


PAJ Oil Spill Workshop 2017

"Considerations for future oil spill response management and operations"

Tokyo | 12 December 2017

Low Probability High Consequences Oil Spill Response Plan: Promoting Cooperation and Networking Emergency Respond

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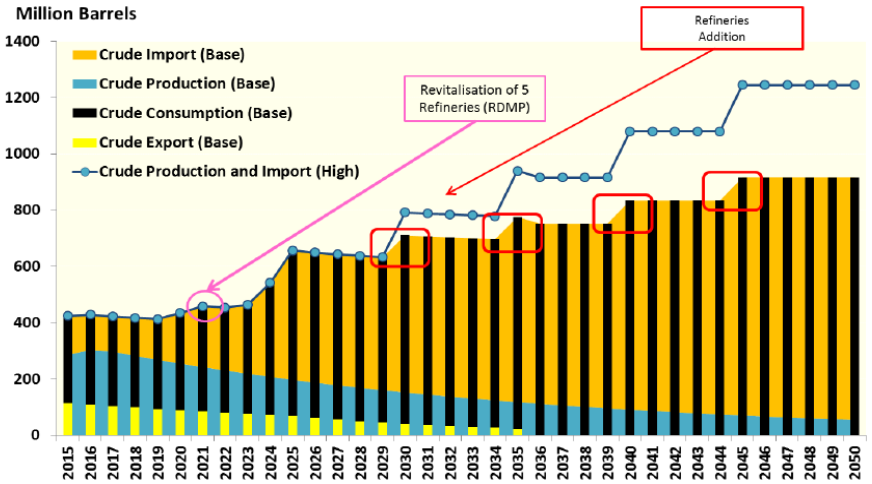
1. Potential Risk of Oil Spill
2. Existing Oil Spill Response Strategy
3. Changing Circumstances
4. New Oil Spill Response Strategy

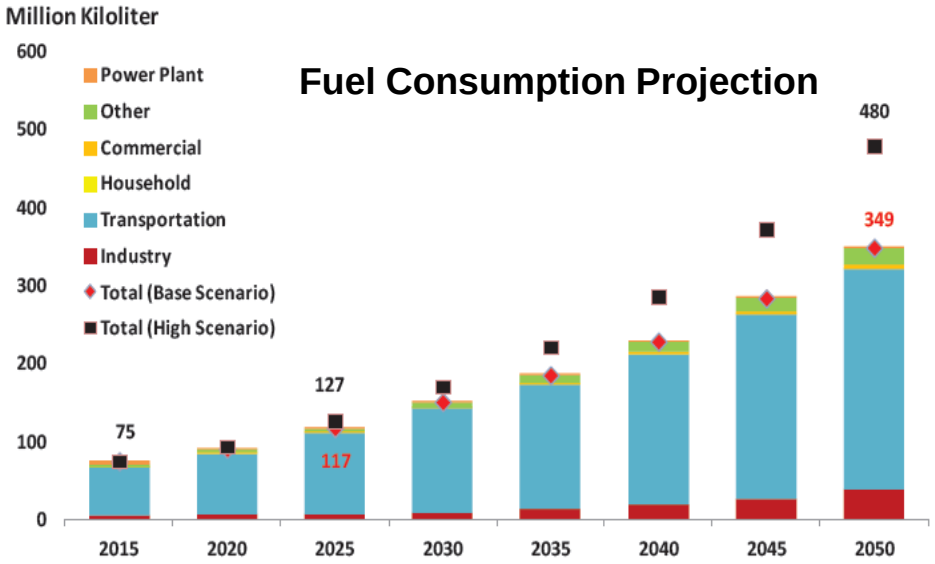
1. Potential Risk Of Oil Spill

Indonesia Oil Outlook

Crude Oil Balance Projection



Fuel Consumption Projection



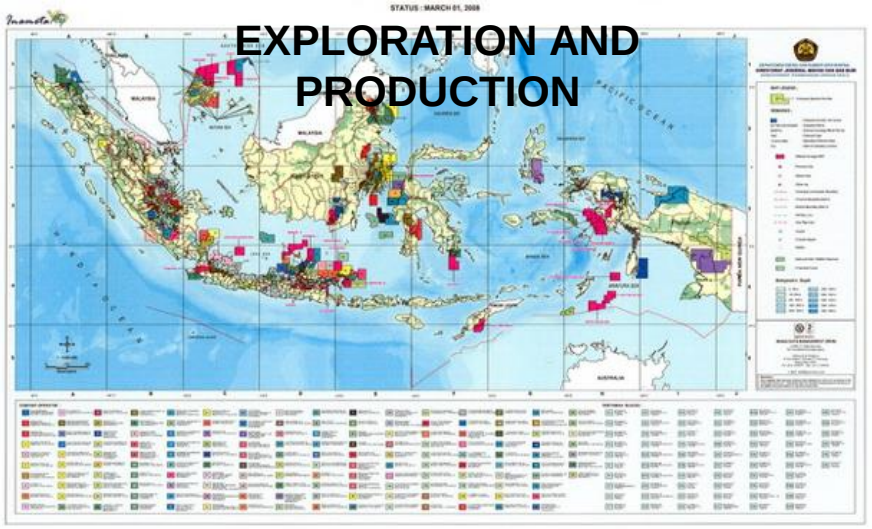
Key Issues:

