored**

- 1 basin has a discovery, producing oil while being appraised

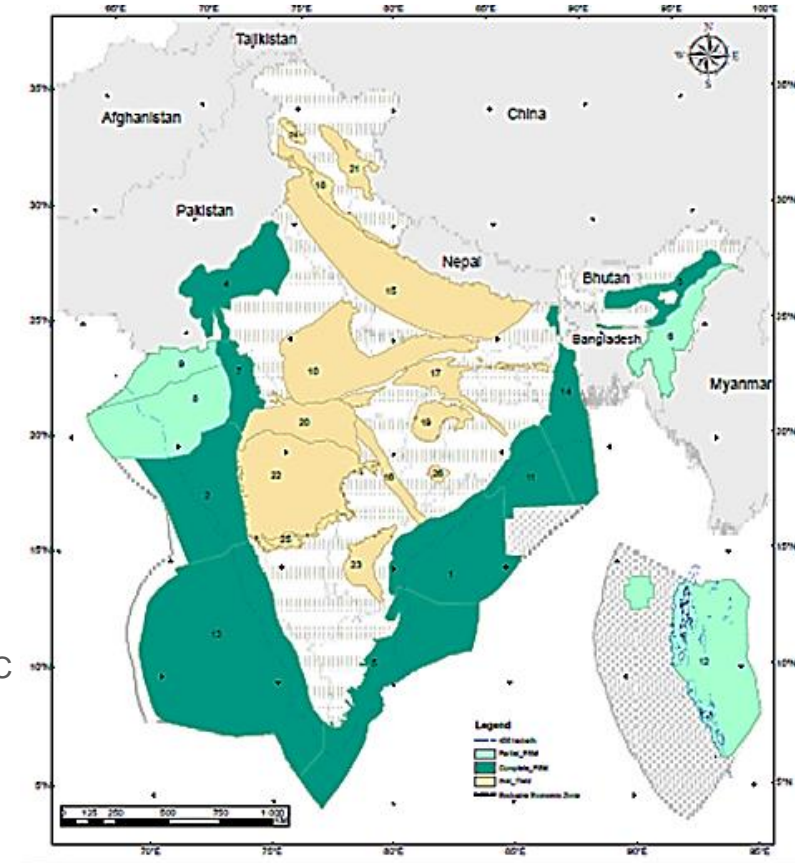


# Hydrocarbon Provinces and Data Coverage



- RIFT (PERI-CRATONIC, INTRA-CRATONIC)
- FOLD, FORELAND, INTER-OROGENIC, ARC
- CRUSTAL SAG

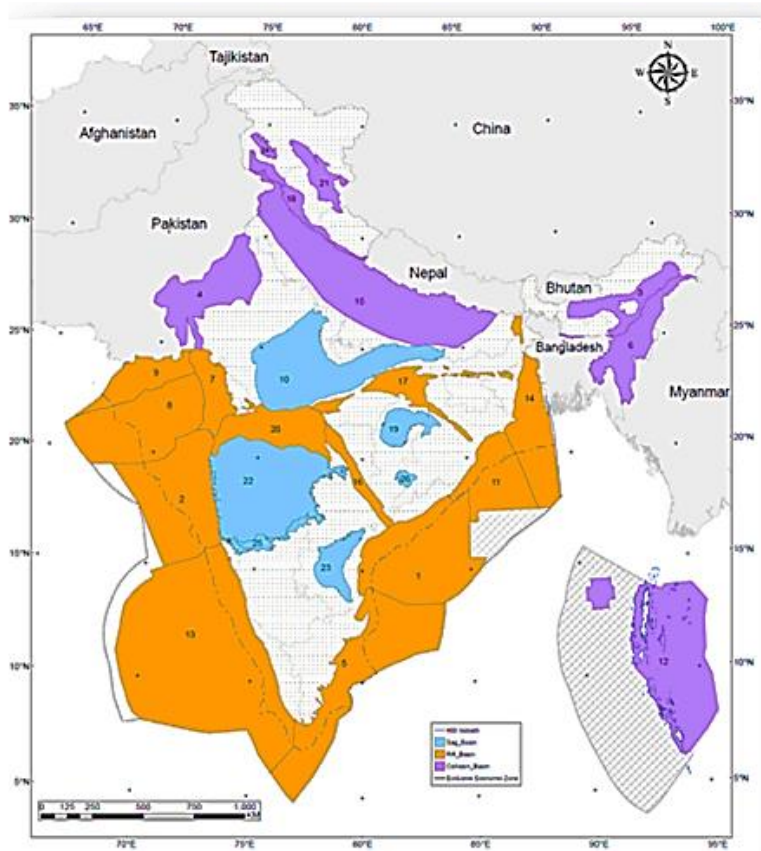
- Proven petroleum province across all tectonic set-up
- Rift tectonics overlap mostly offshore areas



- GOOD DATA
- FAIR DATA
- LIMITED DATA

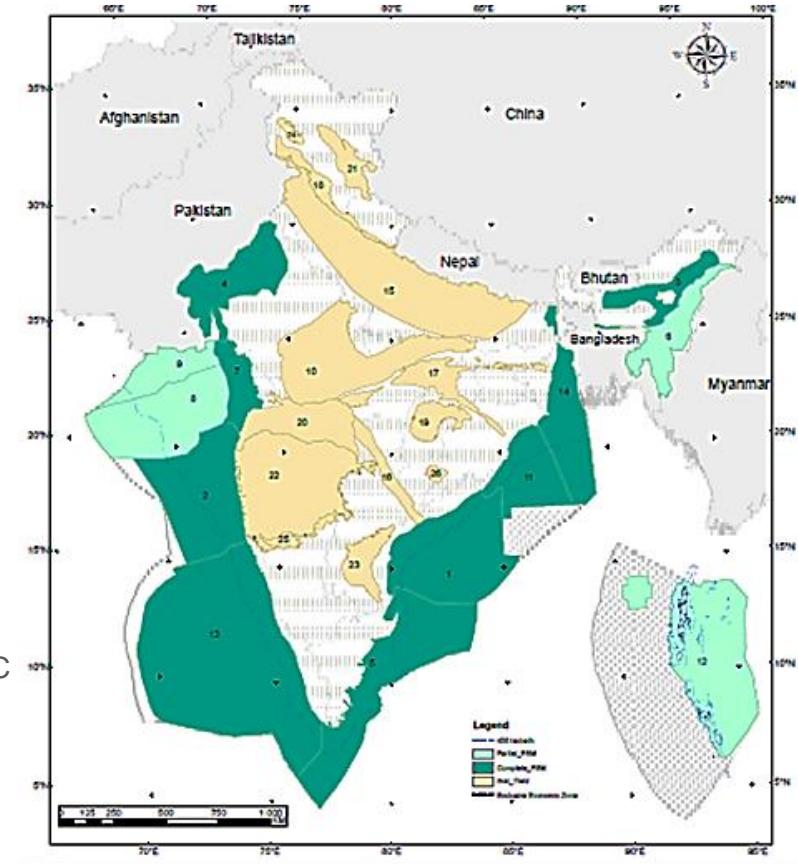
- Good geoscientific data across 9 basins, 4 fairly and 13 limited
- Data availability in Offshore is significant

# Hydrocarbon Provinces and Data Coverage



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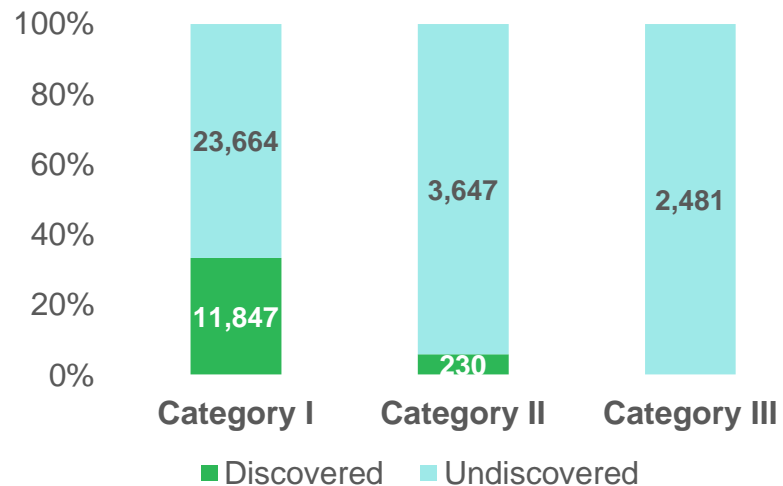
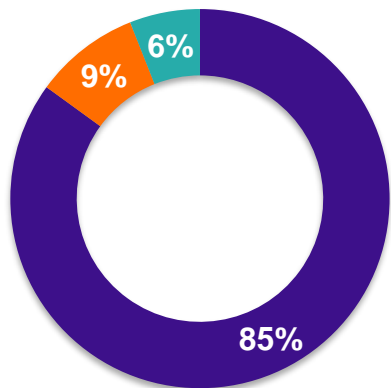
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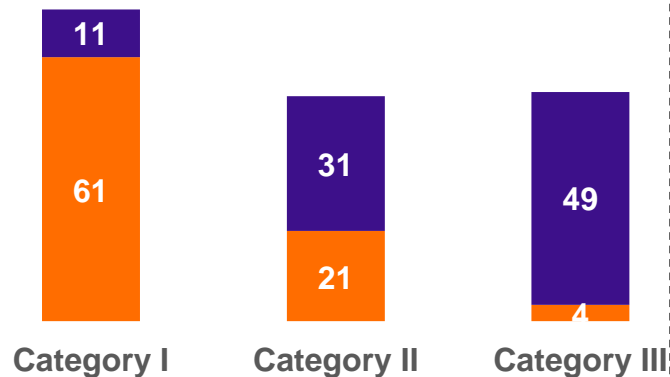
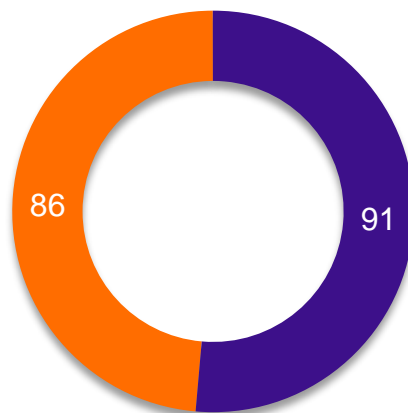


# Resource Potential and Exploration Opportunity

■ Category I ■ Category II ■ Category III

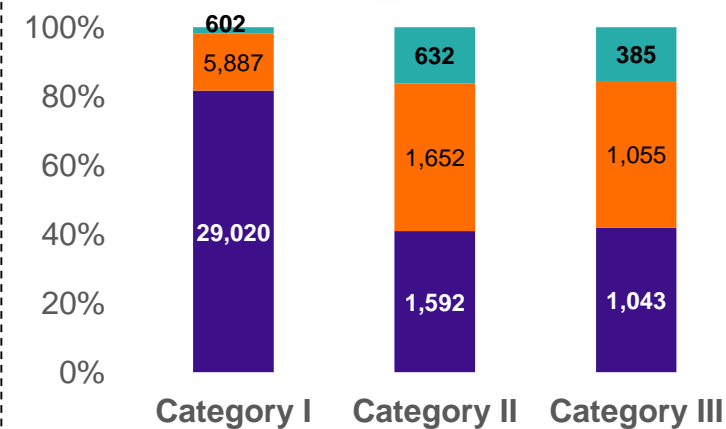
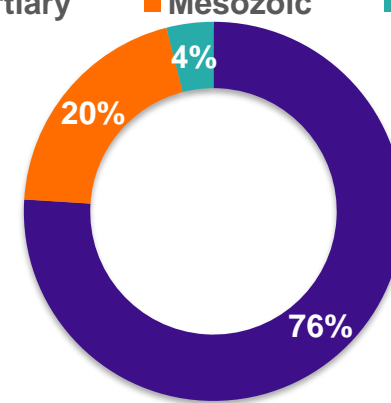


Hydrocarbon Plays:  
■ Proven ■ Known



Hydrocarbon Plays: Resource Across Geological Age

■ Tertiary ■ Mesozoic ■ Others



\* Category I has most Undiscovered Resources, mostly Proven and Tertiary \*  
\*\* Mesozoic Potential too substantial\*\*





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# Liberalized Fiscal regime in India under Revenue Sharing Contract

## Category-I Basins

Parameters	Previous	Liberalized
Weightage to work Programme	50%	<b>70%</b>
Capping on Revenue share Quote at HRP	No capping	<b>50% capping</b>
Concession in Royalty	No concessional rate for early production	<b>By 10%*</b>




## Category- II & III Basins

Parameters	Previous	Liberalized
Weightage to work Programme	50%	<b>Incremental revenue share applicable only in case of windfall gains above annual revenue USD 2.5 Bn</b>
Capping on Revenue share Quote at HRP	No capping	
Concession in Royalty	No concessional rate for early production	<b>Cat II : 20%* Cat III: 30%</b>

\* (Applicable only if production commenced within 4 yrs. for on land,/shallow water blocks and 5 yrs. for Deepwater/ ultra-Deepwater)



## Reduced weightage on Revenue Share for Category-II and III Basins

Evaluation Criteria	Definition	Weightage	
		Category-I Basins	Category-II & III Basins
<b>Work Programme</b> 	Bidding parameters <ul style="list-style-type: none"><li>2D Seismic</li><li>3D Seismic</li><li>Exploratory Well</li></ul>	<b>65%</b>	<b>95%</b>
<b>Revenue Share</b> 	In Category-I, the revenue share will have to be bid at two levels: <ul style="list-style-type: none"><li><b>Lower Revenue Point (LRP)</b> (USD 0.05 million per day)</li><li><b>Higher Revenue Point (HRP)</b> (USD 7 million per day)</li></ul>	<b>30%</b>	<b>0%</b>
<b>Originator Incentive</b> 	<b>5 marks</b> for Originator on First Come First Served Basis	<b>5%</b>	<b>5%</b>





# Incentivised Royalty Structure

## GRADED ROYALTY STRUCTURE



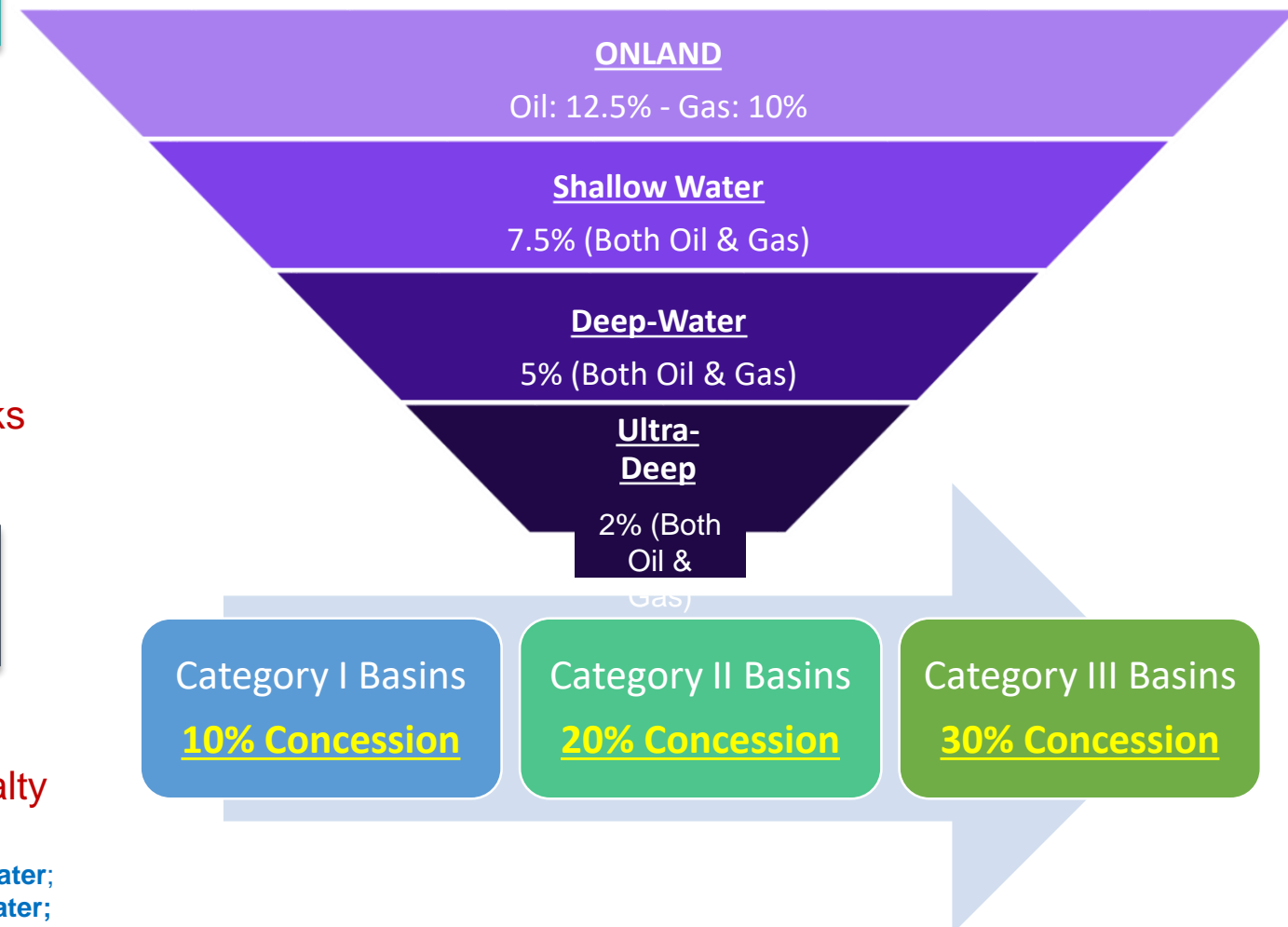
- Incentive for Offshore Exploration
  - Reduced Royalty Rates
- Long Royalty Holiday period
  - 7 Years for Deep & Ultra Deep Waters
- Incentive for Gas & CBM
  - 2% Reduced Royalty rates for Onland blocks

## CONCESSIONAL ROYALTY



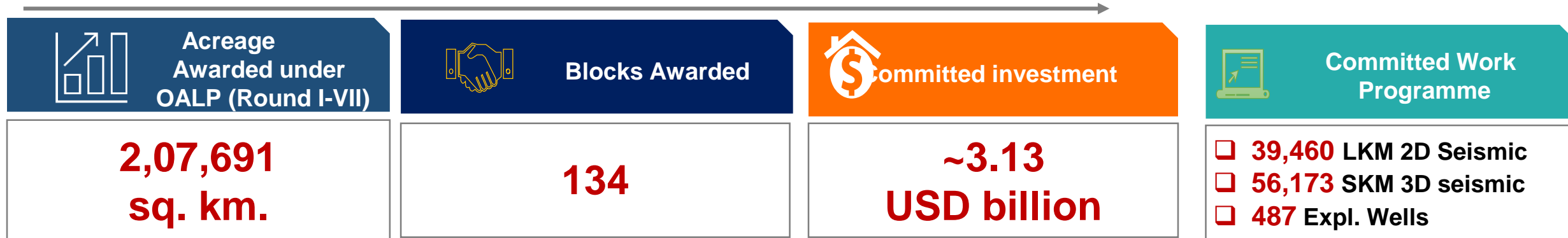
- Incentive for Early Production
  - Basin Category wise concessions in Royalty rates for early production, i.e.:  
Commercial Production within 4 years in Onland & Shallow water;  
Commercial Production within 5 years in Deep & Ultradeep water;

## ROYALTY RATES FOR OIL - GAS





## HELP Journey so far...



12 Wells drilled with 3 discoveries -  
2 in Rajasthan and 1 in Cambay Basins

Under HELP, investment commitment of **~USD 5-6 Billion** expected for **exploration activities alone**.  
**Development & Production** activities to require investments in **multiple Billions** of USD.

XII<sup>th</sup> EoI Window closed on 31<sup>st</sup> March, 2022  
8 EoIs received and under evaluation

**XIII<sup>th</sup> EoI Window OPEN**  
1<sup>st</sup> April, 2022 to 31<sup>st</sup> July, 2022

Note: 8 blocks under OALP-VII are to be awarded soon.



## Status of Blocks under OALP Bid Round-VIII

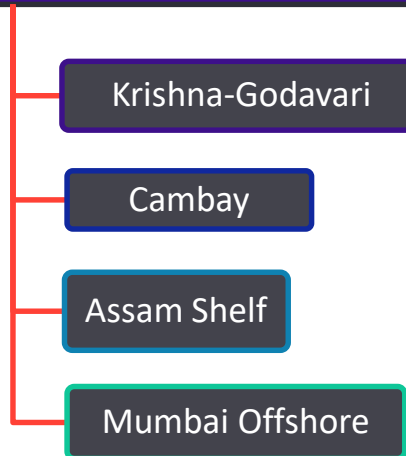
### Brief details about OALP Bid Round-VIII (blocks to be offered)

- ❑ Total No. of Blocks- 10
- ❑ Approximate area- 36,320 sq. km.

