



Current Status and Future Requirement for Oil Spill Response Preparedness in Indian Petroleum Sector

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- ▶ **Coastline of India**
 - ▶ 5500 km on the mainland
 - ▶ 2000 km on its offshore islands.
- ▶ **Coastal area is known for**
 - ▶ Vast network of backwaters
 - ▶ Estuaries
 - ▶ Creeks
 - ▶ Lagoons
 - ▶ Mangroves and coral reefs.
- ▶ The country is blessed with beaches all along the coast.
- ▶ Recorded more than 5000 species of marine flora and fauna



Indian Scenario (2012-13)



India's Oil Consumption	154.5 MMT
Indian Production	42.31 MMT
Crude refined	217.18 MMT
Indian Offshore production	22 MT Approx.
Expected Consumption by 2024-25	364 MMT
Import of Crude by 2025	400 MMT



- ▶ 12 major ports
- ▶ 187 minor/Interim/Small Ports

Other Risks

- ▶ 350 to 400 MMT crude oil is transported along the route through 2500-3000 tankers
- ▶ Considering the large volume of oil transportation at high rate – probability of tanker accident is very high





Oil Handling Facilities along the Indian Coast



Port / Area	Function
Gulf of Kachchh	Ship to ship transfer
Port Kandla	Single point Mooring Buoy
Vadinar	Single point Mooring Buoy
Bombay High	Offshore oil field
Mumbai (Offshore)	Ship to ship transfer
Bassein	Offshore oil field
Ratna/Heera	Offshore oil field
Butcher Island	Marine Terminal
Mumbai	Refinery / Depot
Marmagoa	Marine Terminal
Mangalore	Marine Terminal



Oil Handling Facilities along the Indian Coast



Cochin	Marine Terminal
Tuticorin	Marine Terminal
Cauvery	Offshore oil field
Chennai (Offshore)	Ship to ship transfer
Chennai	Marine Terminal
Vishakhapatnam	Marine Terminal
Vishakhapatnam	Offshore oil berth "VIZAG"
Krishna	Offshore oil field
Godavari	Offshore oil field
Mahanadi	Offshore oil field
Haldia	Marine Terminal Refinery / Depot
Calcutta	Marine Terminal

Tier-I OSR Facilities in existence in country



Sl No	Company / Location
1	ONGC western Offshore
2	BG Exploration & Production (western offshore)
3	Rawa Offshore by Cairn Energy
4	Reliance Petroleum , Vadinar
5	IOCL Vadinar
6	HPCL Mangalore
7	BPCL-KR, Kochi
8	ESSAR Oil Vadinar
9	CPCL-CBR- Nagapatnam
10	CPCL Chennai
11	IOCL Tuticorin
12	BORL, Vadinar
13	IOCL-Haldia : Facility with port,upgradation in process
14	IOCL-Portblair : Facility with port
15	IOCL Paradip

Tier-I OSR Facilities in existence in country



Sl No	Company / Location
16	IOCL Budge-Budge
17	BPCL Mumbai(in Progress)
18	HPCL Goa
19	HPCL Visakh
20	BPCL Kandla



Indian Coastlines and Eco Sensitivity



- ▶ The significantly high biodiversity in the coastal waters includes
 - ▶ Gulf of Mannar and Kachchh
 - ▶ Andaman, Nicobar and Lakshadweep islands
 - ▶ Specialized ecosystems such as Chilka Lake, mangroves etc.
- ▶ Oil spills from any source affect these habitats, beaches and their adjoining land severely and may **cause irreversible damage** to the biodiversity as well as create an unaesthetic appearance.



Ecologically Sensitive Areas of the Indian Coast



S.No.	Location	Ecological Importance	Extent of Oil Spill Risk
1	Gujarat - Gulf of Kachchh	National Marine Park from Okha to Sabya. Corals in south and mangroves in north. 800 species of marine organisms, with great diversity. Salt pans, refineries and power plant using seawater for cooling.	Four SPMs and movement of tankers. Risk is High.
2	Beaches south of Dwarka	Historical and pilgrimage site. Beaches regularly visited by tourists.	Located in Shipping route. Risk is Moderate.
3	Maharashtra - Beaches of Mumbai	Beaches at Juhu, Versova attract eco tourists and visitors. Power plant using seawater for cooling.	Tanker traffic in port. Risk is High.
4	Malvan coast	Historical Sindhurg Fort and inter tidal corals.	Located in Shipping route. Risk is Moderate.
5	Goa	Entire 105 km long coast has beaches of tourist importance.	Area near Marmagosa port Risk is High. Other areas Risk is Moderate.
6	Karnataka - Coast at Gokhran	Western Ghat close to coast. Virgin beaches.	Located along shipping route. Risk is Moderate.
7	Mangalore	Beaches visited by tourists.	Area close to Mangalore port. Risk is High.