1. Oil Still play Important Role in Indonesia Energy Supply
2. Import dependency growing
3. Sea-lane security will become more and more important
4. National capacity in securing sea lane security growing
5. Risk of oil spill is in place
6. Bilateral and multilateral cooperation to secure sea-lane and supply security and is needed
7. Bilateral and multilateral cooperation is need to combat oil spill

Projection Source: BPPT IEO 2017

POTENTIAL RISK OF OIL SPILL

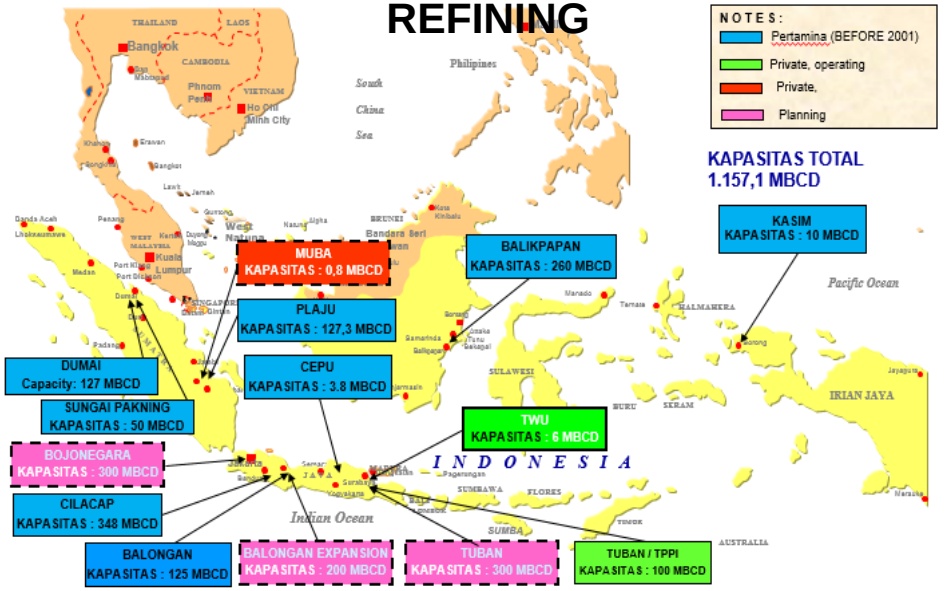
EXPLORATION AND PRODUCTION



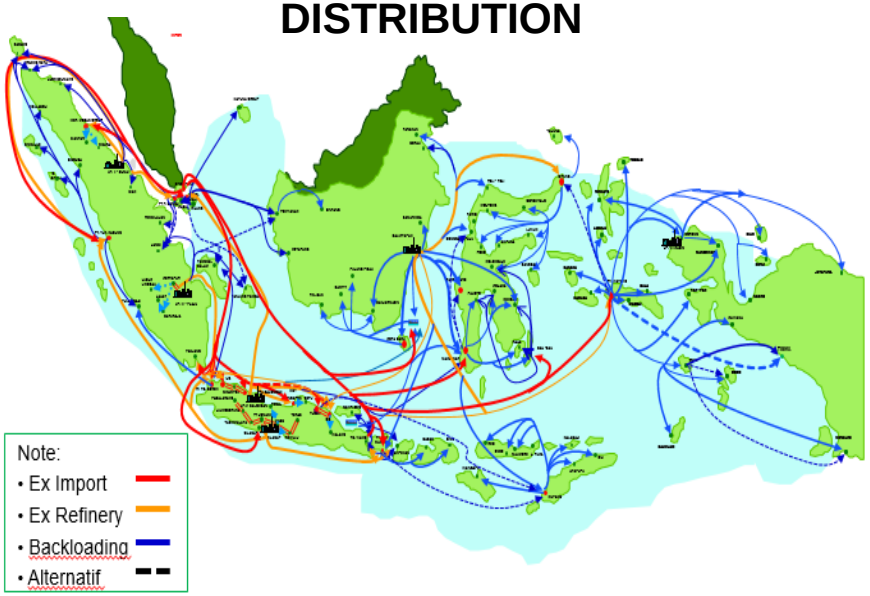
As of 2017

- 84 CA : Production stage
- 228 CA : Oil & gas exploration stage
- 11 CA : Development stage
- 54 CA : CBM exploration stage