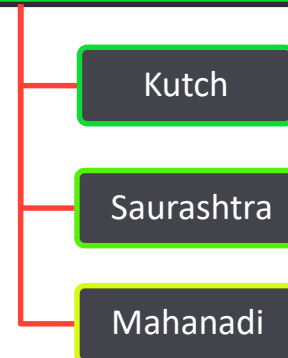
Type of Block	No. of Blocks to be offered	Tentative Area (in sq. km)
Onland	2	2246.15
Shallow Water	4	19301.11
Deep Water	2	3855.41
Ultra Deep Water	2	10916.98

**Note:** EoIs received under EoI Window XII are under Evaluation Stage.

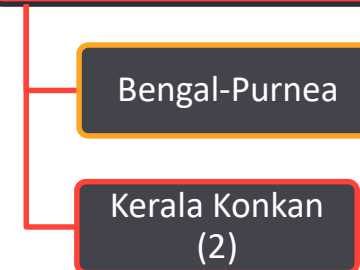
#### Basin Category-I No. of Blocks-4; Area 9,505.73 sq. km



#### Basin Category-II No. of Blocks-3; Area 13,228.73 sq. km



#### Basin Category-III No. of Blocks-3; Area 13,585.19 sq. km







# Salient Features of HELP Regime

- **Single License for both Conventional and Unconventional Hydrocarbons**
- **Open Acreage Licensing Programme (OALP) allows carving blocks by bidders studying data at the National Data Repository; and submission of Eols**
- **Fiscal Regime -Transition from Cost Recovery mechanism to Revenue Sharing mechanism**
- **Low Royalty rates and Concessional Royalty rates**
- **Pricing and Marketing freedom**
- **Exploration rights on all retained area for full contract life**
- **Bidding specific to Basin Category - No Revenue share in Category-II & III basins except in case of “Windfall Gain”**



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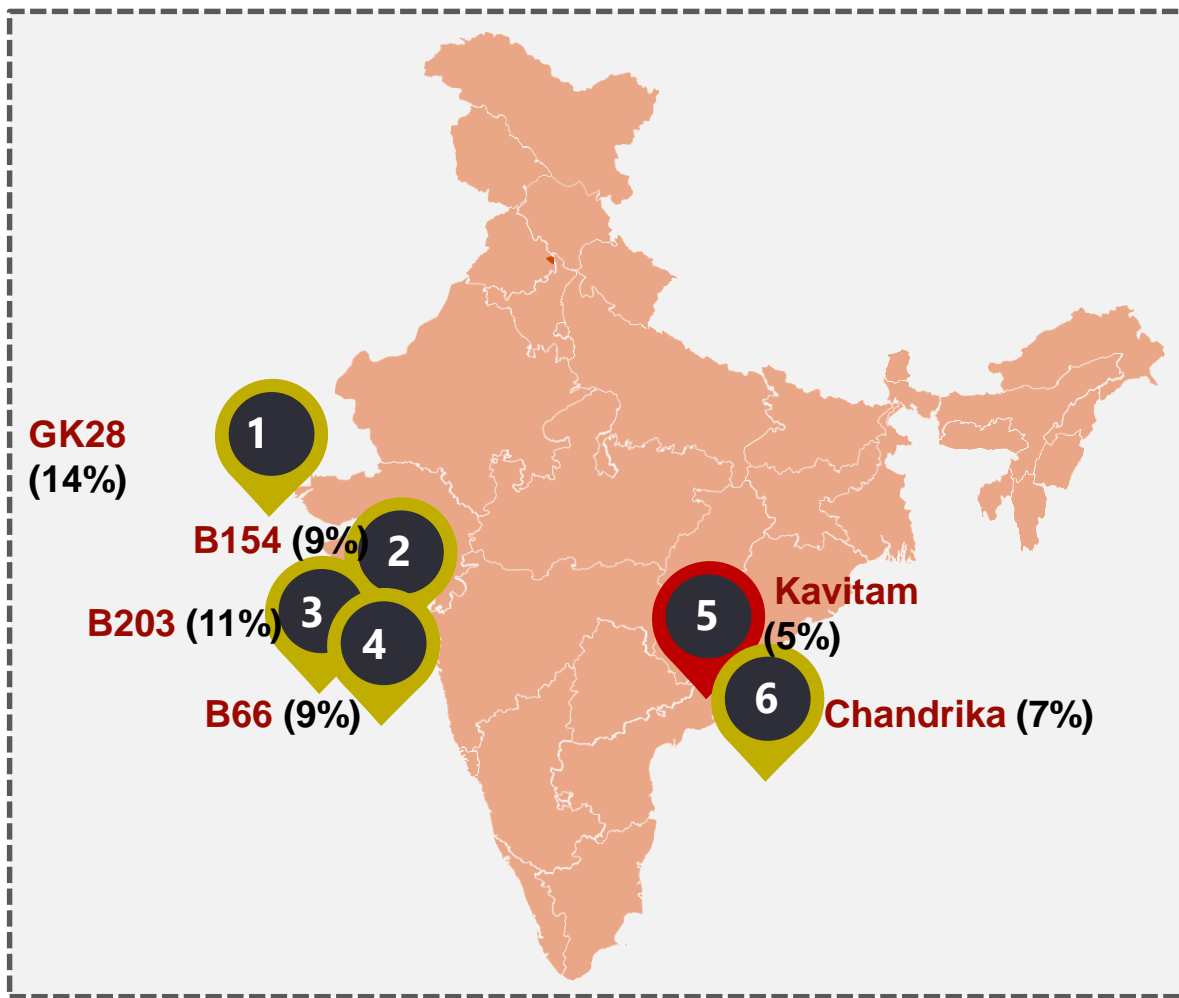
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**Data Availability of blocks on offer**

6

**Overview of Bidding Process**

# 06 key Contract Areas



#	Contract Area	No. of discoveries	In place*, MMTOE
1	GK/OSDSF/ <b>GK28</b> /2021	8	31.5
2	MB/OSDSF/ <b>B154N</b> /2021	3	20.2
3	MB/OSDSF/ <b>B203</b> /2021	4	25.1
4	MB/OSDSF/ <b>B66</b> /2021	1	20.9
5	KG/ONDSF/ <b>KAVITAM</b> /2021	5	11.3
6	KG/OSDSF/ <b>CHANDRIKA</b> /2021	7	16
Total (06 Contract Areas)		28	125
DSF Total		75	232
		37%	54%

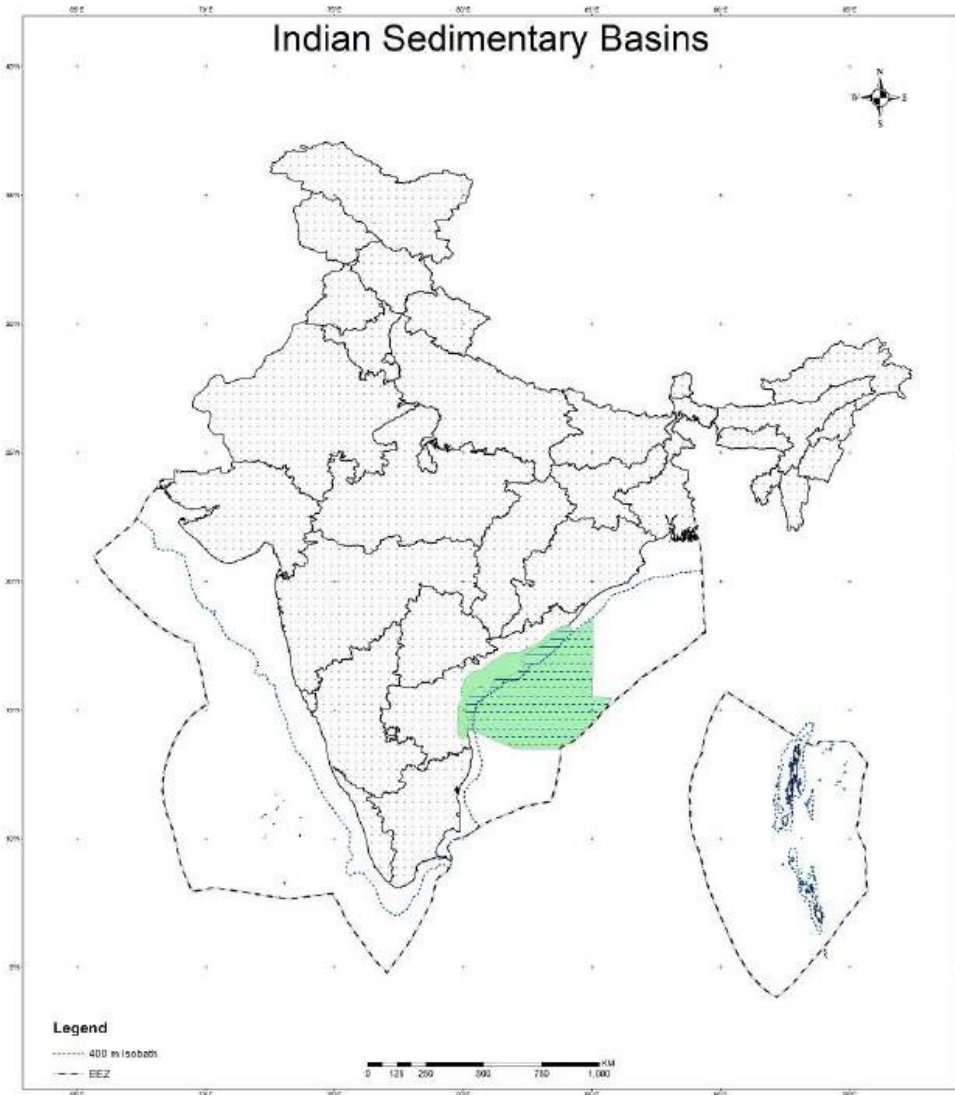
\* Initial estimated hydrocarbon In-place

Accounts for 54% of Estimated Hydrocarbon In-place



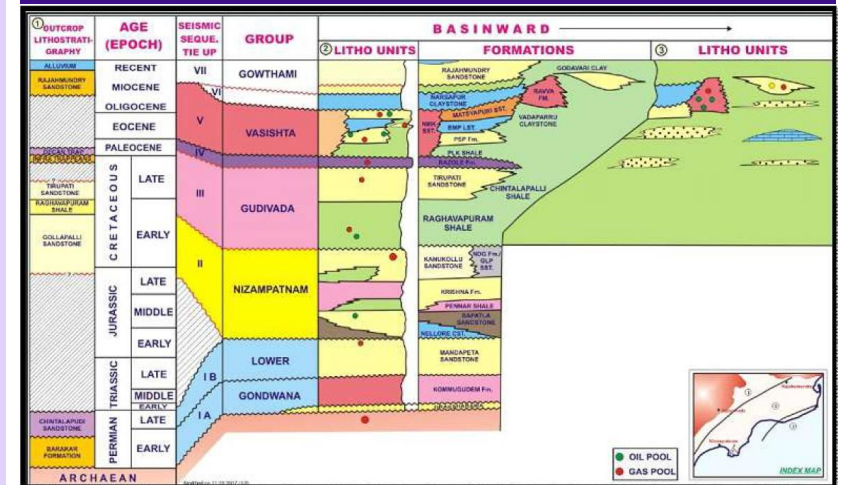
# Krishna-Godavari Basin

## Location Map



- Category-1, Commercially Producing Basin.
- KG Basin has area of 230000 SKM.
- Unrisk Hydrocarbon Inplace ~ 9555 MMTOE.
- Data availability– 85300 LKM of 2D Seismic, 68000 SKM of 3D seismic and 770 drilled wells.

# Basin Stratigraphy



## Major Plays Inplace(MMTOE):

- Tertiary Pliocene : 1798
- Tertiary Miocene : 1201
- Tertiary Eocene : 3293
- Tertiary Palaeocene : 316
- Mesozoic Late Cretaceous : 571
- Mesozoic Early Cretaceous : 807
- Mesozoic Late Jurassic : 1482

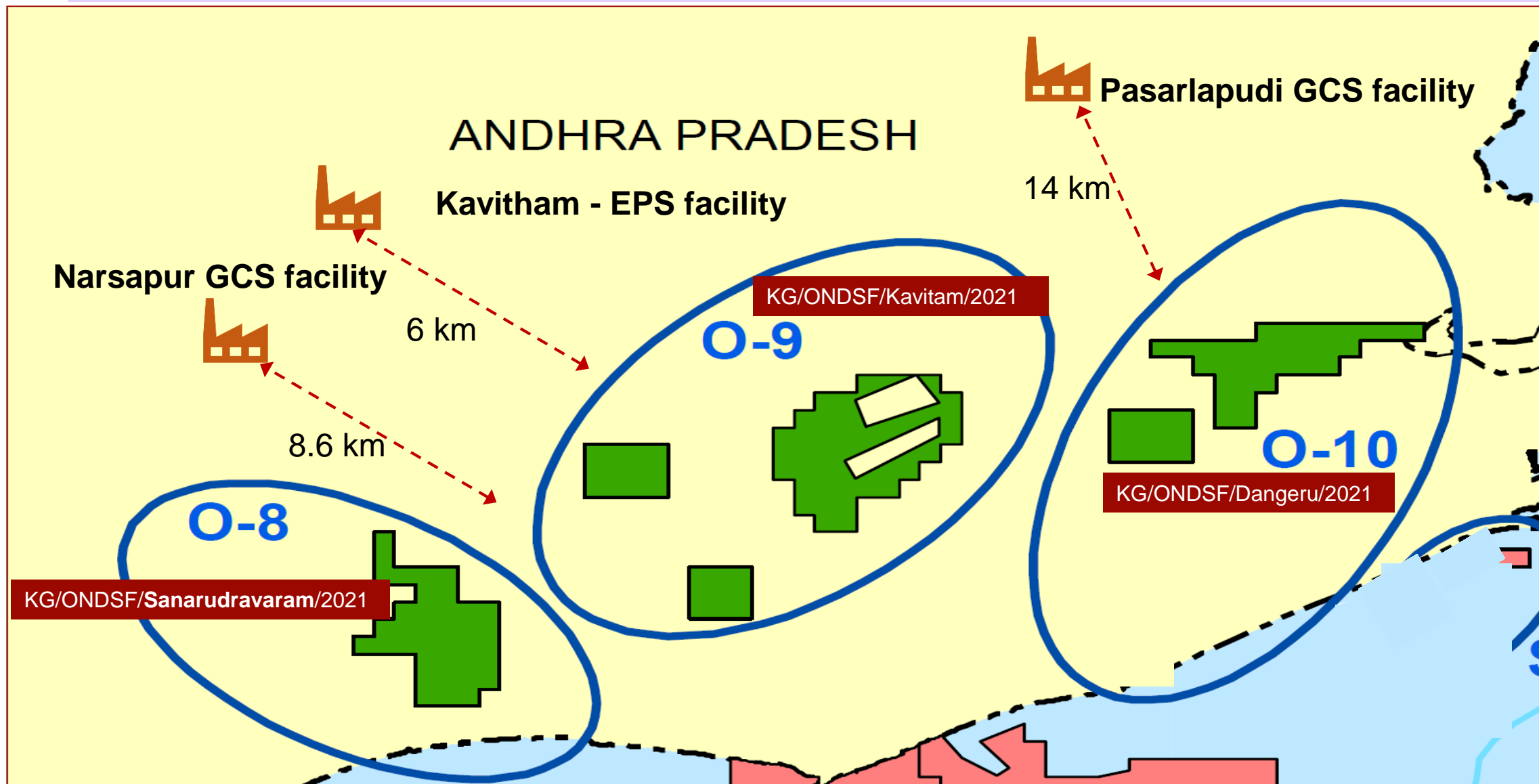
# Offerings in Krishna-Godavari Basin



#	Category / Contract Area	No. of discoveries	Hydrocarbon Inplace, MMTOE
<b>KG OFFSHORE</b>		<b>20</b>	<b>91.0</b>
1	KG/OSDSF/CHANDRIKA/2021	7	16.0
2	KG/OSDSF/GD-10/2021	2	2.5
3	KG/OSDSF/GS-49 /2021	1	4.6
4	KG/OSDSF/RAVVA/2021	5	4.6
5	KG/OSDSF/GS-21/2021	1	0.5
6	KG/OSDSF/G4/2021	3	50.2
7	KG/OSDSF/YS-6/2021	1	12.5
<b>KG ONSHORE</b>		<b>8</b>	<b>14.2</b>
8	KG/ONDSF/SANARUDRAVAR AM/2021	1	0.0
9	KG/ONDSF/DANGERU/2021	2	2.9
10	KG/ONDSF/KAVITAM/2021	5	11.3

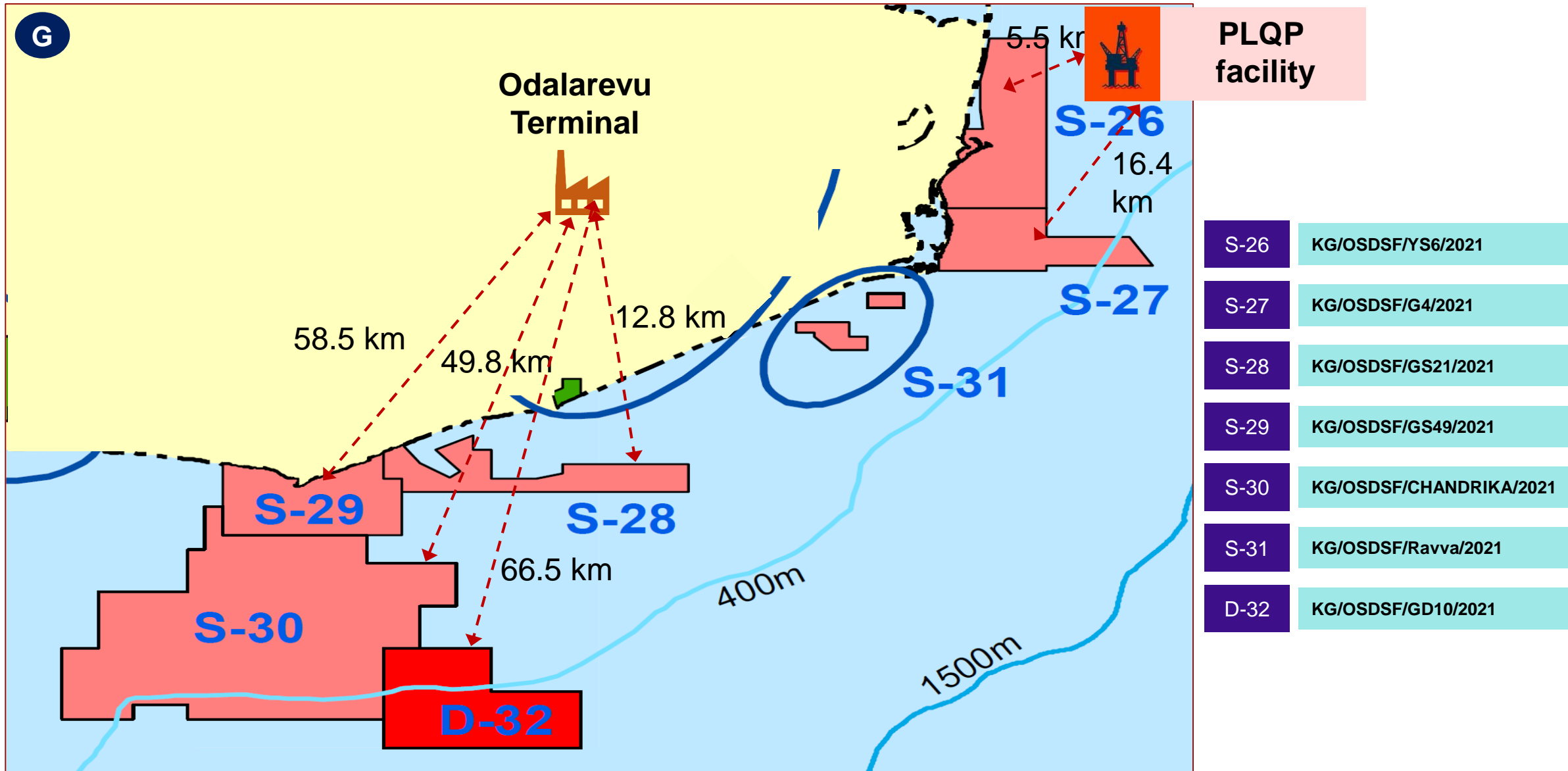
**Total 10 Contract Areas comprising 28 Discoveries with Hydrocarbon Inplace of 105.2 MMTOE**