Ecologically Sensitive Areas of the Indian Coast



8	Kerala	Entire coast is of natural beauty with fine network of back waters which are of fishing and navigational importance.	Area around Kochi port. Risk is High. Other areas risk is Low to Moderate.
9	Tamil Nadu - Kanyakumari	Historical importance. Pilgrims visit regularly.	Close to tanker routes. Risk is High.
10	Gulf of Mannar	21 Islands declared as Biosphere Reserve. Have highest Biodiversity. Coral pearl oysters, sea grass and mangroves. Fishing in Gulf. Most sensitive ecosystem. Tuticorin Thermal plant uses seawater for cooling.	Islands close to Tuticorin Port have High Risk. Other Islands have Moderate risk.
11	Vedaranyam 10 15 N - 10 35 IN 79 20'E-79 56'F	Coastal bird sanctuary and salt pans.	Away from shipping route. Risk is Low.
12	Pichavaram Mangrove	Dense mangrove for 1100 hectares.	Away from shipping route. Risk is Low.
13	Mahabalipuram	Historical and cultural site.	Located close to shipping route Risk is Moderate.
14	Beaches around Chennai	Beaches from Mahabalipuram to Marina have tourist importance. North Chennai Thermal power plant uses seawater for cooling.	Marina has High risk. Other areas Risk is Moderate.

Ecologically Sensitive Areas of the Indian Coast



15	Pulicat lake	Belongs to Tamilnadu Andhra. Biodiversity and high importance for prawn fishing.	Close to Ennore port. Risk is High.
16	Andhra Pradesh - Machilipatnam	Krishna delta has great fishing importance.	Away from shipping route. Risk is Low.
17	Coringa Mangroves	23570 hectares mangrove area with good species diversity	Close to Kakinada Port. Risk is High.
18	Beaches of Vizag	10 km wide beaches used for recreation.	Vizag Port poses High Risk.
19	Orissa - Chilka Lake	Largest lake in Asia, rich in biodiversity and fisheries.	Away from shipping route. Risk is Moderate.
20	Bhiltarkanika	Extensive mangrove forest and several other fauna.	Away from shipping route. Risk is Moderate.
21	Gatiranata	35 km long coastline near Dhomna ground for resting ground of endangered Olive Ridley Turtles largest in the world.	Away from shipping route. Risk is Moderate.



Ecologically Sensitive Areas of the Indian Coast



22	Beaches of Puri and Konark	Tourists and pilgrims visit beaches.	Away from shipping route. Risk is Moderate.
23	West Bengal - Sundarbans Hooghly system	Largest mangrove formations in the country Hooghly used for ship navigations.	Holding Kolkata ports. Risk is High.
24	Digha	Beaches visited by week-end tourists.	Away from shipping route. Risk low.
25	Andaman and Nicobar Islands	Most pristine marine ecosystem. Nicobar Islands have coral, Andaman has mangroves, waters rich in biodiversity	Andaman has moderate risk. Nicobar close to international tanker route. Risk is very high.
26	Lakshadweep Islands	37 coral islands.	Located along the international tanker route. Risk is very high.



FUTURE REQUIREMENTS



- ▶ National Policy on Spill Response
- ▶ Strong Legislation
- ▶ Mapping of Oil Spill Risk
- ▶ Sensitive area Mapping
- ▶ Creation of Oil Spill Response Cooperative or OSRO
- ▶ Onus level(Operator , Charterer or Occupier)
- ▶ Technology related issues for monitoring and combatement

FUTURE REQUIREMENT

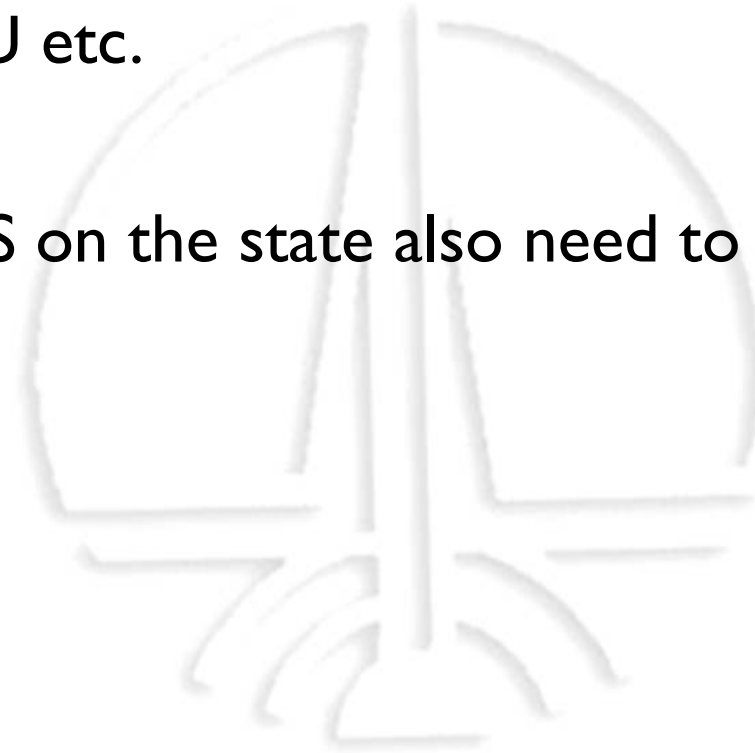


- ▶ Creation of System for checking of effectiveness of Oil Spill response contingency Plan
- ▶ Promotion of mutual aid / pooling of resources among oil handling agencies
- ▶ Creation of National Level think tank of experts and stake holders for oil spill response on relevant issues

Future Requirements-Cross Border Spills



- ▶ CP shall address issue of tackling cross border spills (CBS) by MOU etc.
- ▶ Impact of CBS on the state also need to be addressed.



Thanking You