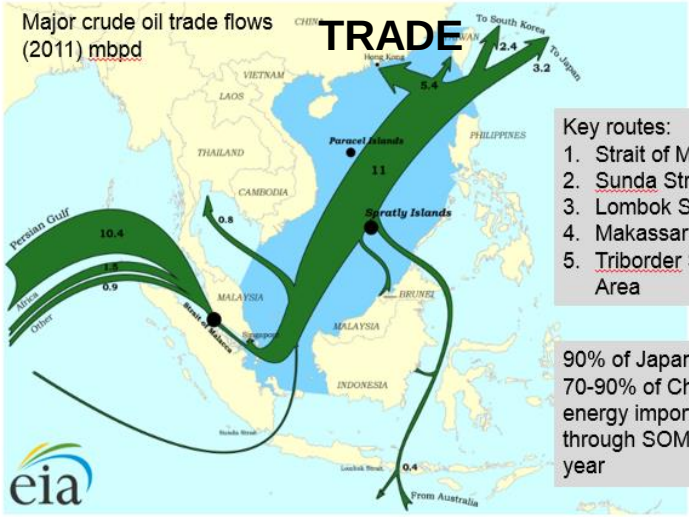
REFINING



DISTRIBUTION



INTERNATIONAL TRADE



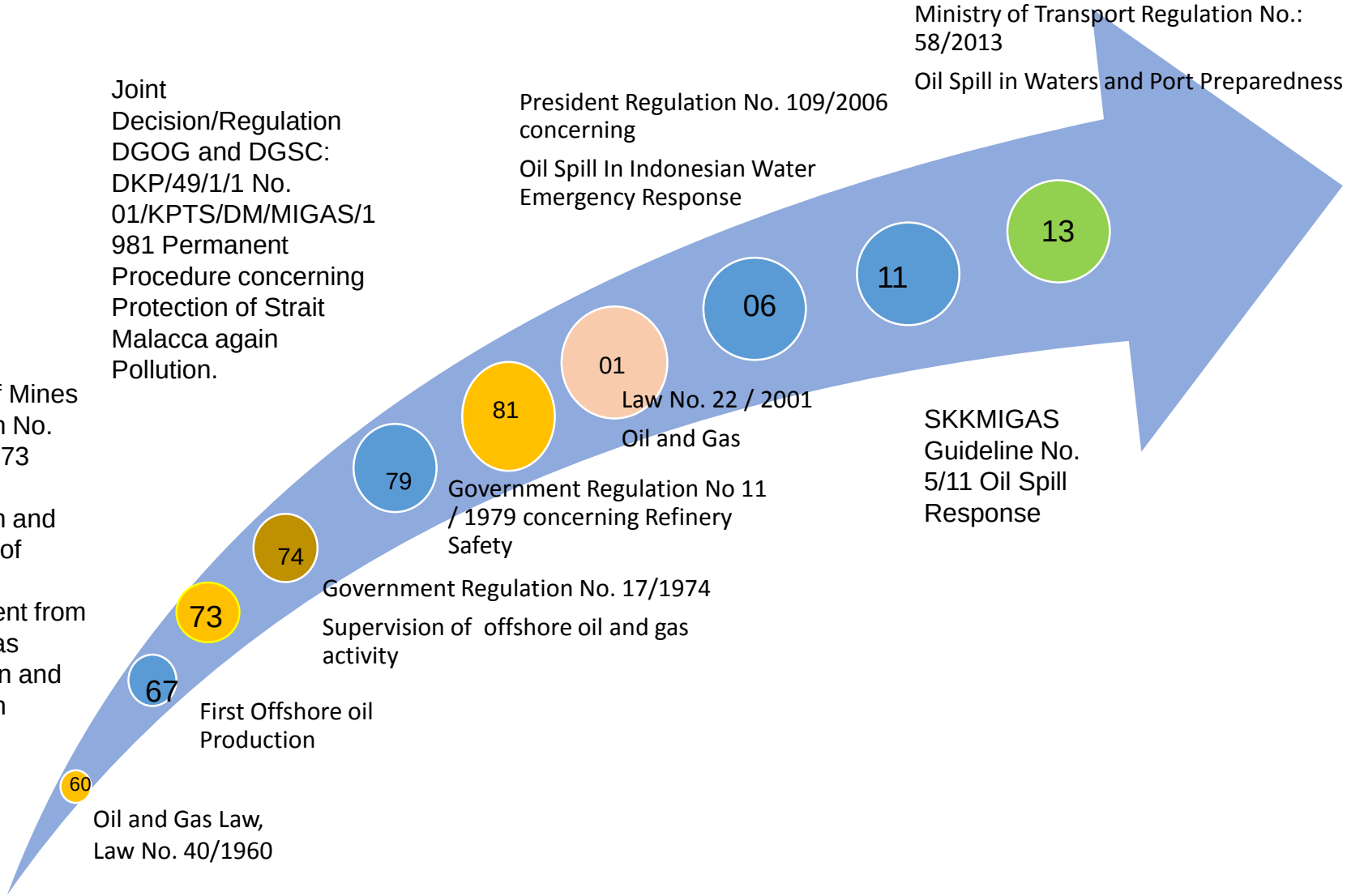
Key routes:

1. Strait of Malacca
2. Sunda Strait
3. Lombok Strait
4. Makassar Strait
5. Triborder Sea Area

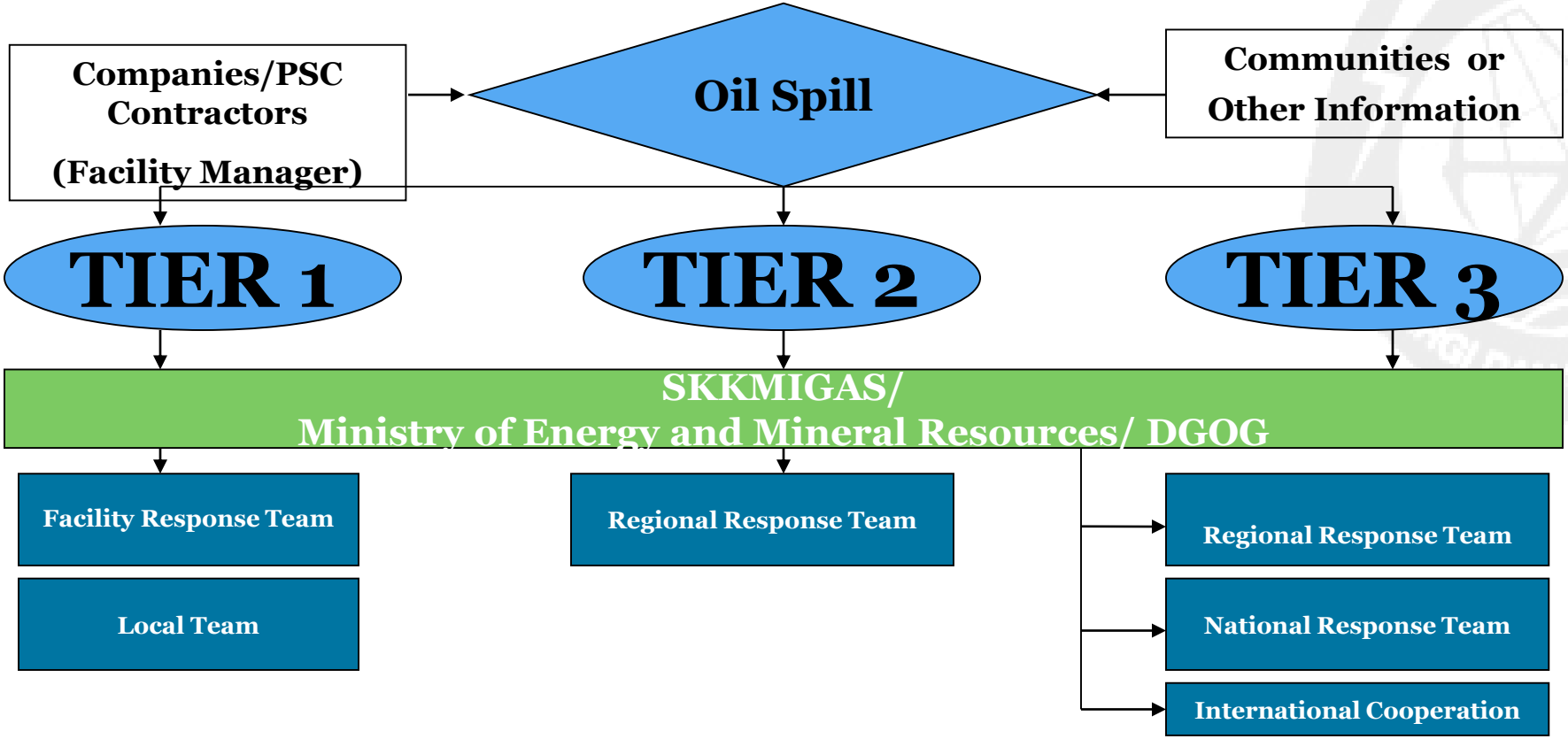
90% of Japan's and 70-90% of China's energy imports pass through SOM every year