## Sharing of Surface facilities – KG Basin (Onland)





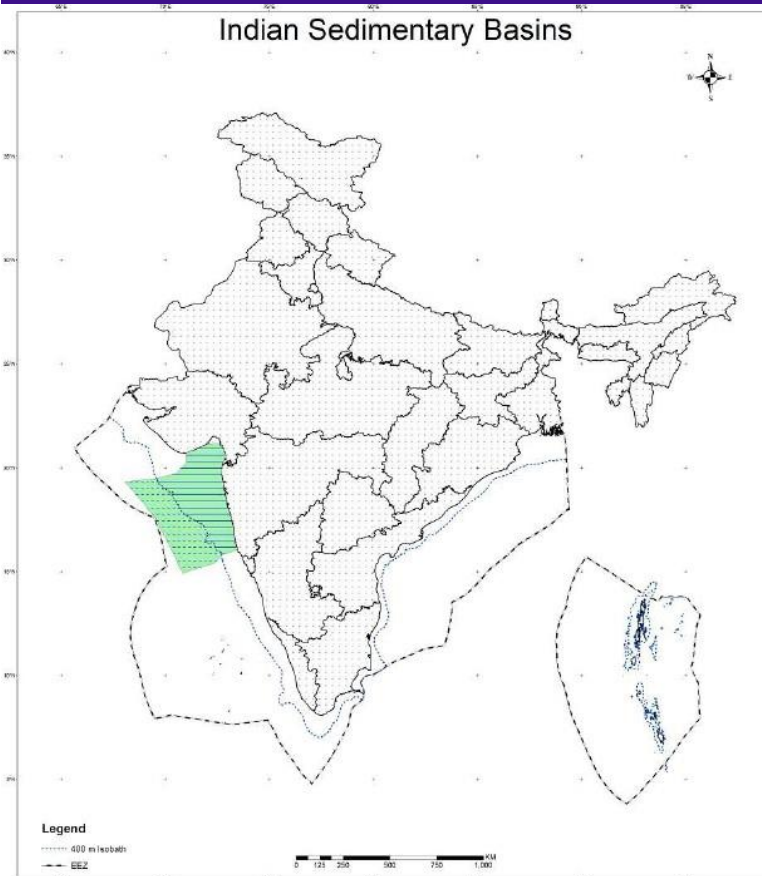
# Sharing of Surface facilities – KG Basin (Offshore)





# Mumbai Offshore Basin

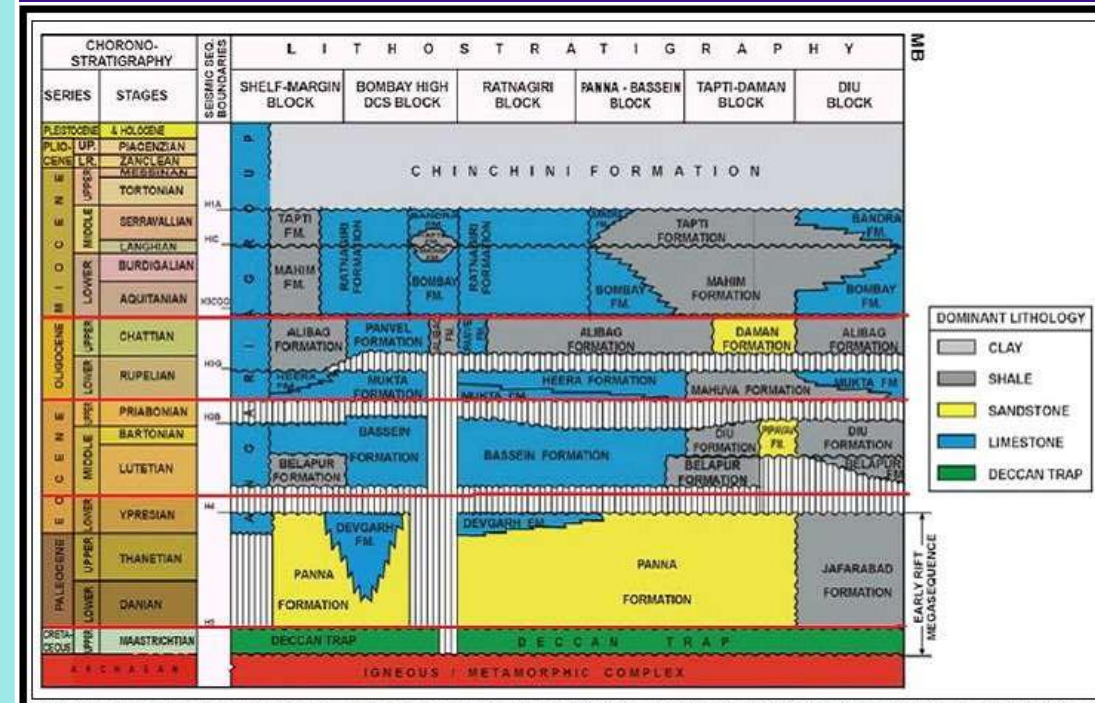
## Location Map



## Major Plays Inplace (MMTOE):

- Tertiary Pliocene - Biogenic : 138
- Tertiary Late Miocene Biogenic : 126
- Tertiary Mid Miocene : 402
- Tertiary Early Miocene : 2232
- Tertiary Late Oligocene : 2293
- Tertiary Early Oligocene : 370
- Tertiary Mid-Late Eocene : 2220
- Tertiary Paleocene-Early Eocene : 1675
- Mesozoic Basement - Basal Clastics : 188

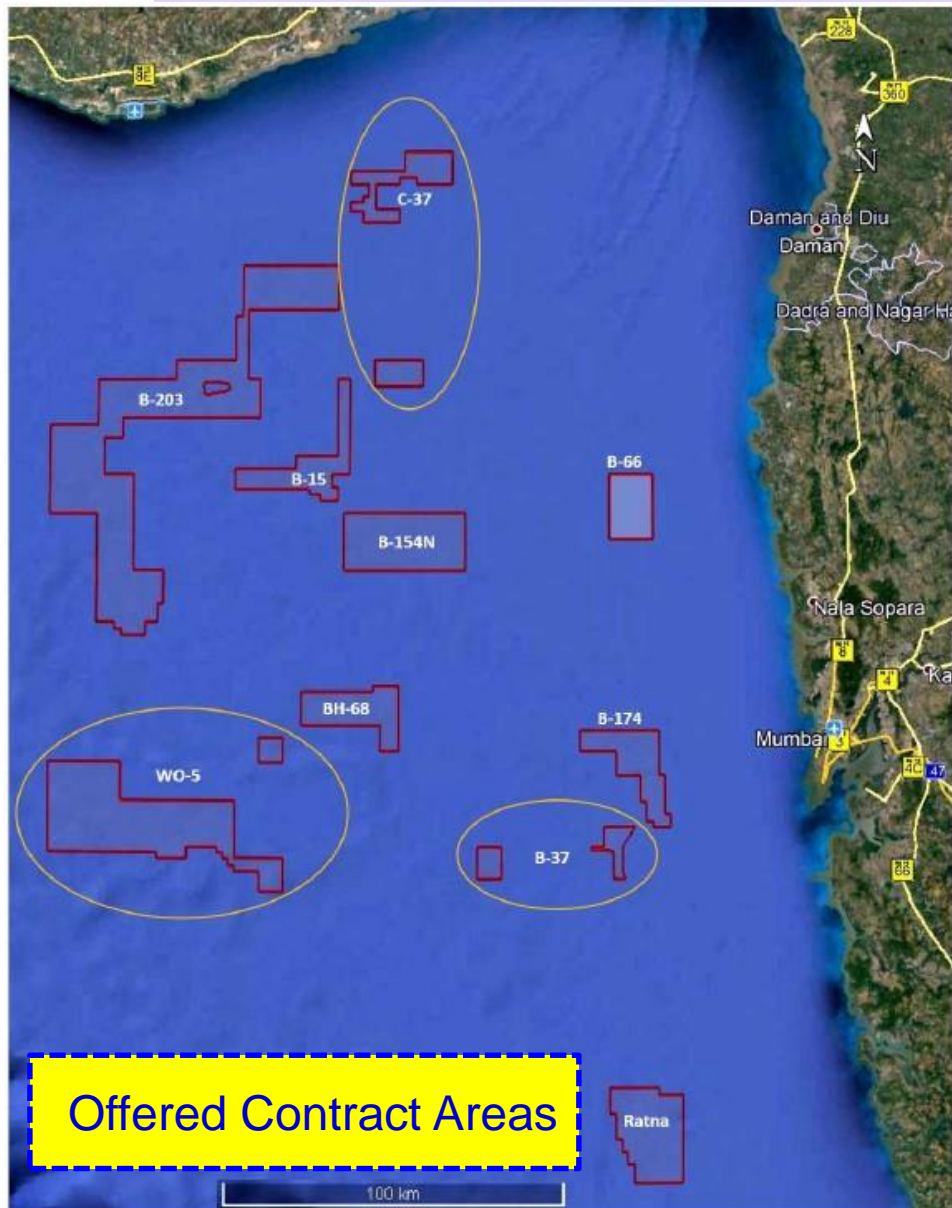
## Basin Stratigraphy



- Category-1, Commercially Producing Basin
- Mumbai Offshore Basin has area of 212000 SKM

- Unrisk Hydrocarbon Inplace ~ 9646 MMTOE
- Data availability– 48000 LKM of 2D Seismic, 30000 SKM of 3D seismic and 900 drilled wells

# Offerings in Mumbai Offshore Basin

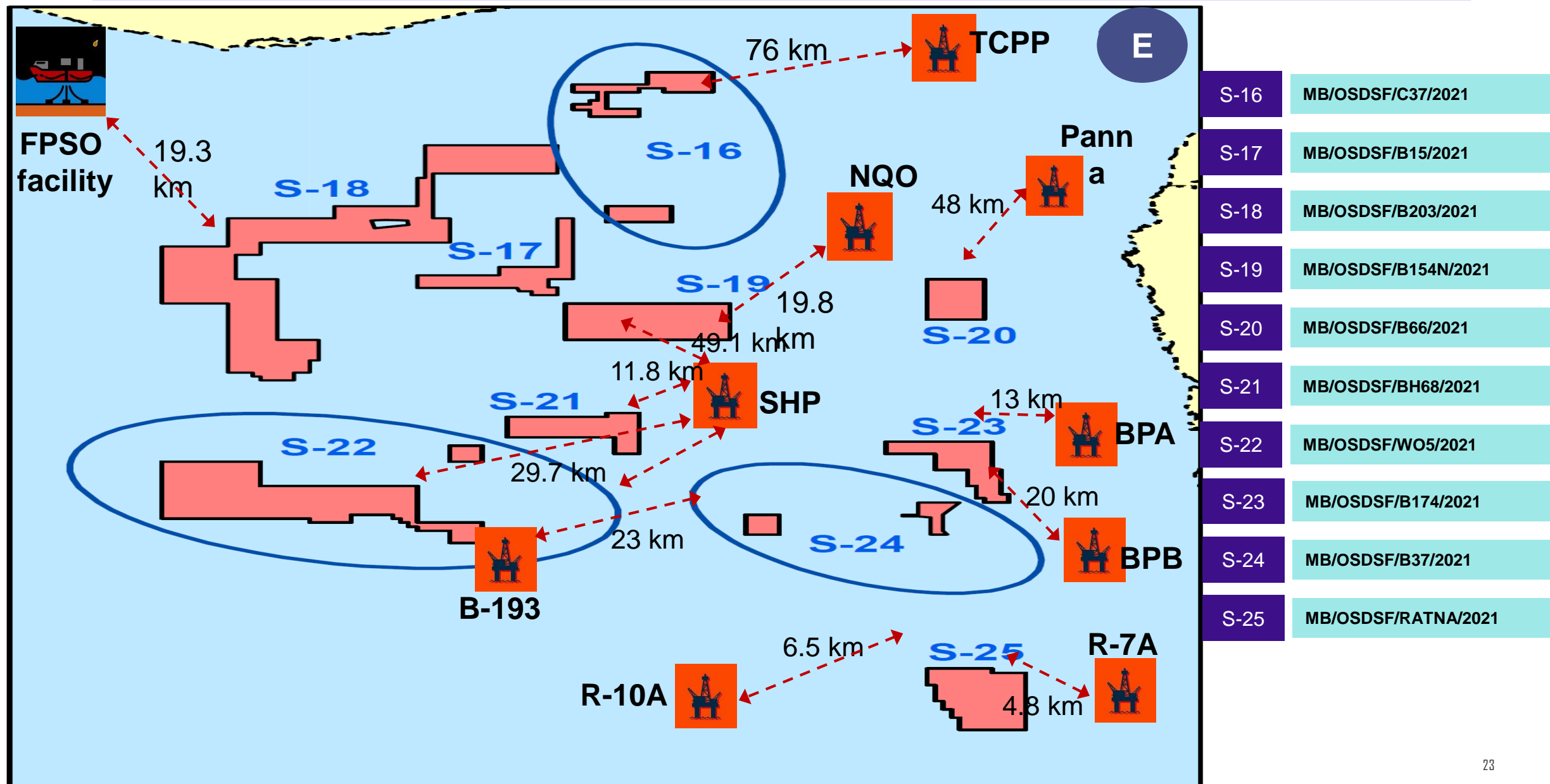


#	Category / Contract Area	No. of discoveries	Hydrocarbon Inplace, MMTOE
	<b>MUMBAI OFFSHORE</b>	<b>22</b>	<b>78.7</b>
1	MB/OSDSF/B183/2021	4	2.3
2	MB/ODSF/B15/2021	2	0.5
3	MB/OSDSF/B154N/2021	3	20.2
4	MB/OSDSF/B203/2021	4	25.1
5	MB/OSDSF/B37/2021	2	4.1
6	MB/OSDSF/BH68/2021	1	0.1
7	MB/OSDSF/C37/2021	1	1.6
8	MB/OSDSF/Ratna/2021	3	3.2
9	MB/OSDSF/WO5/2021	1	0.8
10	MB/OSSF/B66/2021	1	20.9

Total 10 Contract Areas comprising 22 Discoveries with Hydrocarbon Inplace of 78.7 MMTOE



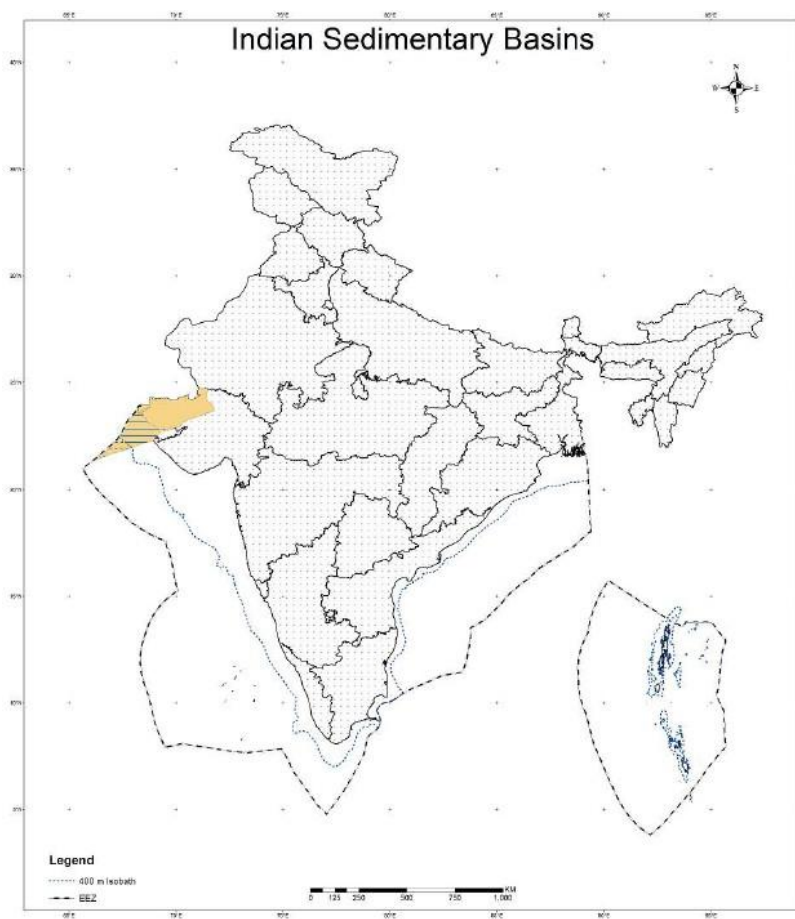
# Sharing of Surface facilities – Mumbai Offshore





# Kutch Offshore Basin

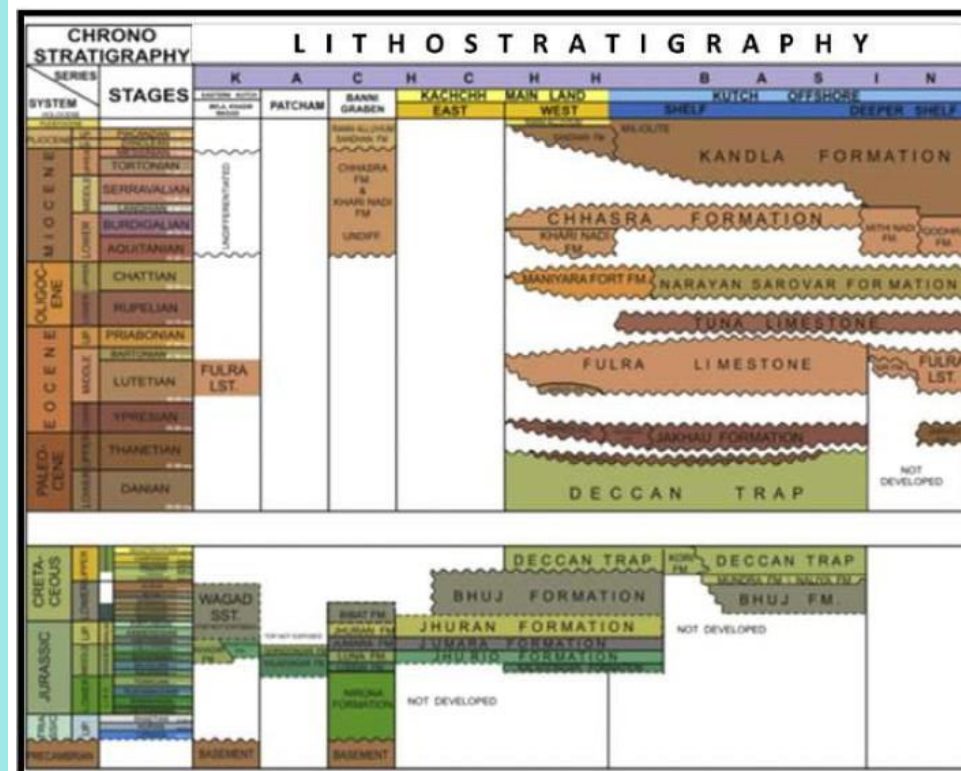
## Location Map



## Major Plays Inplace (MMTOE):

- Mesozoic Late Cretaceous - Carbonate-Clastic : 148
- Mesozoic Early Cretaceous : 273
- Mesozoic Mid Jurassic Lower : 267

## Basin Stratigraphy



- Category-2, Sub-Commercial Basin
- Kutch Offshore Basin has area of 58554 SKM

- Unrisk Hydrocarbon Inplace ~ 989 MMTOE.
- Data availability– 95576 LKM of 2D Seismic, 68 drilled wells.





# Offerings in Kutch Offshore Basin



#	Category / Contract Area	No. of discoveries	Hydrocarbon Inplace, MMTOE
	KUTCH OFFSHORE	9	31.52
1	GK/OSDSF/GK1/2021	1	0.02
2	GK/OSDSF/GK28/2021	8	31.50

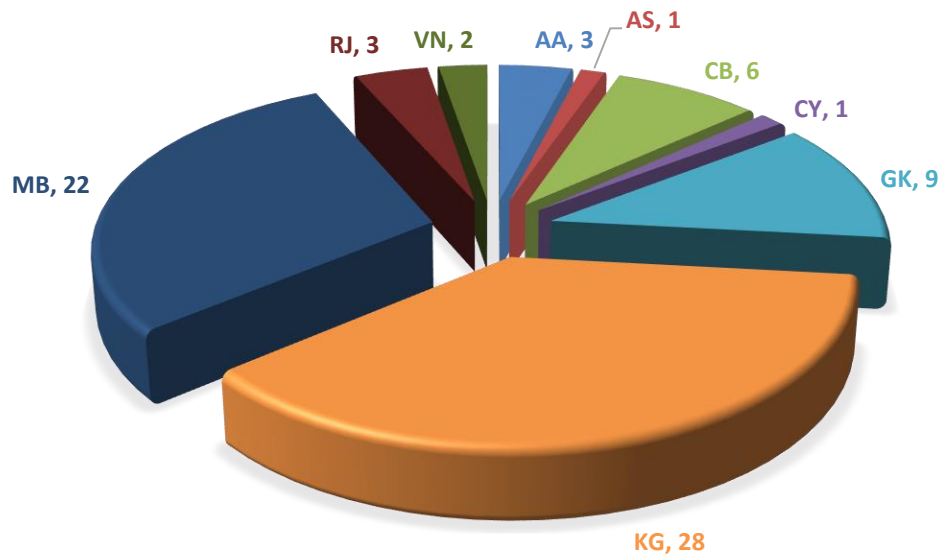
Total 2 Contract Areas comprising 9 Discoveries with Hydrocarbon Inplace of 31.52 MMTOE.



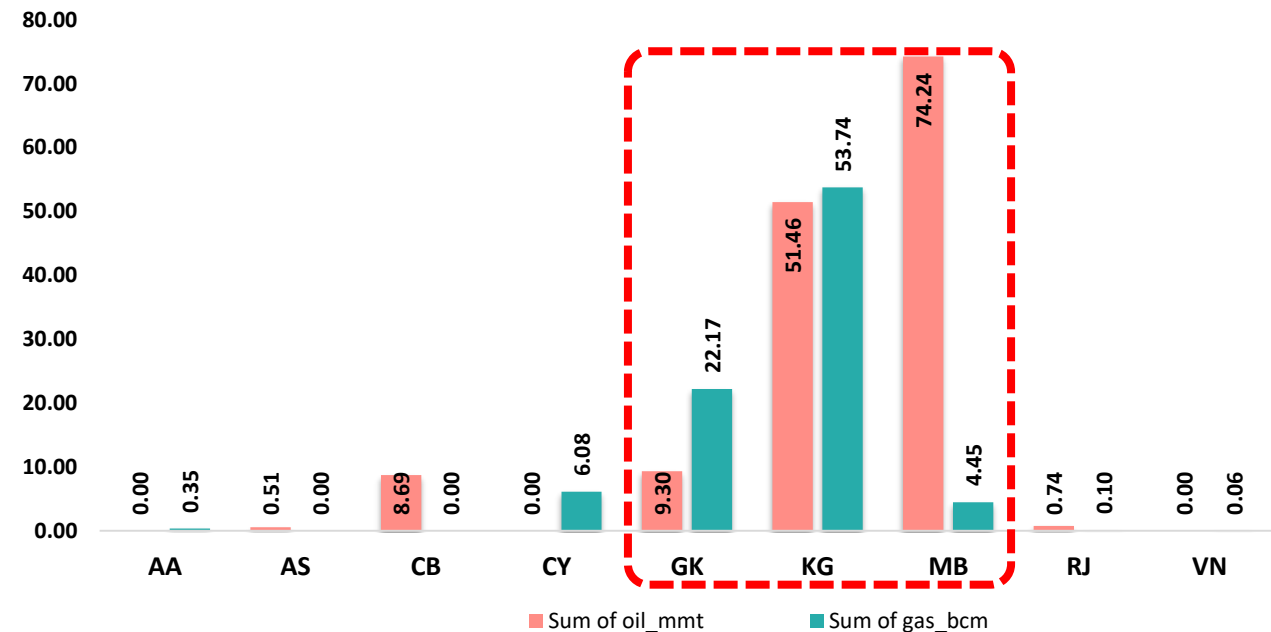
# Discoveries and Hydrocarbon In-place

Discoveries		Area (Sq. Km.)	Hydrocarbon Resource (MMTOE)	
Onshore	19	3271	24.3	232 MMTOE
Shallow Water	54	9729	205.2	
Deepwater	02	204	2.5	

Distribution of Discoveries

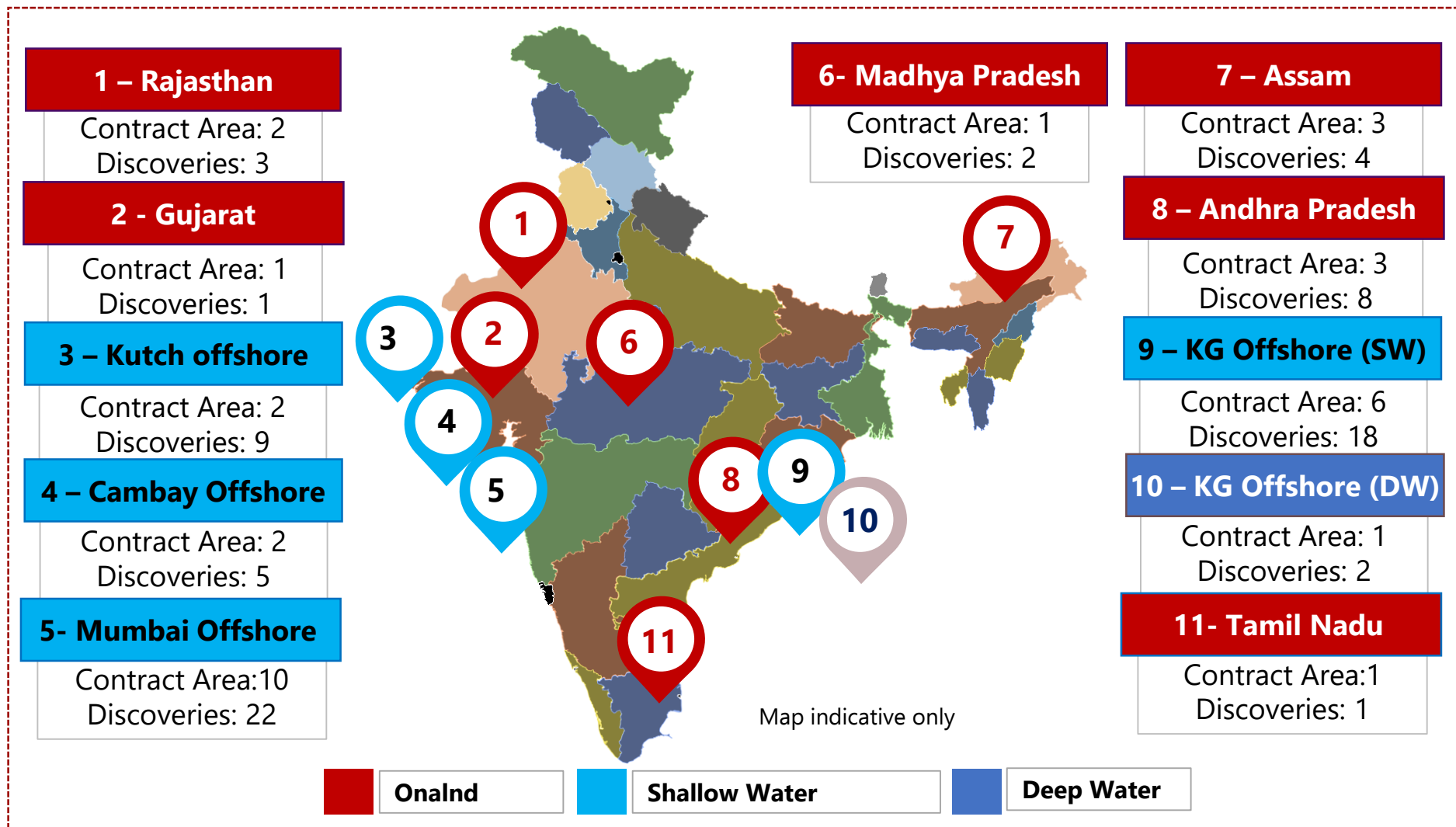


Basin-wise distribution of hydrocarbon inplace





# DSF Bid Round-III: A Valuable Investment Opportunity



- Discovered fields offered in Producing/ Proven basins
- Low geological risk – 230 MMT/ ~1.7 Billion barrels (O+OEG)
- Larger field areas- 13,000+ Sq. Km.
- Data availability– 24,961 LKM of 2D Seismic, 9888 SKM of 3D seismic and 268 wells



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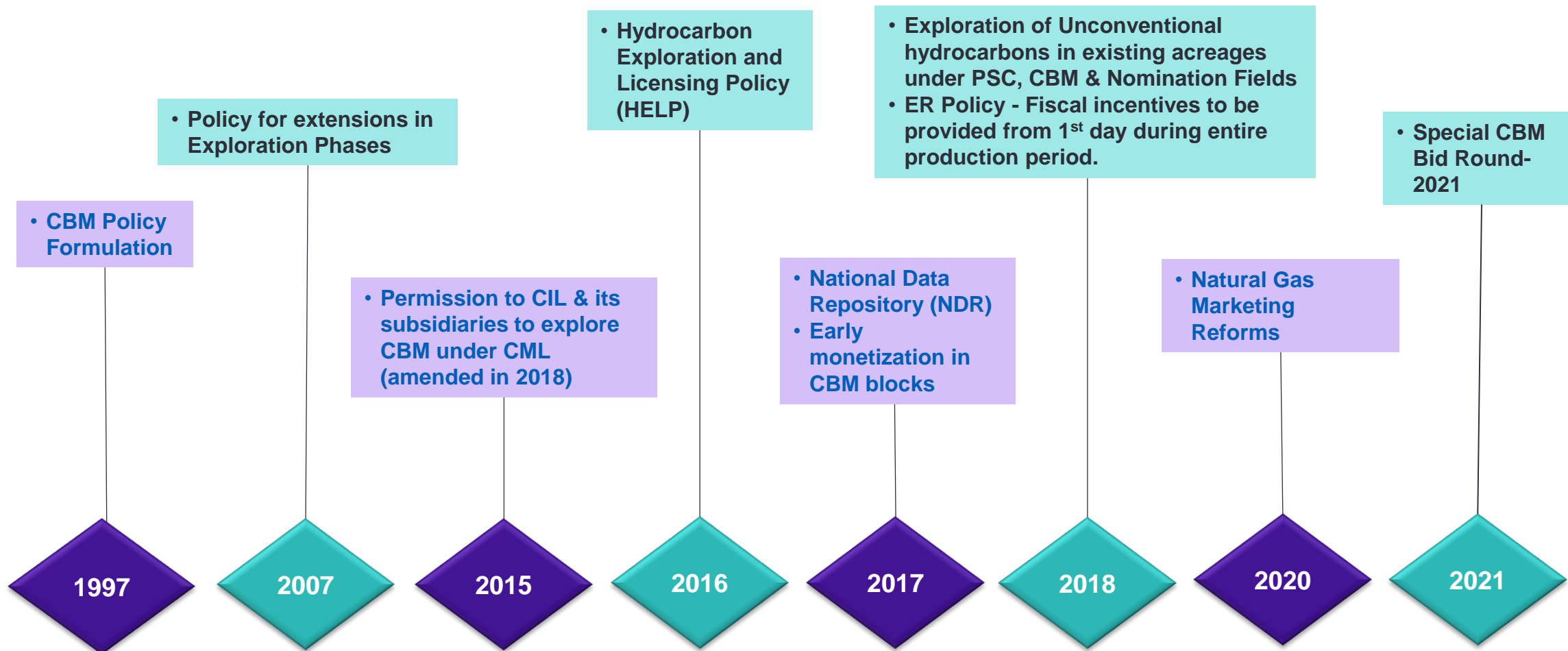
**Data Availability of blocks on offer**

6

**Overview of Bidding Process**



# Unconventional hydrocarbon framework



**Demystifying unconventional resources of Hydrocarbons**

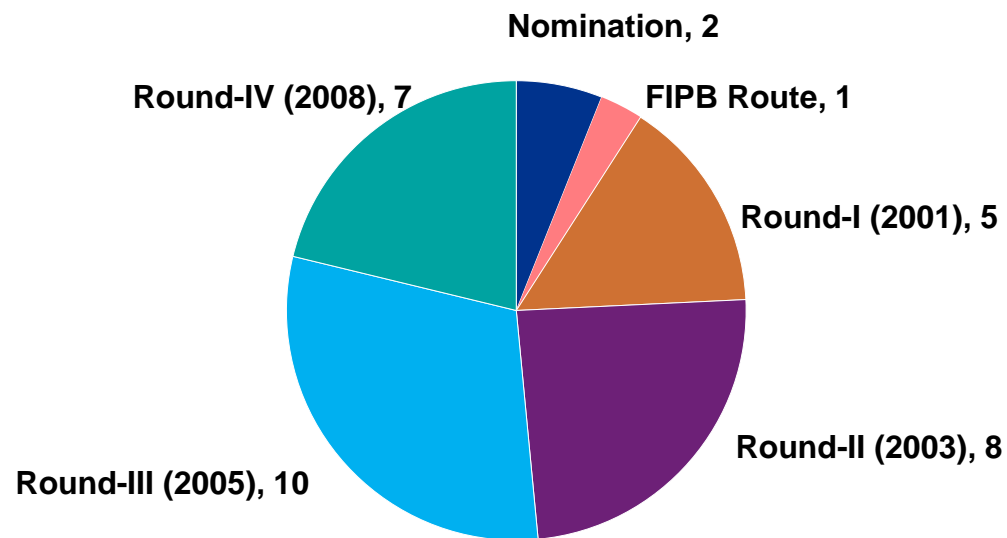




# CBM Bid Rounds

**Blocks awarded - 33**

**8 Blocks of CBM under Production and Development in 3 states**



- **Investment Made: USD 2 billion**
- **Cumulative Production Achieved : ~4.4 BCM**

## 3 – Madhya Pradesh

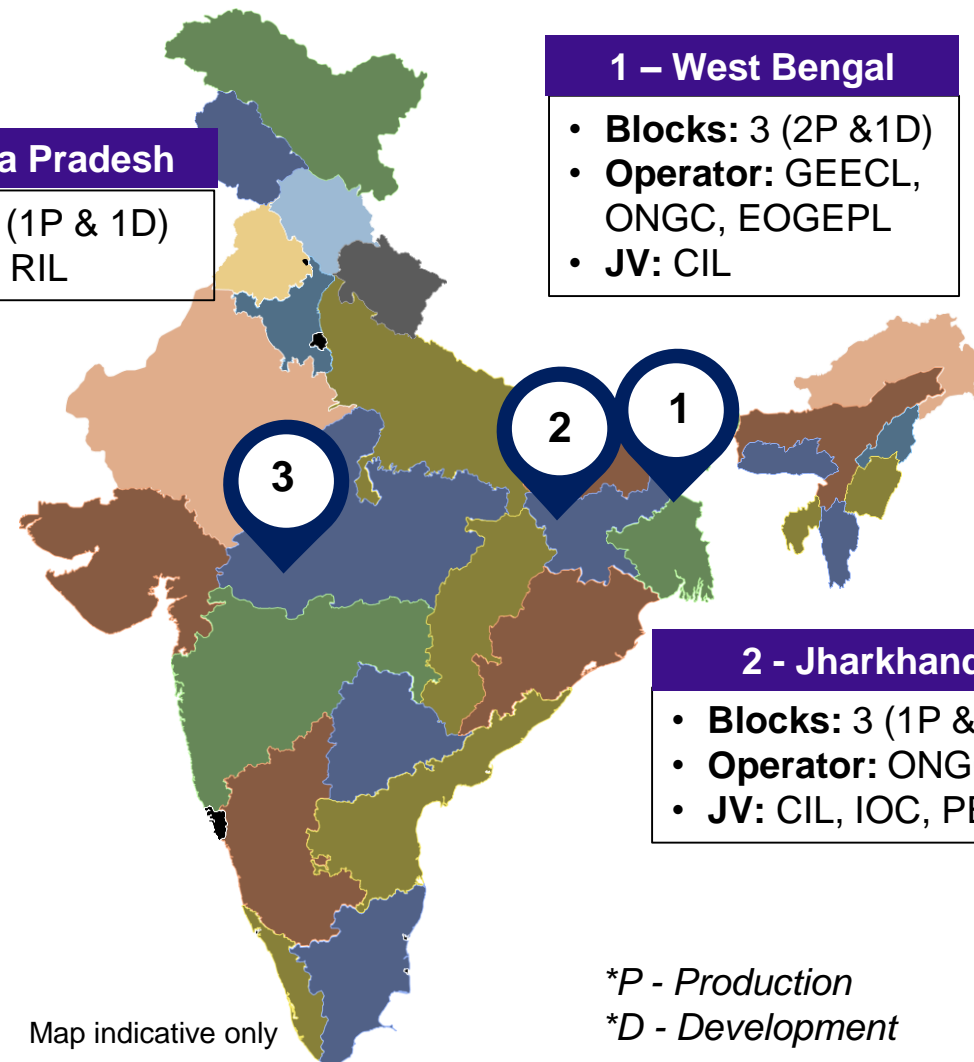
- **Blocks: 2 (1P & 1D)**
- **Operator: RIL**

## 1 – West Bengal

- **Blocks: 3 (2P & 1D)**
- **Operator: GEECL, ONGC, EOGEL**
- **JV: CIL**

## 2 - Jharkhand

- **Blocks: 3 (1P & 2D)**
- **Operator: ONGC**
- **JV: CIL, IOC, PEPL**



Map indicative only

\*P - Production

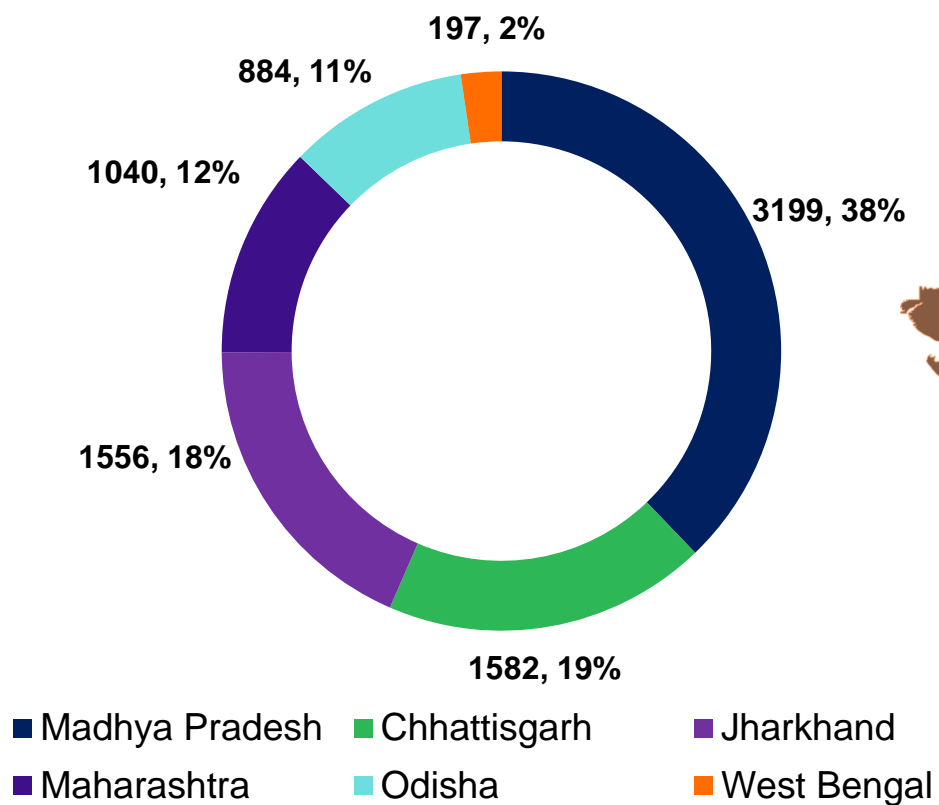
\*D - Development



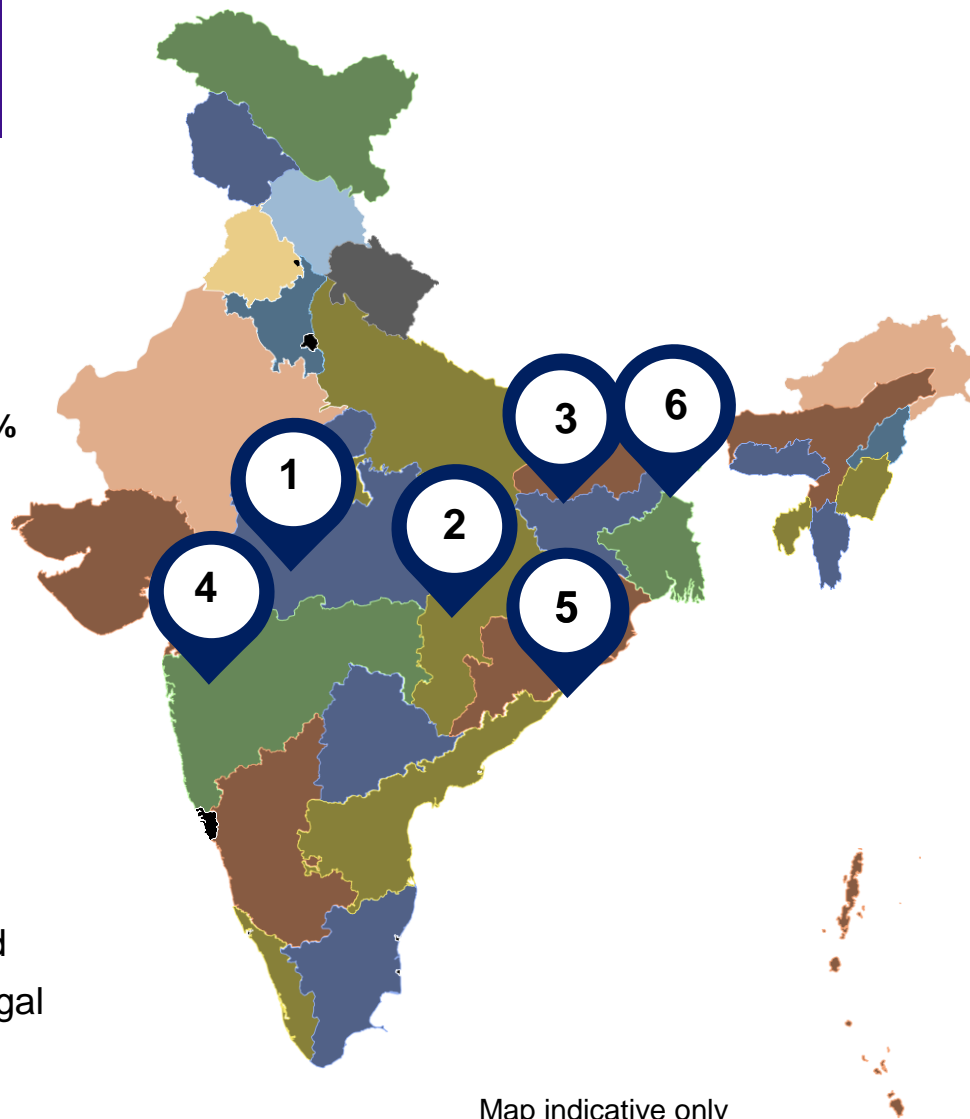
# Special CBM Bid Round-2021- Areas on offer

- 15 blocks
- 4 Sedimentary Basins covered
- 8458 Sq. km. on offer

State Wise Area (Sq. km.)