2. Existing Oil Spill Response Staretgy

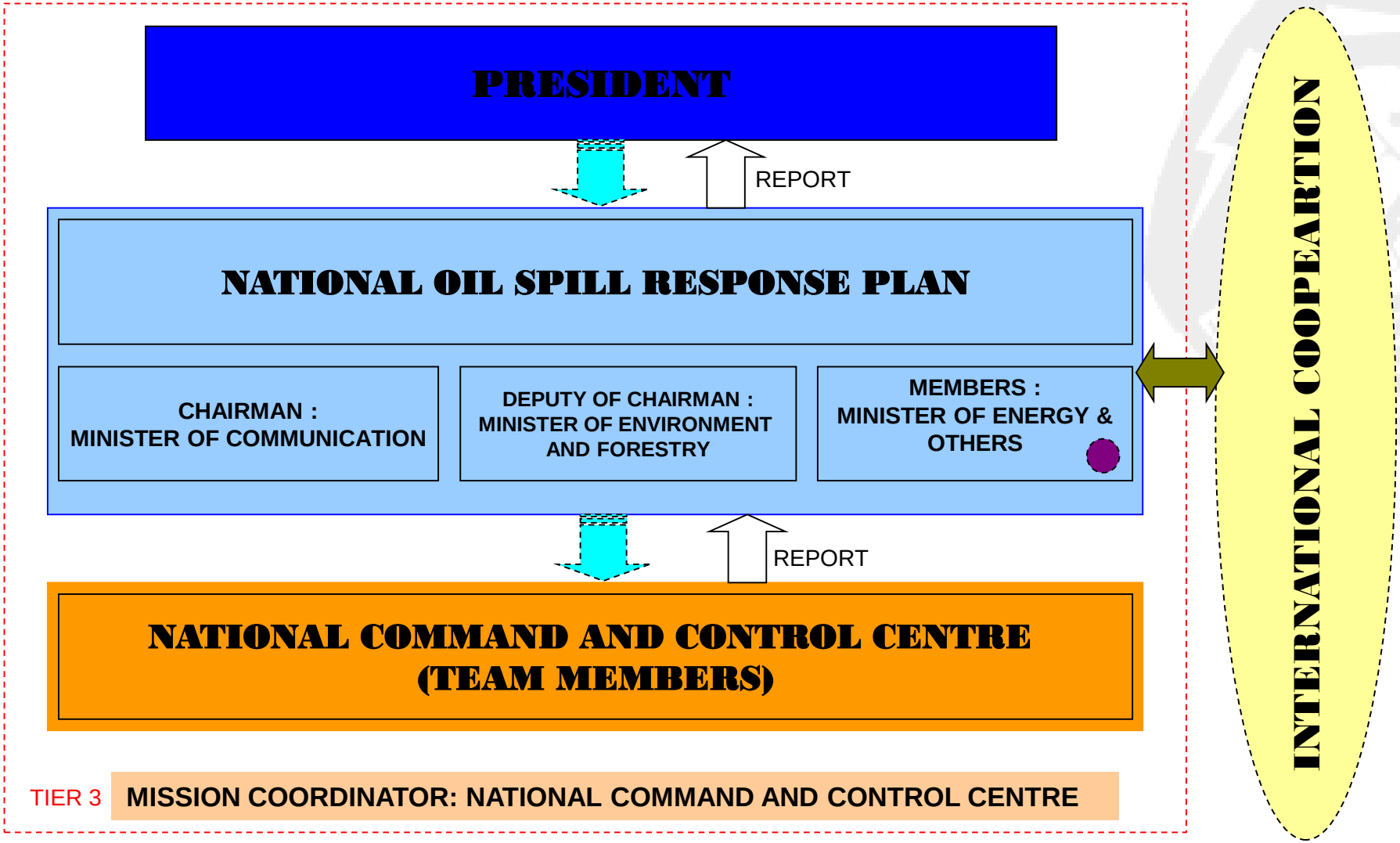
Oil Spill Response Development



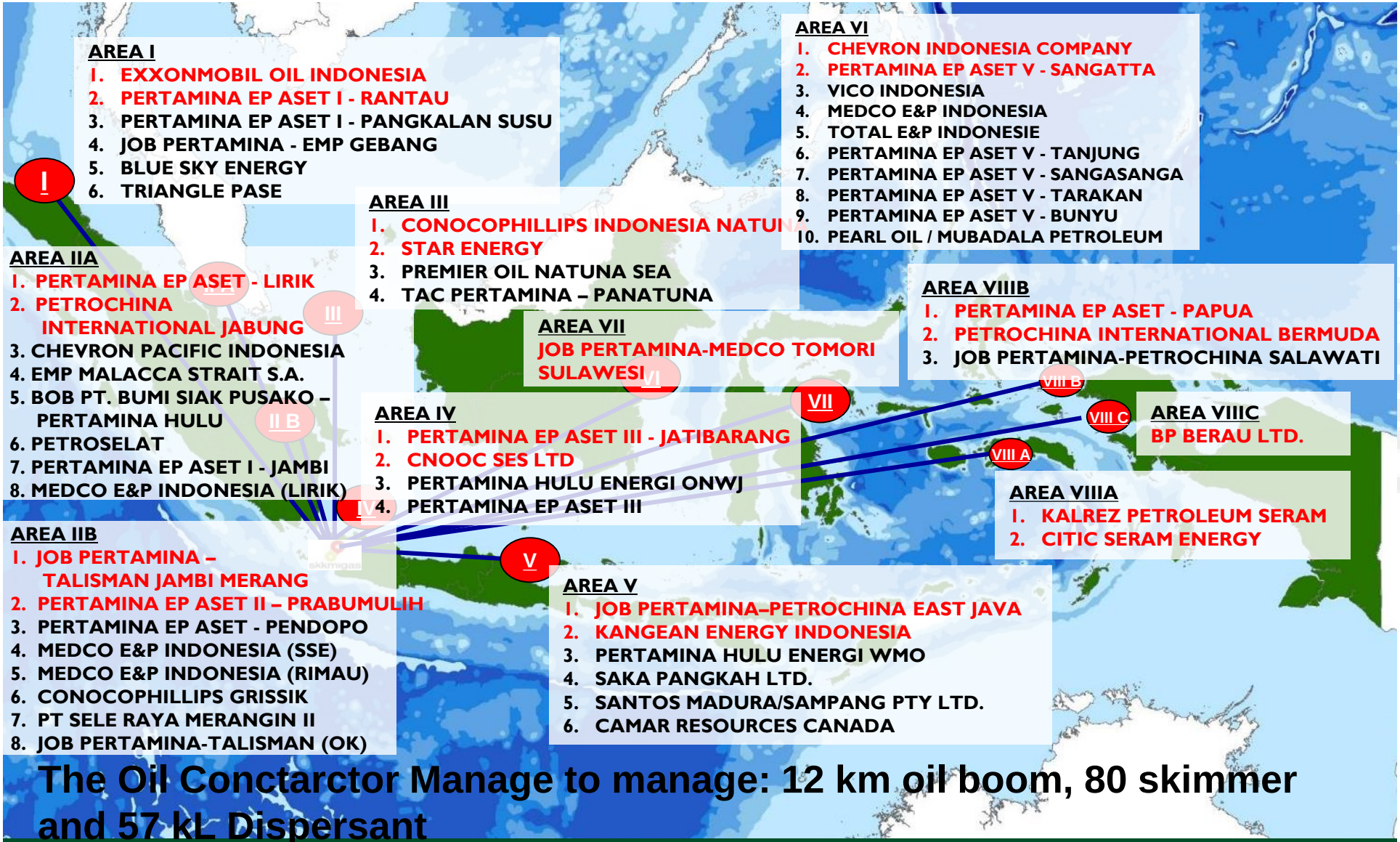
OIL SPILL RESPONSE PLAN



NATIONAL OIL SPILL RESPONSE PLAN



OIL PRODUCING CONTRACTORS TIER 2 RESPONSE ARRANGEMENT



The Oil Conctarctor Manage to manage: 12 km oil boom, 80 skimmer and 57 kL Dispersant

Oil & gas Contractor grouped into 8 areas with mutual assistance agreement in each area to release about 25% of Tier-1 resources to assist for Tier-2 Incident

TIER 3 RESPONSE
NATIONAL MARINES DISASTER PREVENTION SHIPS (15)