**Prognosticated Resources  
~700 BCM**



Map indicative only

## 1 – Madhya Pradesh

- **Blocks:** 5
- **Area:** 3199 Sq. km.

## 2 - Chhattisgarh

- **Blocks:** 3
- **Area:** 1582 Sq. km.

## 3 – Jharkhand

- **Blocks:** 2
- **Area:** 1556 Sq. km.

## 4 – Maharashtra

- **Blocks:** 2
- **Area:** 1040 Sq. km.

## 5 – Odisha

- **Blocks:** 2
- **Area:** 884 Sq. km.

## 6 – West Bengal

- **Blocks:** 1
- **Area:** 197 Sq. km.



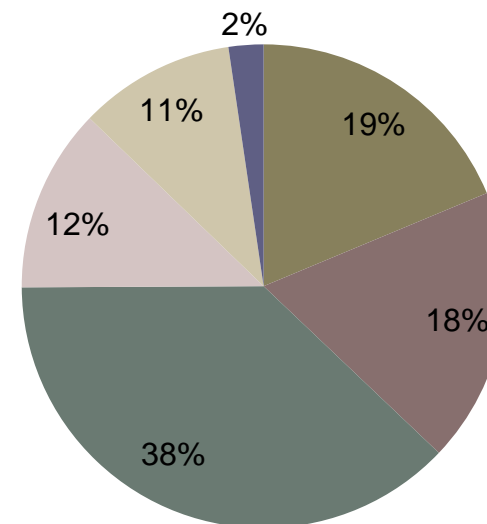
## Blocks on Offer Under Special CBM Bid Round-2021: State Wise

### 15 Coal Bed Methane (CBM) Blocks in 6 states



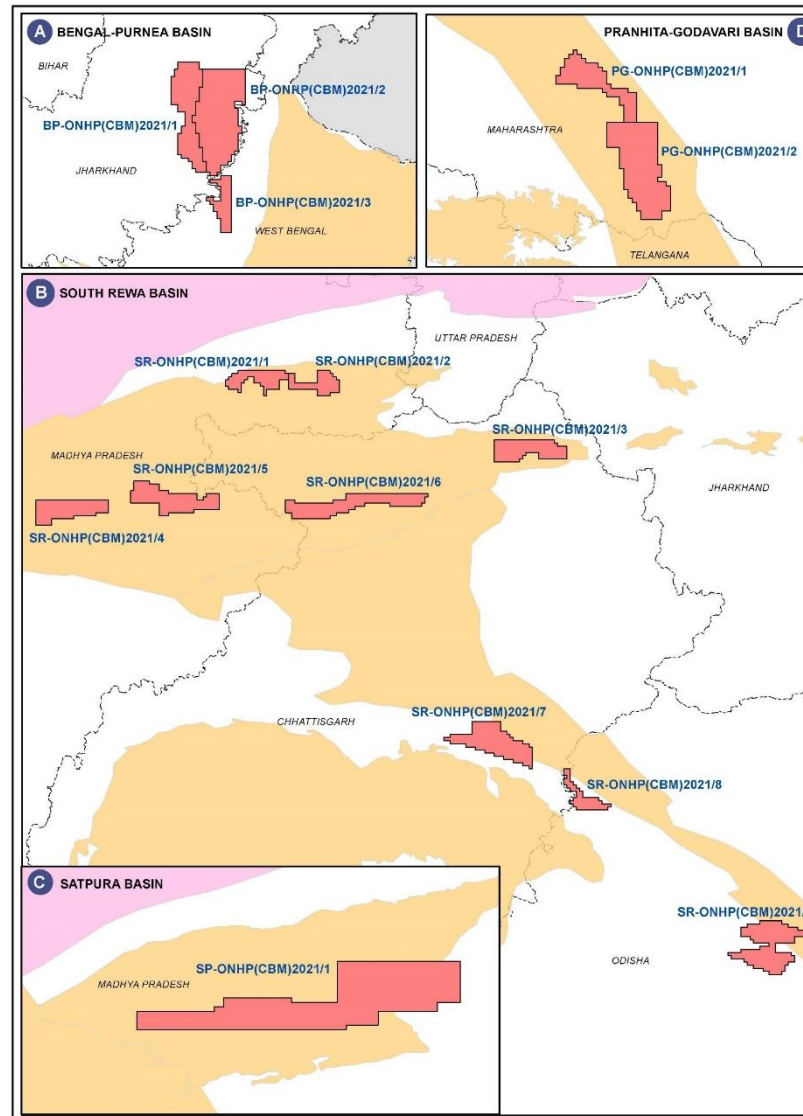
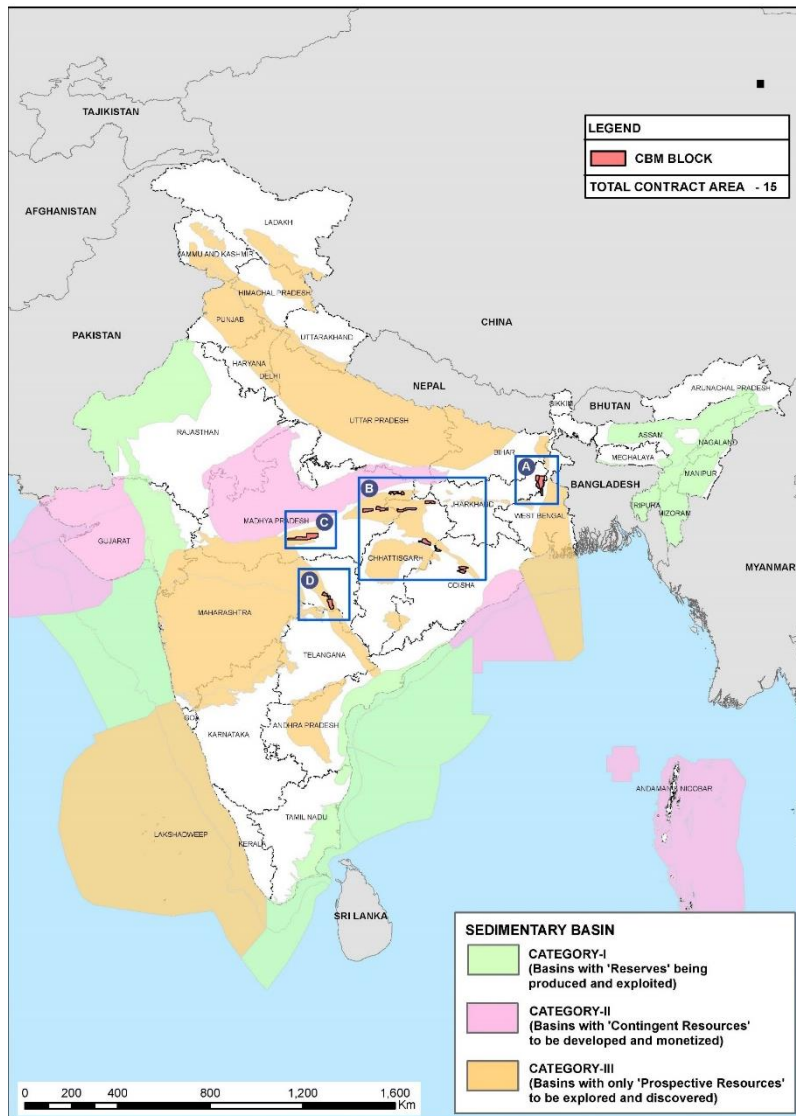
State	No. of Blocks	App. Area (Sq. Kms.)
West Bengal	1	197
Jharkhand	2	1556
Madhya Pradesh	5	3199
Maharashtra	2	1040
Odisha	2	884
Chhattisgarh	3	1583
Grand Total	15	8458

### State Wise Area



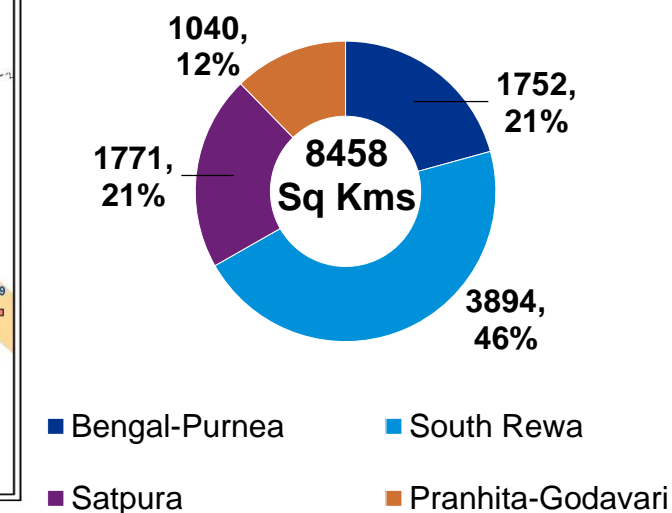


# Blocks on Offer Under Special CBM Bid Round-2021: Basin Wise



Basin	No. of Coal Field	Prognosticated Resources BCM
Bengal-Purnea	2	290
Pranhita-Godavari	1	40
Satpura	1	60
South Rewa	8	310
<b>Grand Total</b>	<b>12</b>	<b>700</b>

## Basin Wise Area (Sq. Kms.)





# Details of Blocks on Offer Under Special CBM Bid Round 2021

#	BASIN NAME	Coal Field	BLOCK NAME	STATE	~ AREA (SQ.KM.)	Resource (BCM)
1	Bengal-Purnia	Rajmahal	BP-ONHP(CBM)-2021/1	Jharkhand	564	190
2		Rajmahal	BP-ONHP(CBM)-2021/2	Jharkhand	991	80
3		Birbhum	BP-ONHP(CBM)-2021/3	West Bengal	197	40
4	Pranhita-Godavari	Wardha	PG-ONHP(CBM)-2021/1	Maharashtra	331	18.37
5		Wardha	PG-ONHP(CBM)-2021/2	Maharashtra	709	28
6	Satpura	Satpura	SP-ONHP(CBM)-2021/1	Madhya Pradesh	1,771	72
7	South Rewa	Singrauli	SR-ONHP(CBM)-2021/1	Madhya Pradesh	272	4
8		Singrauli	SR-ONHP(CBM)-2021/2	Madhya Pradesh	222	21
9		Tatapani-Ramakola	SR-ONHP(CBM)-2021/3	Chhattisgarh	408	48
10		Johilla	SR-ONHP(CBM)-2021/4	Madhya Pradesh	418	12.7
11		Sohagpur	SR-ONHP(CBM)-2021/5	Madhya Pradesh	515	14.39
12		Sonhat	SR-ONHP(CBM)-2021/6	Chhattisgarh	585	24
13		Mand raigarh	SR-ONHP(CBM)-2021/7	Chhattisgarh	590	111
14		IB valley	SR-ONHP(CBM)-2021/8	Odisha	191	31.11
15		Talchir	SR-ONHP(CBM)-2021/9	Odisha	693	92.8
Total Area					8,458	787.37

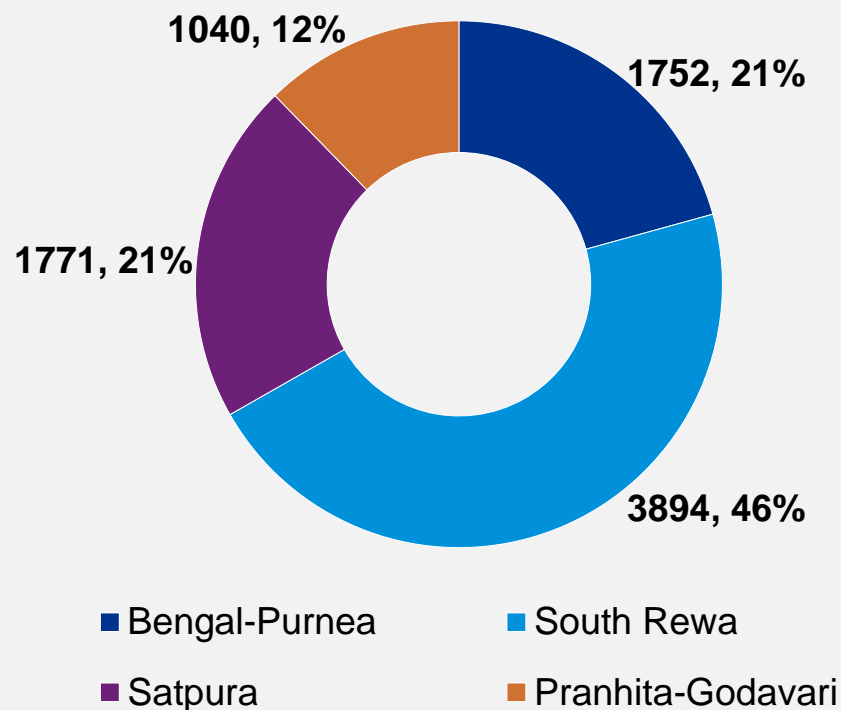




## Salient features

### 15 Coal Bed Methane (CBM) Blocks in 6 states

Sedimentary Basin Wise Area (Sq. km.)



1

All Blocks on offer in Category-III basin i.e. no revenue sharing until windfall gain

2

Single License for Conventional & Un-conventional Hydrocarbons

3

Full Marketing and Pricing Freedom for Gas produced

4

Exploration allowed during entire contract period

5

One block in one state, no overlap with existing/proposed Coal Blocks/Mines and Forest land

6

100% participation from foreign companies/Joint ventures

7

Gas Pipeline infrastructure through GAIL Pradhan Mantri Urja Ganga Pipeline

*“Average block size is ~600 Sq. km. which is almost twice the size of earlier CBM blocks (~300 Sq. km.)”*



# Outline

**1**

**Indian Sedimentary Basin - Overview**

**2**

**Overview of OALP Regime**

**3**

**Blocks on offer under DSF-III bid round**

**4**

**Blocks on offer under CBM bid round**

**5**

**Data Availability of blocks on offer**

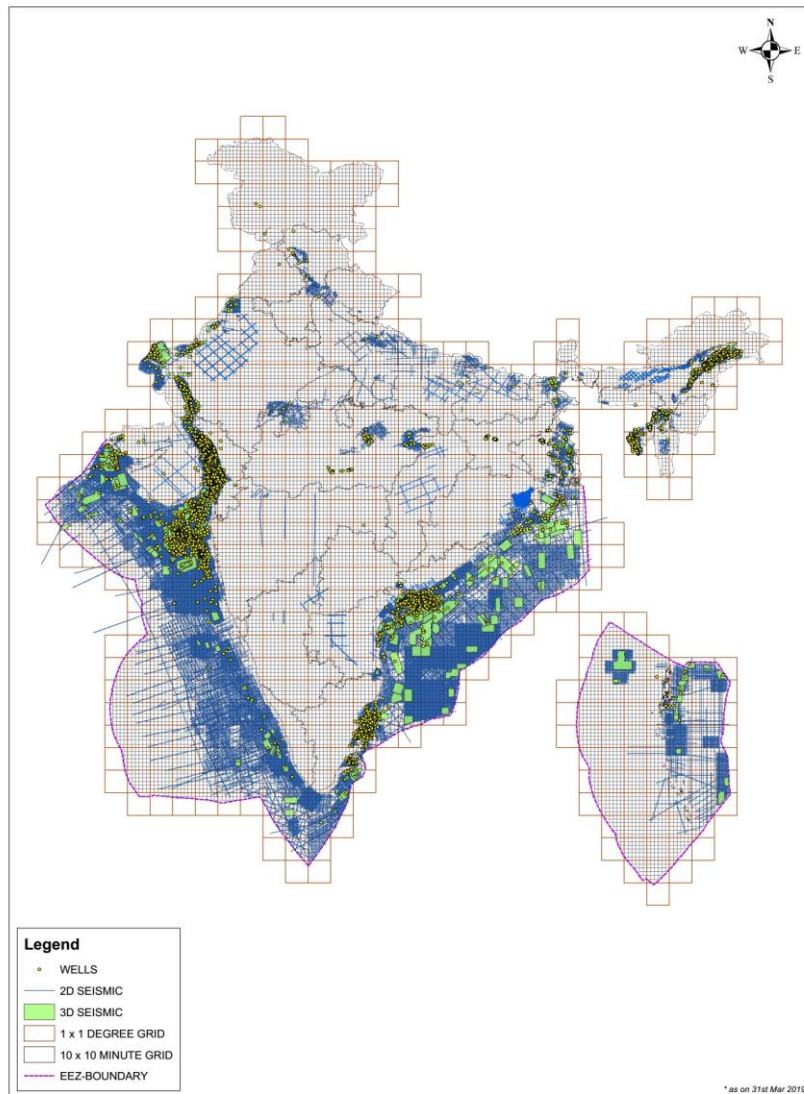
**6**

**Overview of Bidding Process**



# Sedimentary Basins – Data in NDR

2D/3D SEISMIC AND WELLS COVERAGE MAP



~ 3.0 million line km of 2D seismic data

~ 1.0 million square km of 3D seismic data

20,000+ well data and logs

15,000+ seismic reports

40,000+ well reports

● WELLS  
— 2D SEISMIC  
■ 3D SEISMIC



# Outline

**1**

**Indian Sedimentary Basins - Overview**

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**Blocks on offer under CBM bid round**

**5**

**Data Availability of blocks on offer**

**6**

**Overview of Bidding Process**





# OALP Bid Process At a Glance

Carving out  
of Blocks by  
Originator

EoI  
Submission

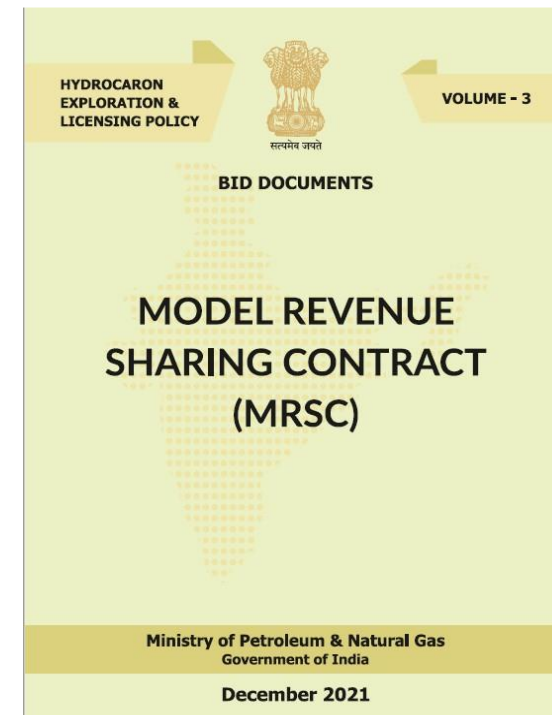
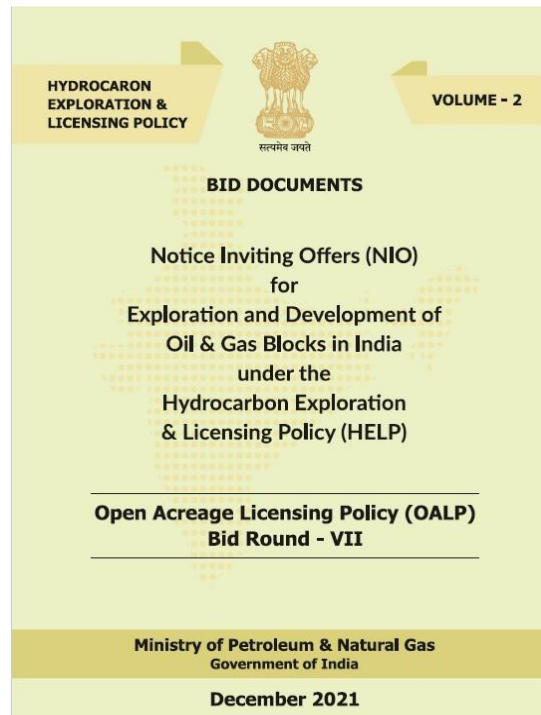
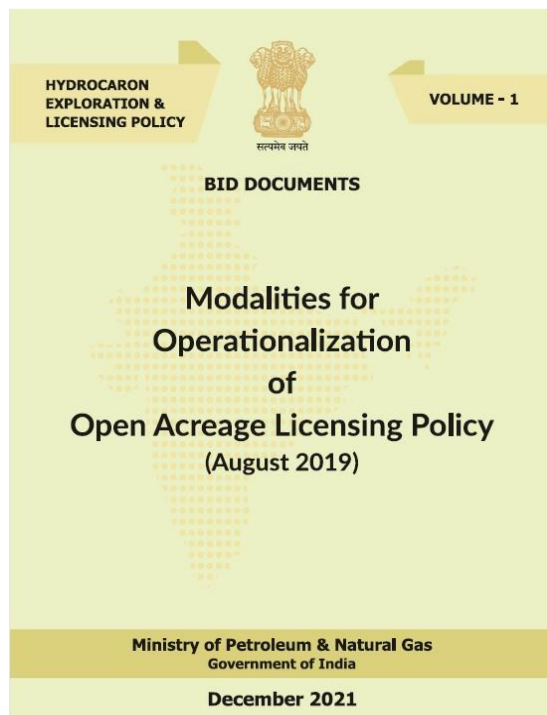
EoI  
Evaluation

Finalization  
of Blocks for  
International  
Competitive  
Bidding

Launch of  
Bid Round

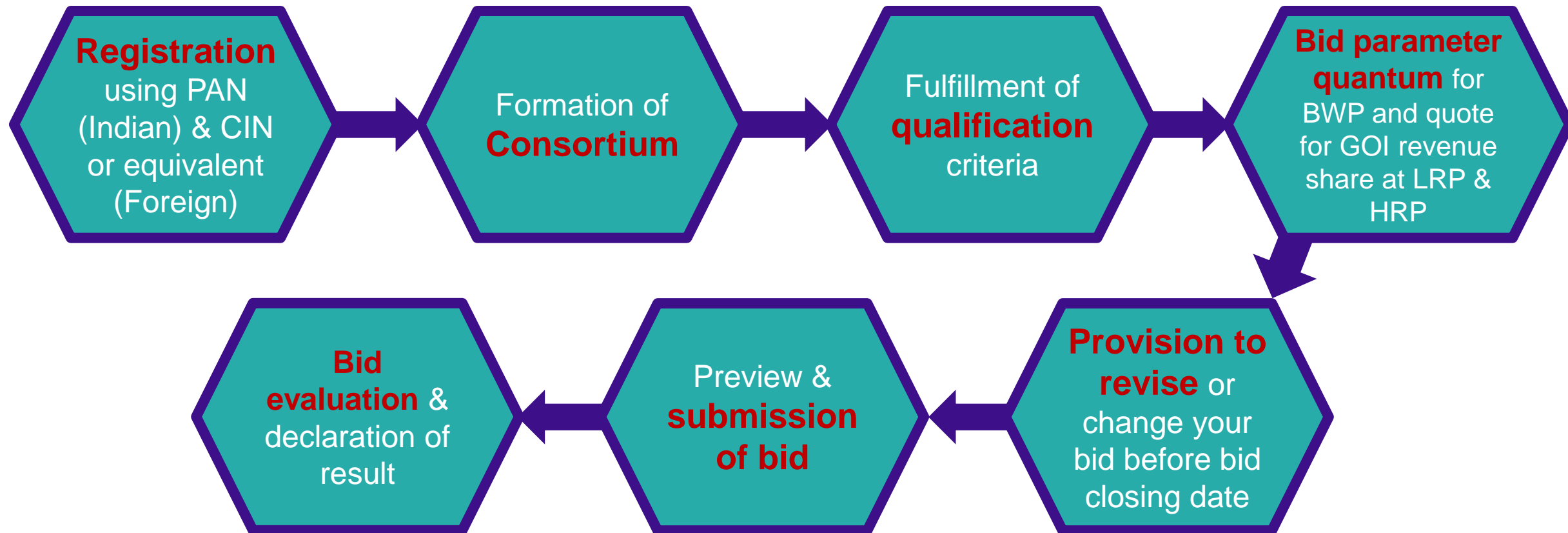
Evaluation  
of Bids

Award of  
Contractors





## DSF Bid Process At a Glance

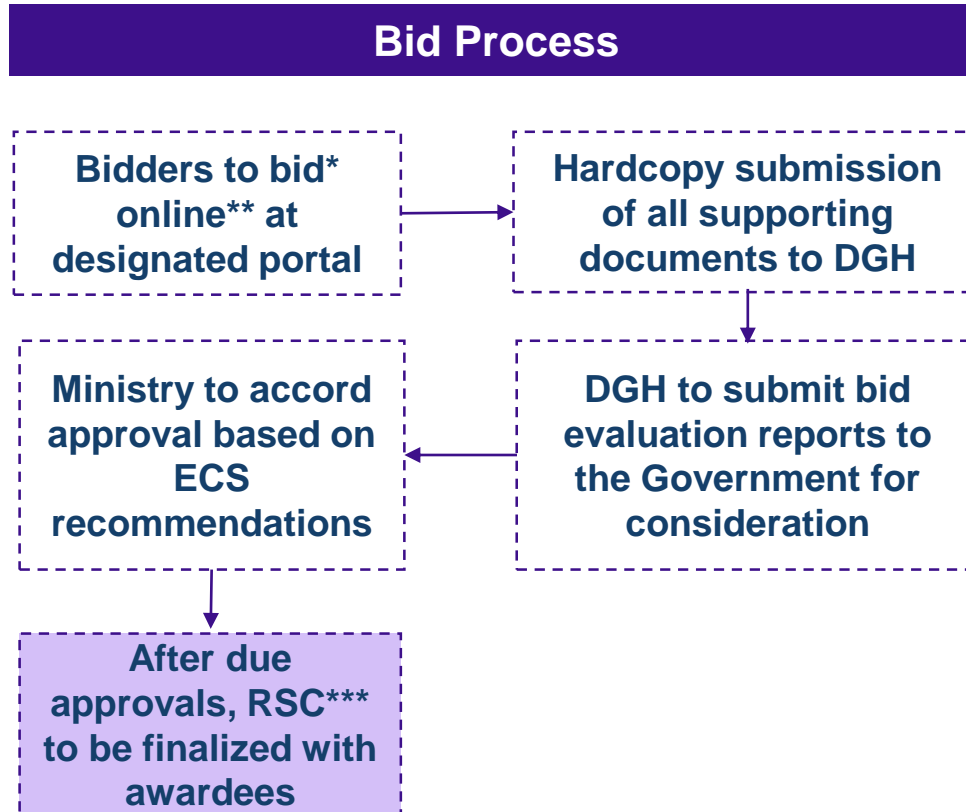


- ✓ Signing and encryption using Class III Digital Signature
- ✓ Provision of online tender fee payment
- ✓ 24X7 facilitation support is available to bidders

*\*\*System will calculate value of LD of BWP and compare with consortium member's NW (in the ratio of PI). Error message if LD of BWP value is greater than the NW. In such case domestic company can submit a Bank Guarantee ( BG) against the shortfall of Network.*



# DSF Bidding Timelines



Timelines	
Activity	Date
Launch	10 <sup>th</sup> June 2021
Bid start date	20 <sup>th</sup> April 2022
Bid opening	31 <sup>st</sup> May 2022
Award	Within 2 months

\*Any number of Contract Areas can be bid for

\*\* Most of the documents will be uploaded online

\*\*\* Revenue Sharing Contract

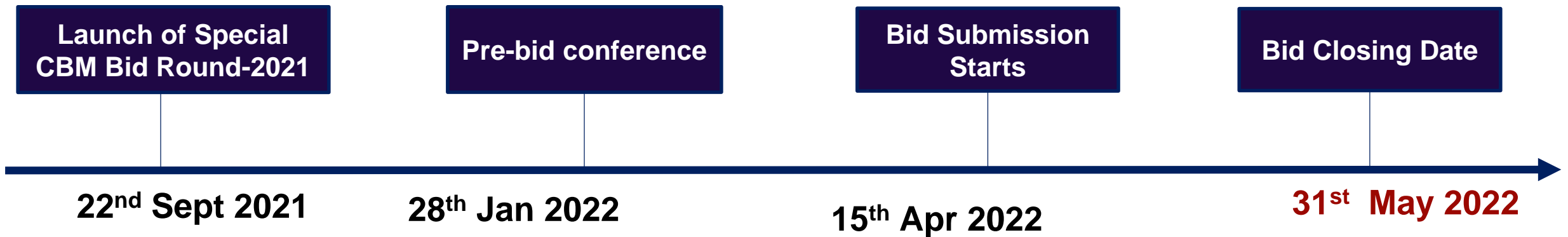


# CBM Bidding Timelines

## Bid Process



## Timelines





# Bidder facilitation

## Special CBM Information Portal (DGH website)

- Access to NIO & MRSC
- Pre-bid Conference/ Event registration
- News & updates related to SCBM-2021
- Queries resolution through facilitation desk

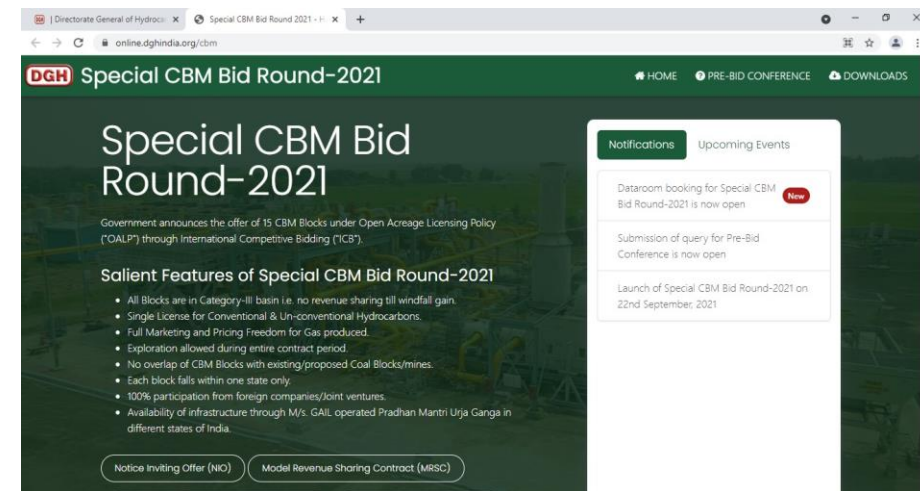
One stop  
solution for  
information  
on SCBM-  
2021

## DGH E-bidding portal

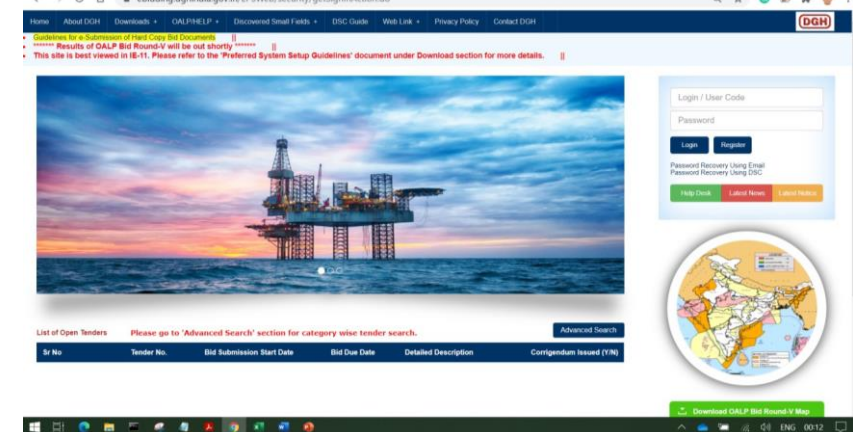
- Easy bidding process;
- Signing & encryption using class III Digital Signature
- Provision for revision of bids till bid closing
- 24X 7 Assistance

Purchase  
of  
Information  
Docket

<http://online.dghindia.org/cbm>



<https://ebidding.dghindia.gov.in>





# Key Touch Points for Facilitation



Ministry of Petroleum & Natural Gas  
Government of India

## Ministry of Petroleum and Natural Gas

Website-<http://petroleum.nic.in/>

Contact us: <https://mopng.gov.in/en/about-us/phone-directory>



## Directorate General of Hydrocarbons

Website: <http://dghindia.gov.in/>

Contact us: [http://dghindia.gov.in/contact\\_english.php](http://dghindia.gov.in/contact_english.php)

### DSF Bid Rounds

Website- <http://online.dghindia.org/dsf3>

Email: [Facilitationdsf@dghindia.gov.in](mailto:Facilitationdsf@dghindia.gov.in)

### CBM Bid Rounds

Website-  
<https://online.dghindia.org/cbm>

Email: [facilitationcbm@dghindia.gov.in](mailto:facilitationcbm@dghindia.gov.in)

### Hydrocarbon Exploration and Licensing Policy (OALP Bid Rounds)

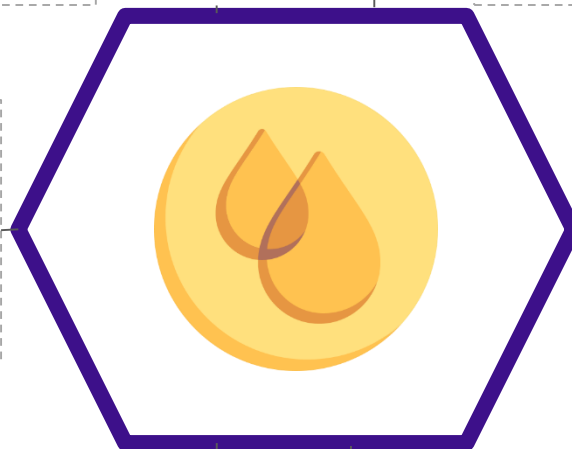
Website- <http://online.dghindia.org/oalp/>

Email: [Facilitationoal@dghindia.gov.in](mailto:Facilitationoal@dghindia.gov.in)

### National Data Repository

Website- <https://www.ndrdgh.gov.in/NDR/>

Email: [indr@dghindia.gov.in](mailto:indr@dghindia.gov.in)





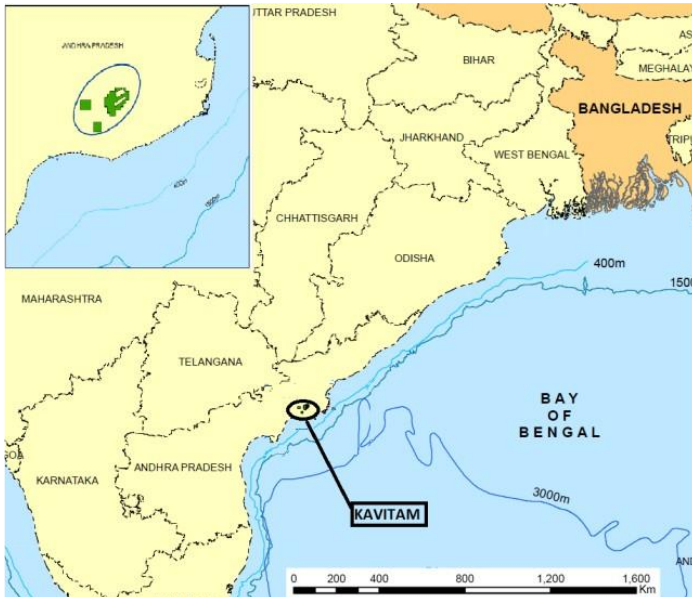


「Thank You」

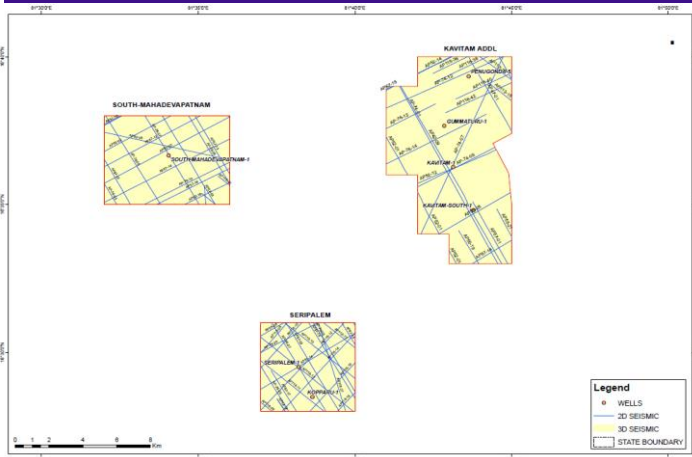


# KG/ONDSF/KAVITAM/2021 - Overview

Location Map



Seismic & Well data Coverage



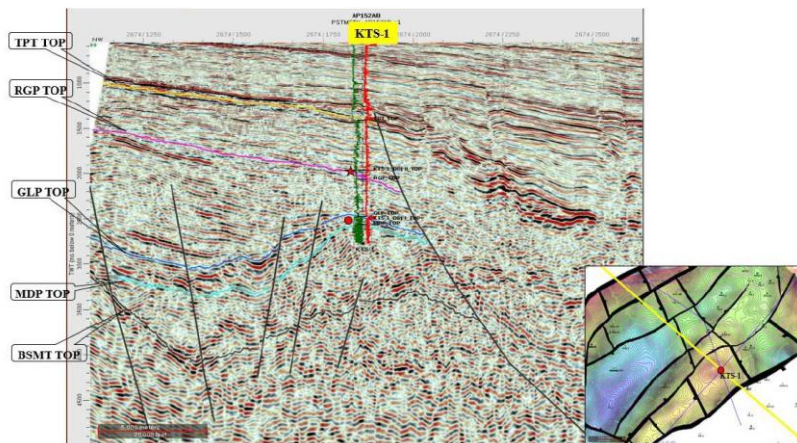
Field(s)	Kavitam South-1	Gummaturu-1	Penugonda-5	South Mahadevapatnam-1	Seripalem-1
Location	Andhra Pradesh				
Area, SKM	142.7				
Year of discovery	2019	2019	2019	2009	2012
Main Payzone & Age	Gollapalli sand of Upper Jurassic	Raghavapuram shale of Mid-Lower Cretaceous	Raghavapuram shale of Mid-Lower Cretaceous	Gollapalli sand of Upper Jurassic	Raghavapuram shale of Mid-Lower Cretaceous
Inplace, MMTOE	11.33				
3D Seismic, SKM	142.3				
2D Seismic, LKM	298.2				
Wells drilled	7				