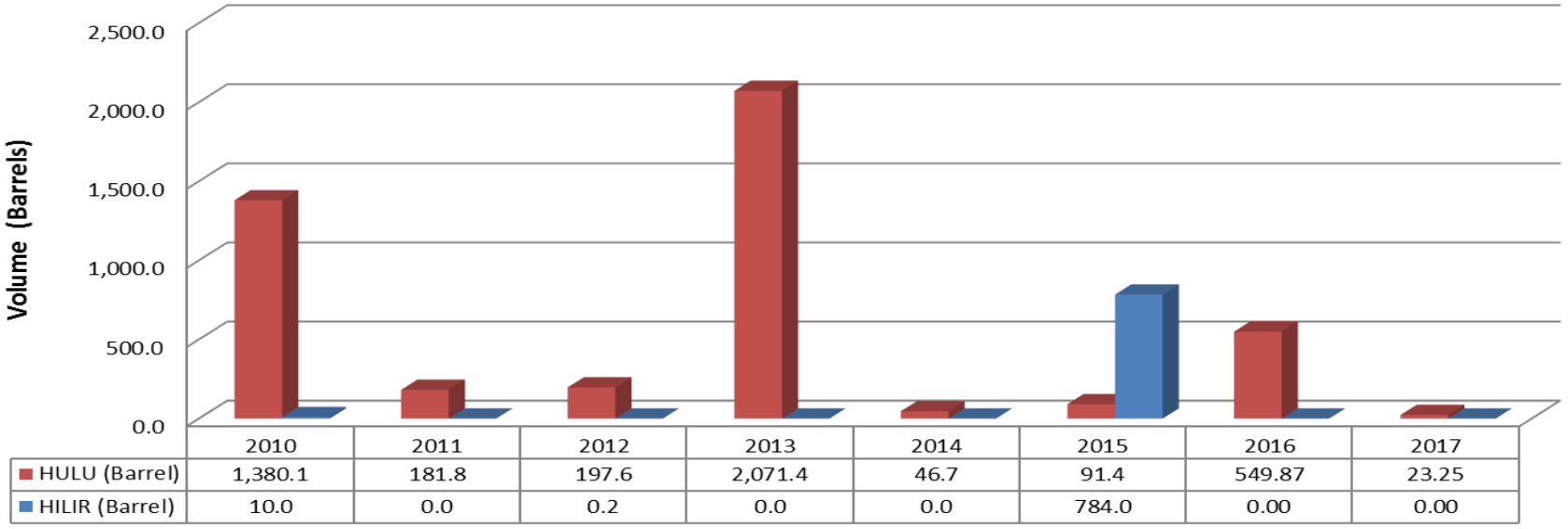
Source: OSCT

OTHER IMPORTANT STAKEHOLDERS

Private Oil Spill Response Organization provides services to Oil and Gas Contractor on various aspects of oil spill response

Marine management Pollution Consultant assist the Oil Companies

OIL SPILL STATISTIC 2010-2017



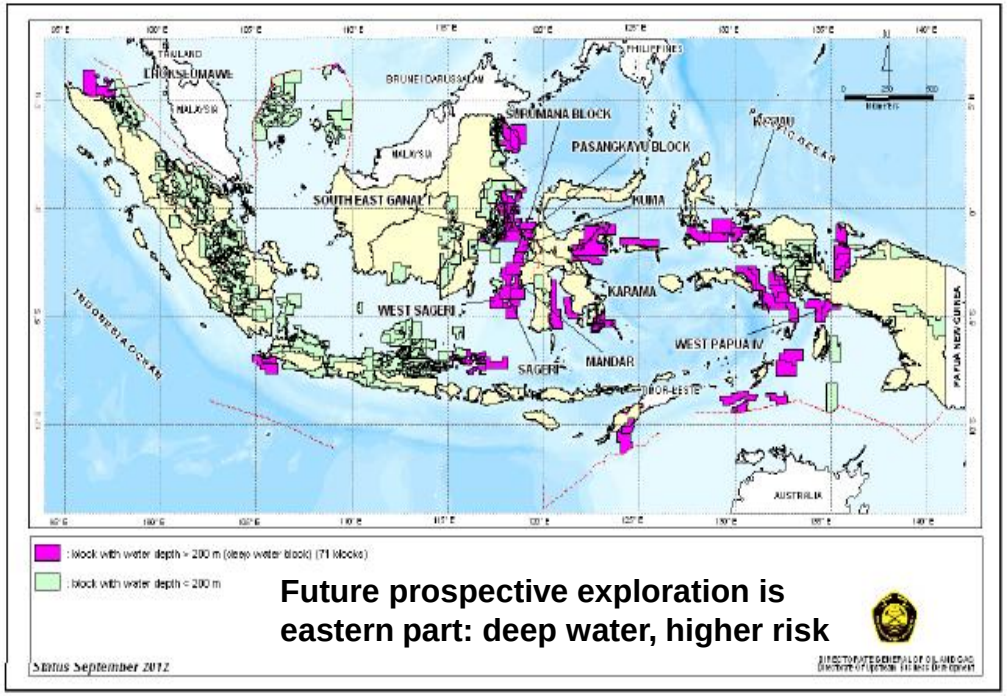
	2010	2011	2012	2013	2014	2015	2016	2017
HULU (Barrel)	1,380.1	181.8	197.6	2,071.4	46.7	91.4	549.87	23.25
HILIR (Barrel)	10.0	0.0	0.2	0.0	0.0	784.0	0.00	0.00