- Area of 242.7 SKM with 5 Discoveries and Hydrocarbon Inplace of 11.33 MMTOE
- 3 recent Discoveries

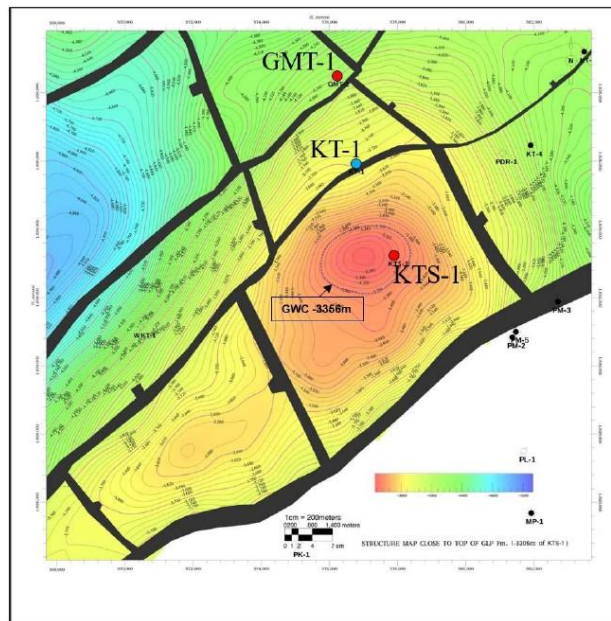


## KG/ONDSF/KAVITAM/2021 - Prospectivity

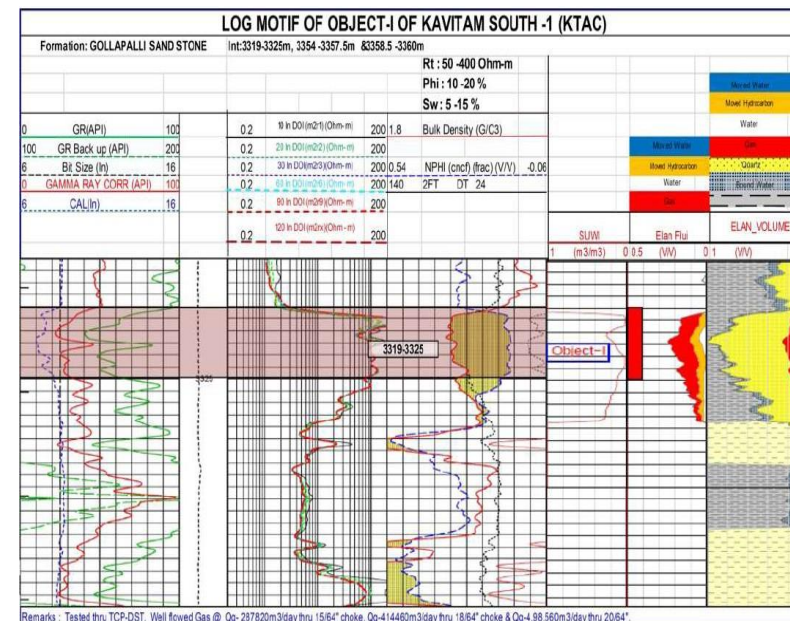
## Interpreted Seismic Section



## Depth Structure Map



# Well Log

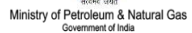


## Field Kavitam South – 1 (KTAC)

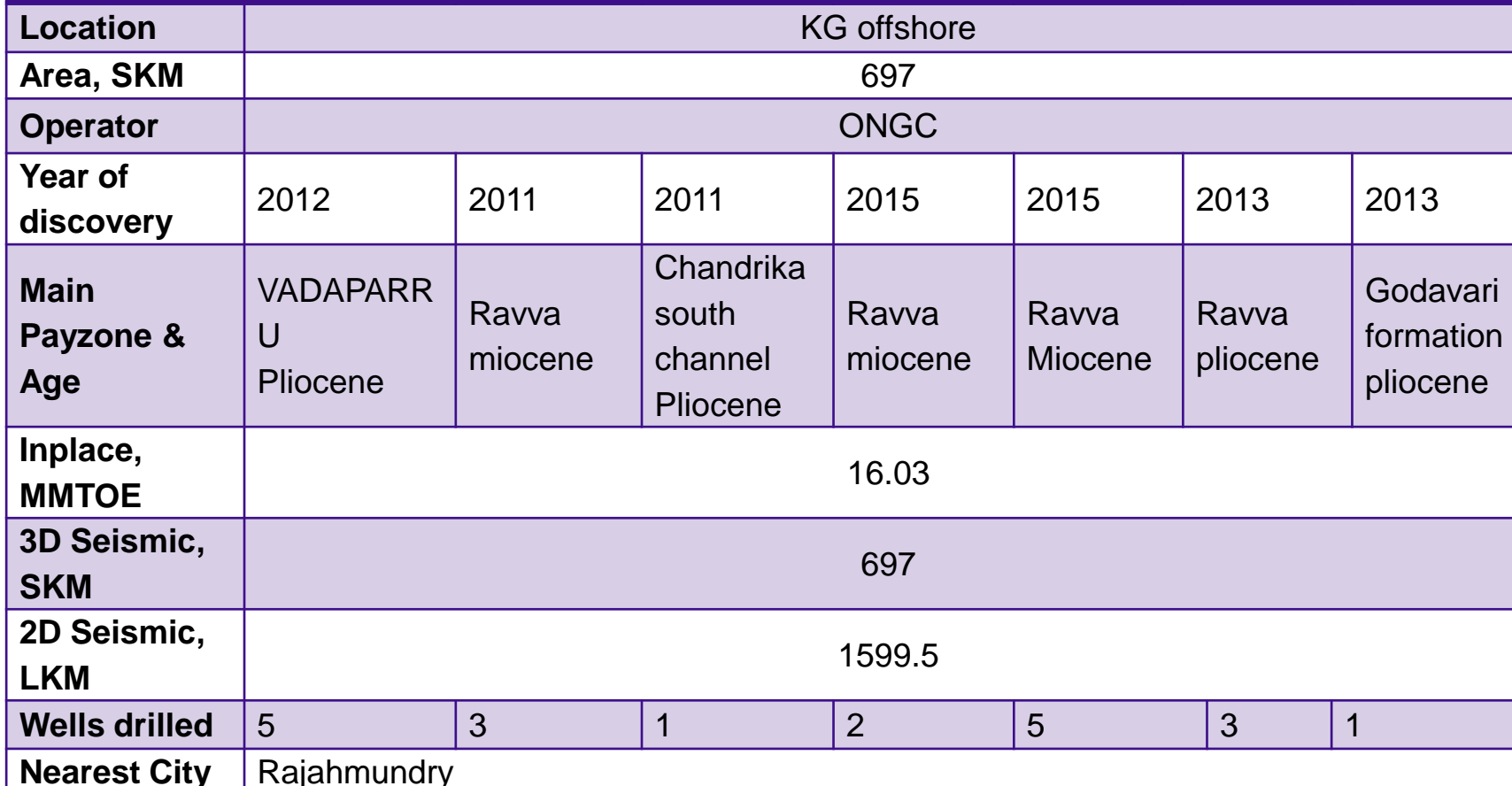
- Broad high (four way closure)
- Around 20 m Gas pay

## Initial testing details:

Tested obj-I intervals 3360-3358.5m, 3357.5-3354m and 3325- 3319m by TCP-DST flowed gas @ 4,98,560 m3/d through 20/64" choke at stablized FTHP 7600 psi.



Field(s)	Saveri-1	Alankari-1	Chandrika South-1	Sarangi-1	Malhar-1	KGS041- NANL-1	KGS041- NANL-2
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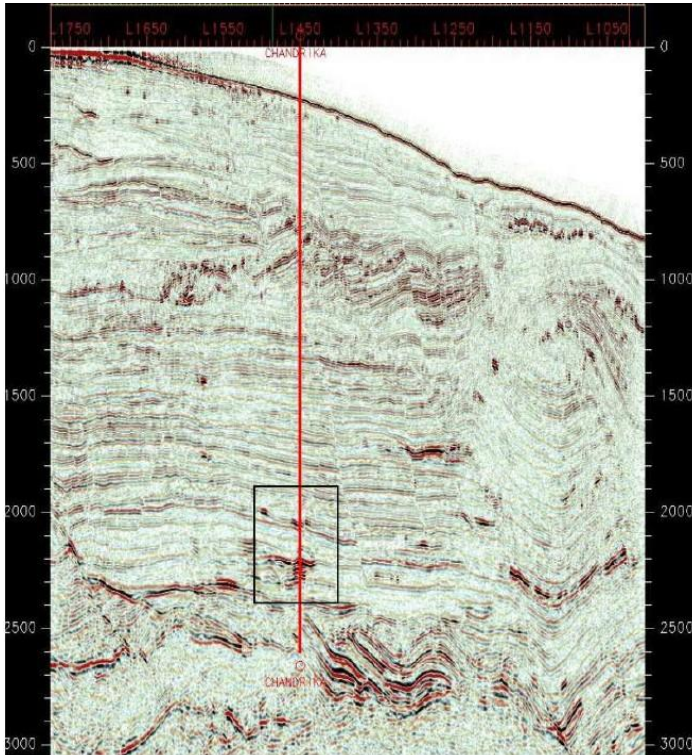


- **Area of 697 SKM comprising 7 Discoveries with Hydrocarbon Inplace of 16.03 MMTOE**
- **Peak Production is envisaged to be 4.55 MMSCMD**

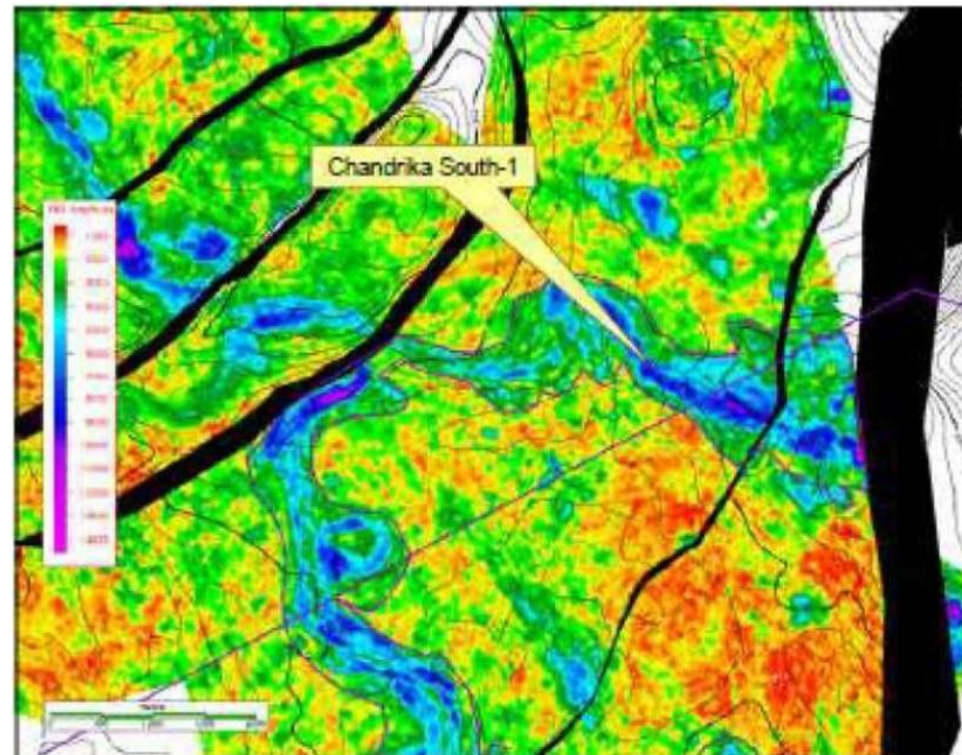


# KG/OSDSF/CHANDRIKA/2021 - Prospectivity

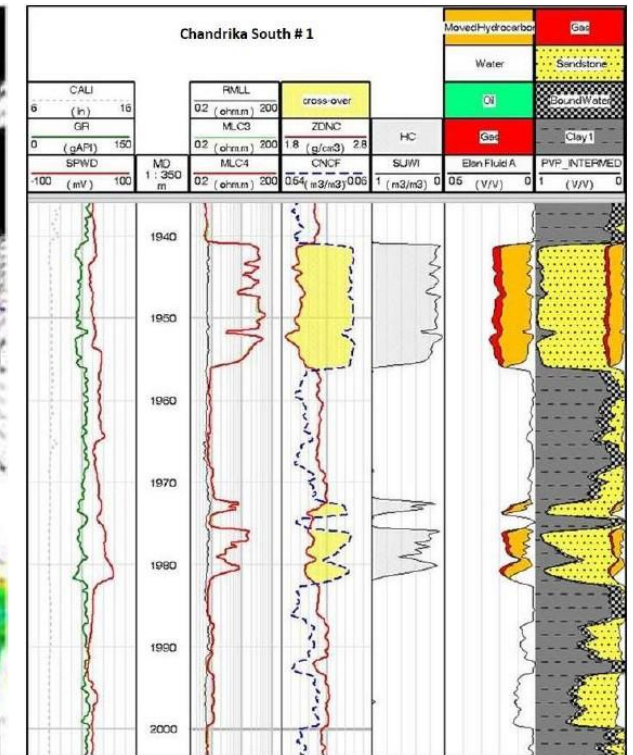
Seismic Section



Seismic Amplitude Map of Reservoir



Well Log



## Field Chandrika South – 1

- Early Pliocene channel system, trapped against a large, Plio-Pleistocene growth fault
- Channel sands are amplitude supported

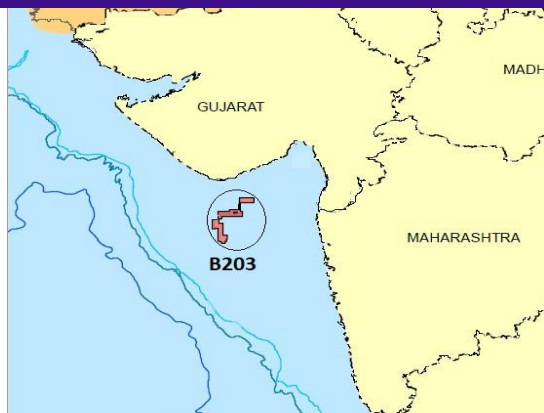
## Initial testing details:

Chandrika South-1:1231-1249m Godavari formation Qg= 150034m3/d through 12/64" choke

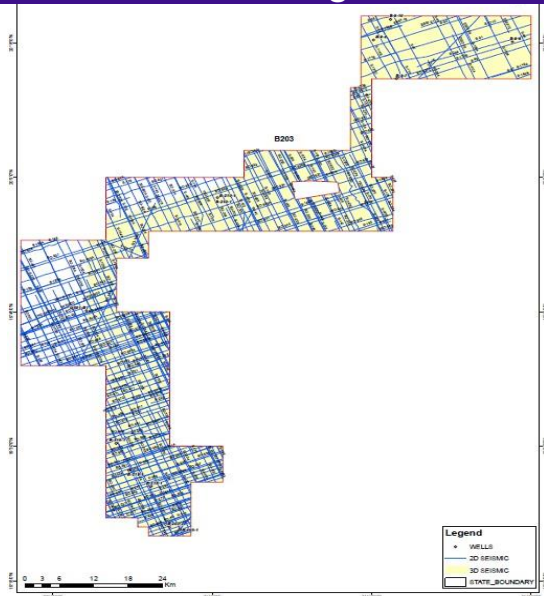


# MB/OSDSF/B-203/2021 - Overview

Location Map



Seismic & Well data Coverage



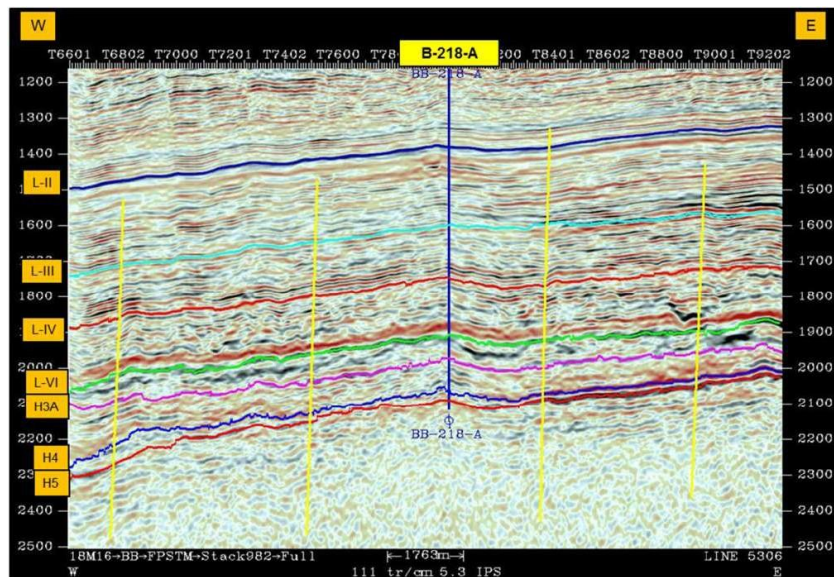
Field(s)	D-33	B-203-2	B-218-1	B-219-1
<b>Location</b>	Mumbai Offshore			
<b>Area, SKM</b>	2006.5			
<b>Year of discovery</b>	2007-08	2018-19	2019-20	2019-20
<b>Main Payzone &amp; Age</b>	Carbonate Growth, Eocene-Mid Miocene	L-III, L-VI, Mukta	Panna, Bassein, Mukta, L-VI, L-IV	Panna, Bassein, Mukta
<b>Inplace, MMTOE</b>	25.07			
<b>3D Seismic, SKM</b>	1642.9			
<b>2D Seismic, LKM</b>	4087.8			
<b>Wells drilled</b>	12			
<b>Nearest City</b>	Mumbai			

- Area of 2058.8 SKM comprising 4 Discoveries with Hydrocarbon Inplace of 25.07 MMTOE
- 3 Recent Discoveries

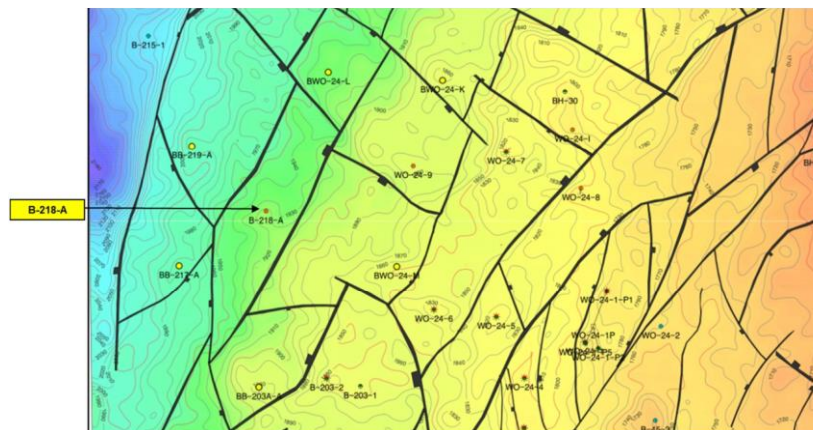


# MB/OSDSF/B-203/2021 - Prospectivity

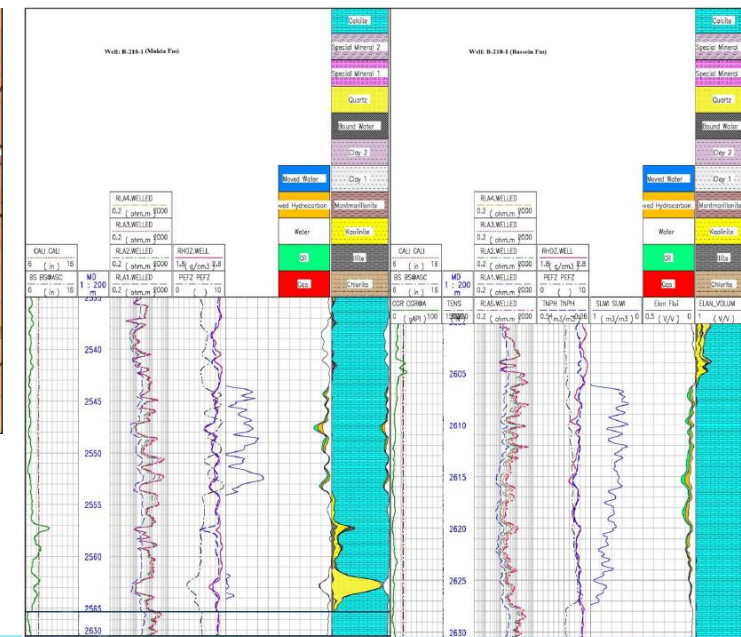
## Interpreted Seismic Section



## Time Structure Map of L-VI



## Well Log



## Field B-218-1

- BB-218-1 is on a separate fault block.
- Is a 4-way/Fault closure at the objective level.
- Around 8.5 m oil pay at well location in Mukta Pay.  
Around 15 m gas pay at well location in Lower Bassein pay.

## Initial testing details:

2625-2604m QLiq: 535BPD and QGas:  
219,501m<sup>3</sup>/d through 40/64" choke at FTHP:  
1102psi 48.2°API, BS&W: 23-25%, Salinity:  
7588ppm as NaCl). 2554-2544m QOil: 819BPD



# MB/OSDSF/B-154N/2021 - Overview

Location Map



Seismic & Well data Coverage



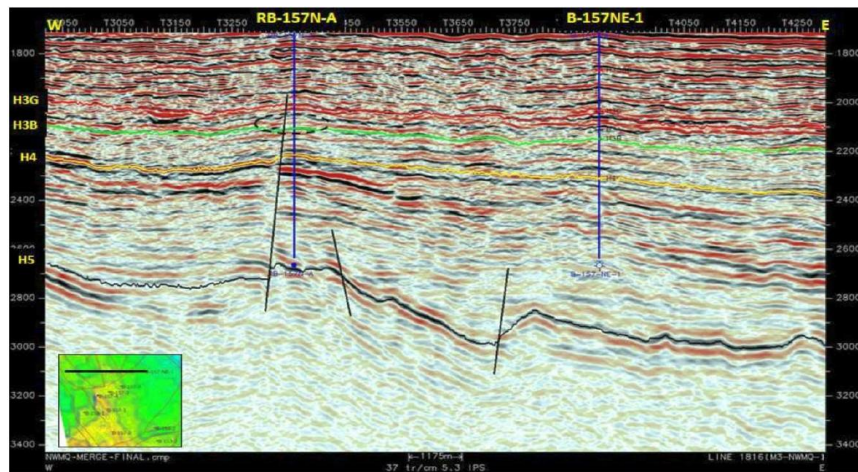
Field(s)	B-127N-1	B-154N-1	B-157N-1
<b>Location</b>	Mumbai Offshore		
<b>Area, SKM</b>	342.6		
<b>Year of discovery</b>	2015-16	2016-17	2016-17
<b>Main Payzone &amp; Age</b>	Panna fm. Paleocene	Panna fm. Paleocene	Panna fm. Paleocene
<b>Inplace, MMTOE</b>	1.3	12.4	6.5
<b>3D Seismic, SKM</b>	299.1		
<b>2D Seismic, LKM</b>	1554.5		
<b>Wells drilled</b>	8		
<b>Nearest City</b>	Mumbai		

- Area of 580.8 SKM comprising 3 Discoveries with Hydrocarbon Inplace of 20.2 MMTOE
- All Recent Discoveries

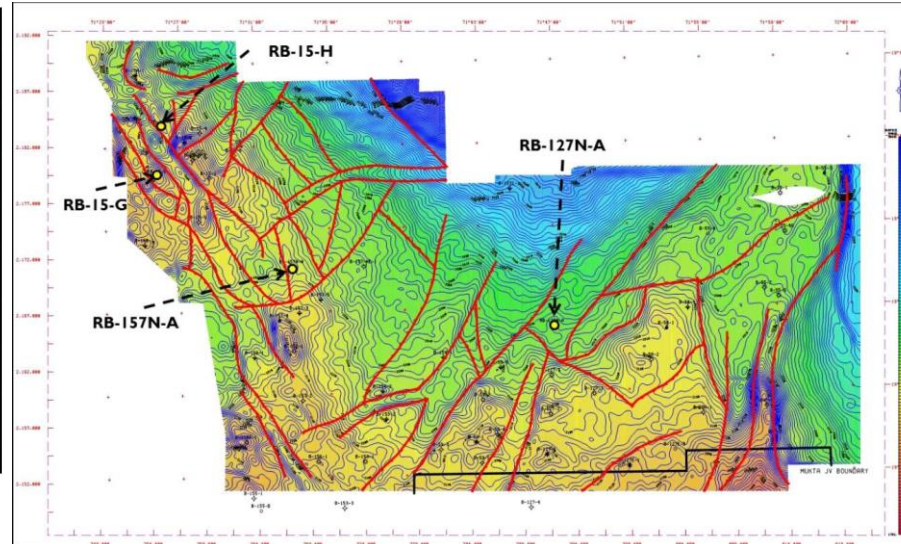


# MB/OSDSF/B-154N/2021 - Prospectivity

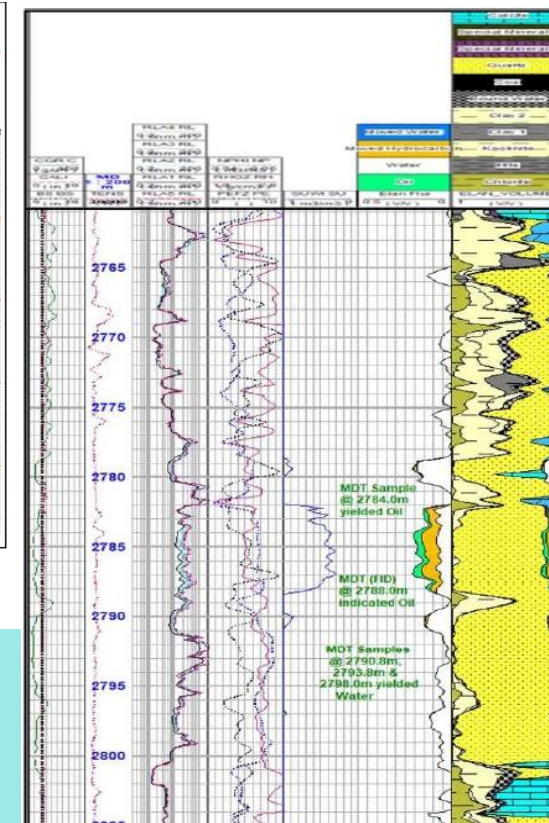
Interpreted Seismic Section



Depth Structure Map



Well Log



## Field B-157N-1

- Is an independent four way closure of 30m with an aerial extent of approximately 3.8 SKM
- Around 6.25 m oil pay has been encountered at well location in Panna pay

## Initial testing details:

2784-2787m produced 2379 BPD Oil and 86560 m3/day Gas through ½" choke. Oil API: 43.66°. FTHP: 1900 PSI. GOR: 228 V/V.

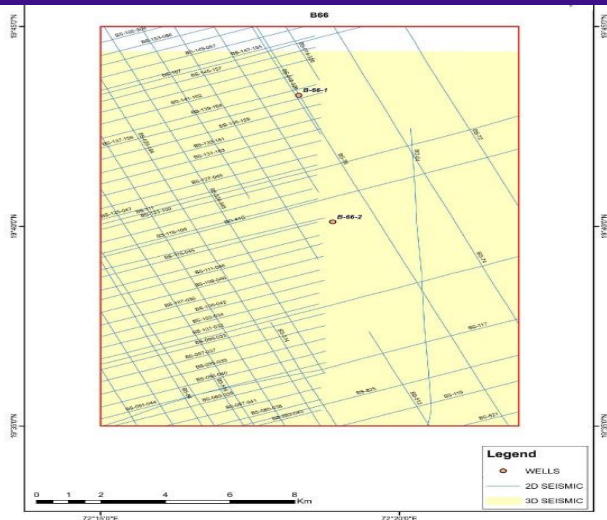


# MB/OSDSF/B-66/2021 - Overview

## Location Map



## Seismic & Well data Coverage



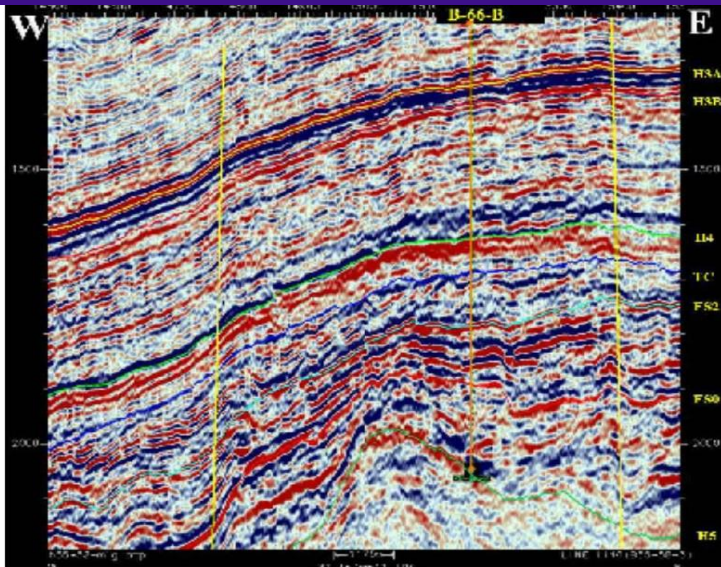
Field(s)	B-66-2
Location	Mumbai Offshore
Area, SKM	225.7
Year of discovery	2015-16
Main Payzone & Age	Bassein (Eocene)
Inplace, MMTOE	20.9
3D Seismic, SKM	211
2D Seismic, LKM	504
Wells drilled	2

- Area of 225.7 SKM comprising 1 Discovery with Hydrocarbon Inplace of 20.9 MMTOE
- Recent Discovery

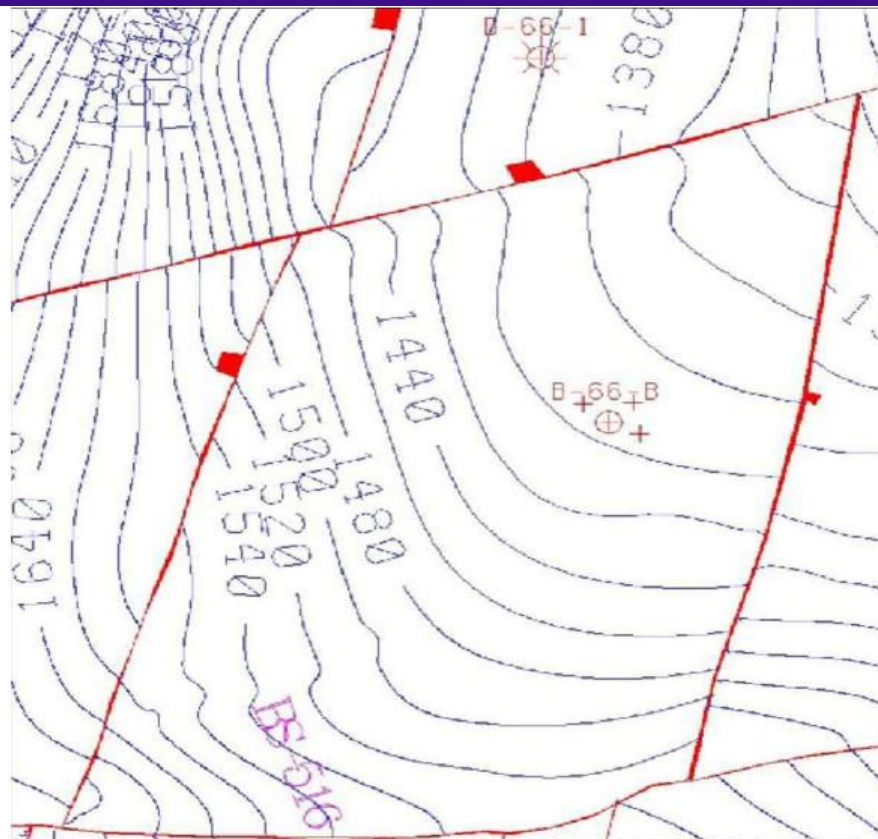


# MB/OSDSF/B-66/2021 - Prospectivity

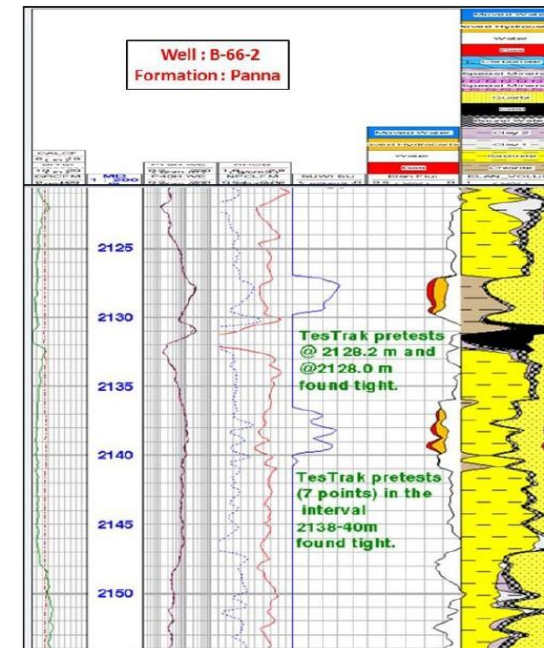
Seismic Section



Time Structure Map



Well Log



## Field B-66-2

- Entrapment conditions around B-66-2
- Proximity of the carbonate banks to the paleo coast aided in carbonate dissolution and created porosity

- Around 58 m oil pay at well location in lower Bassein pay. Around 3 m gas pay at well location in Lower Bassein Pay

## Initial testing details:

- Obj III: 1720-1738m, Bean: (1/64 inch):32; Qg: 50366 scmd; Qo: 390 bopd, Flow Period: 15 hrs

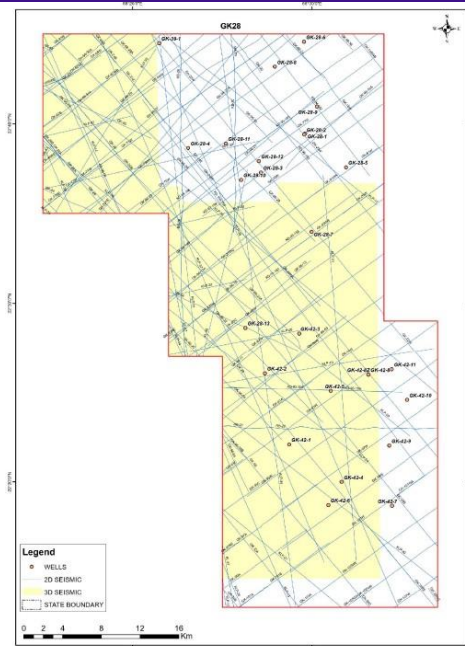


# Contract Area - GK/OSDSF/GK-28/2021

## Location Map



## Seismic & Well data Coverage



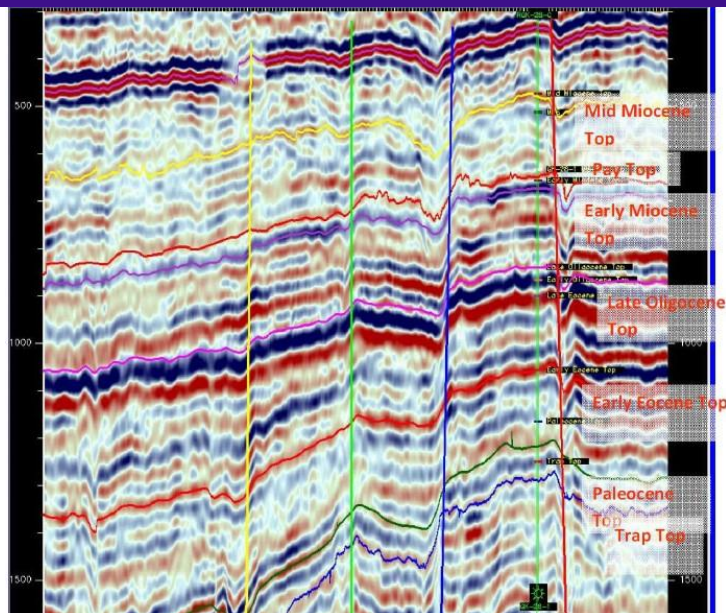
Field(s)	GK-39-1	GK-28-1	GK-28-10	GK-28-3	GK-28-2	GK-28-9	GK-42-1	GK-42-3
Location	Kutch-Saurashtra							
Area, SKM	1455.84							
Year of discovery	2000-2001	2009-10	2015-16	2010-11	2010-11	2013-14	2011-12	2013-14
Main Payzone & Age	Bhuj (Lower cretaceous )	Chhasra & godhara (E. Miocene)	Nakhatara na (Paleocene )	Nakhatara na (Paleo.) & Chhasra (M.miocene)	Mundra (Late – E.cretaceous)	Jakhau (E.Eocene/Nakhtar na)	Jakhau (E.Eocene /Nakhtarna)	Nakhatara na (Paleocene )
Inplace, MMTOE	0.05	15.7	0.1	9.3	0.001	0.001	6.3	0.001
3D Seismic, SKM	875							
2D Seismic, LKM	2082							
Wells drilled	26							
Nearest City	Okha							

- Area of 1455.84 SKM comprising 8 Discoveries with Hydrocarbon Inplace of 20.9 MMTOE.
- Peak Production is envisaged to be 3.32 MMSCMD.



# Prospectivity of GK/OSDSF/GK-28/2021

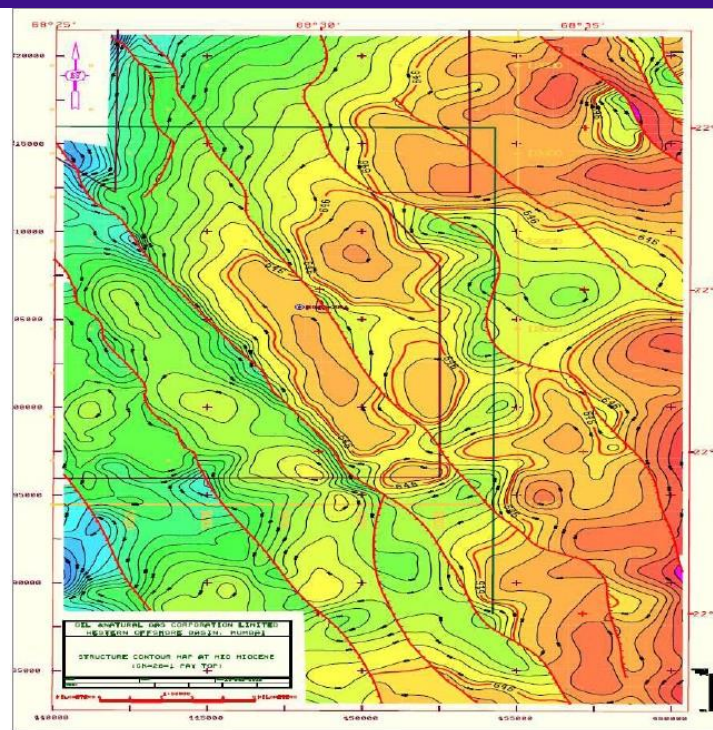
Seismic Section



## Field GK-28-1

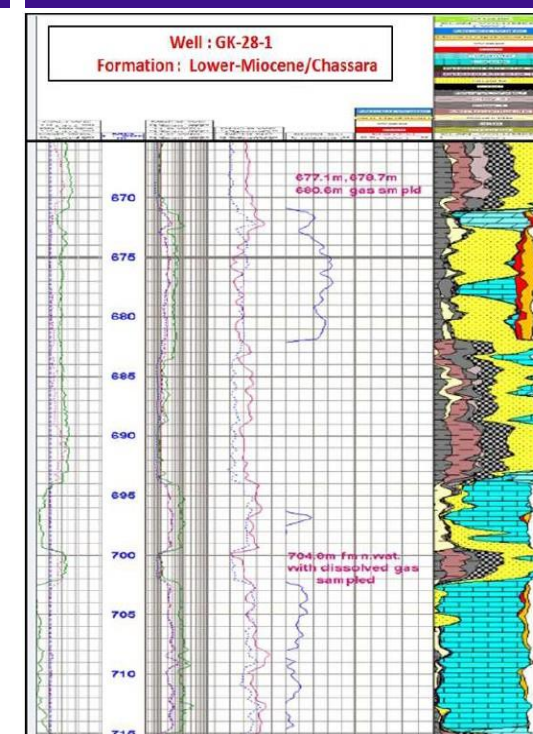
- GK-28-1 is 2 way structural closure bounded by 2 NNW-SSE trending longitudinal faults towards east and west.

Depth Structure Map



- Mid Miocene Pay 12 M Gas pay at the well location.
- Early Eocene Pay: 2 M Gas pay at the well location.

Well Log



## Initial testing details:

671-682| Bean(1/64 inch): 32| FTHP: 830 psi| Qgas: 122896 scmd| FTHT: 85 DegF