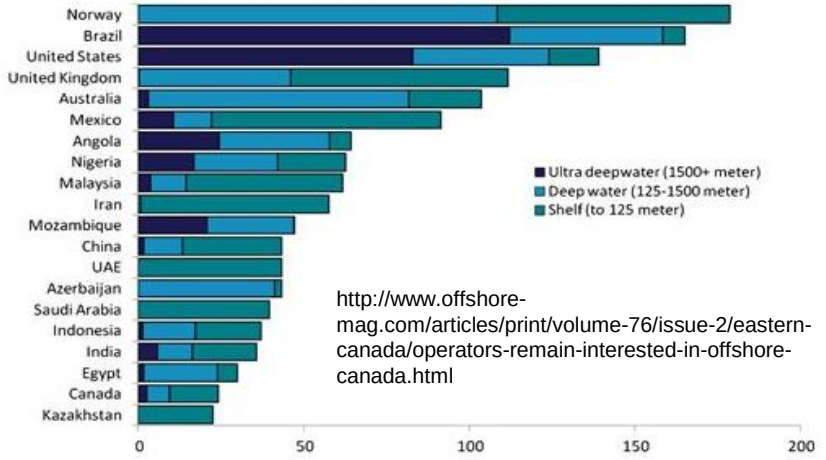
Oil Spill From 2010 – July 2017

NO	Year	Upstream (Barrel)	Downstream(Barrel)	TOTAL (Barrel)
1	2010	1,380.1	10.0	1,390.1
2	2011	181.8	-	181.8
3	2012	197.6	0.2	197.8
4	2013	2,071.4	-	2,071.4
5	2014	46.7	-	46.7
6	2015	91.4	784.0	875.4
7	2016	549.87	-	549.87
8	2017	23.25	-	23.25
	TOTAL	4,542.1	794.2	5,336.2

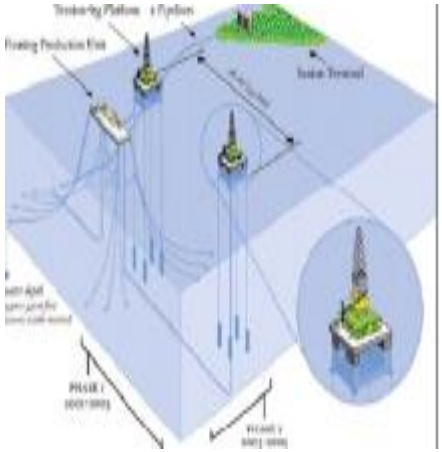
3. Changing Circumstances

INDONESIA OIL EXPLORATION AND PRODUCTION MOCIING TI DEEP WATER





http://www.offshore-mag.com/articles/print/volume-76/issue-2/eastern-canada/operators-remain-interested-in-offshore-canada.html



West Seno 1st Deep Water Prodcution Facility, on stream August 2013
Water depth: 1000 m
Facility: TLP and FPU

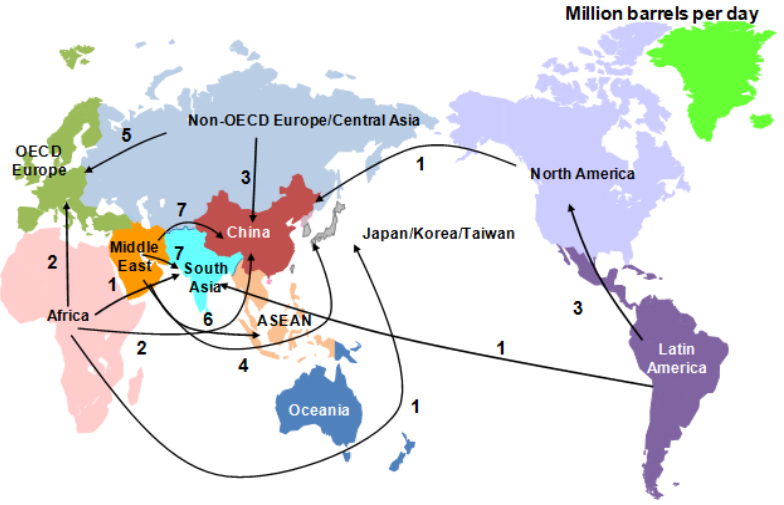
Forthcoming deepwater production:

1. Krueng mane: 650 m water deprth 100 MMSCFD
2. Gendalo Gehem, Ganal and Rapak: 1000-2000 m water depth 125-600MMSCFD.
3. Abadi Field: 300- 1000 m water depth, 5 MTPA

OUTLOOK OIL AND LNG TRADE FLOW

Choke point		2014		2030		2040	
		'000 b/d	number of tanker passages	'000 b/d	number of tanker passages	'000 b/d	number of tanker passages
Hormuz	Asia bound	12,419	7,815	23,414	14,735	23,994	15,100
	Atlantic bound	4,443	2,796	1,573	990	negligible	negligible
	Total	16,862	10,611	24,987	15,725	23,994	15,100
Malacca/ Singapore		12,272	7,723	18,456	11,615	19,404	12,211
Panama*		91	133	127	93 (47)	140	103 (51)
Bering		0	0	negligible	negligible	negligible	negligible

Outlook of crude oil shipping through major choke points



Projected Oil Trade Flow 2040

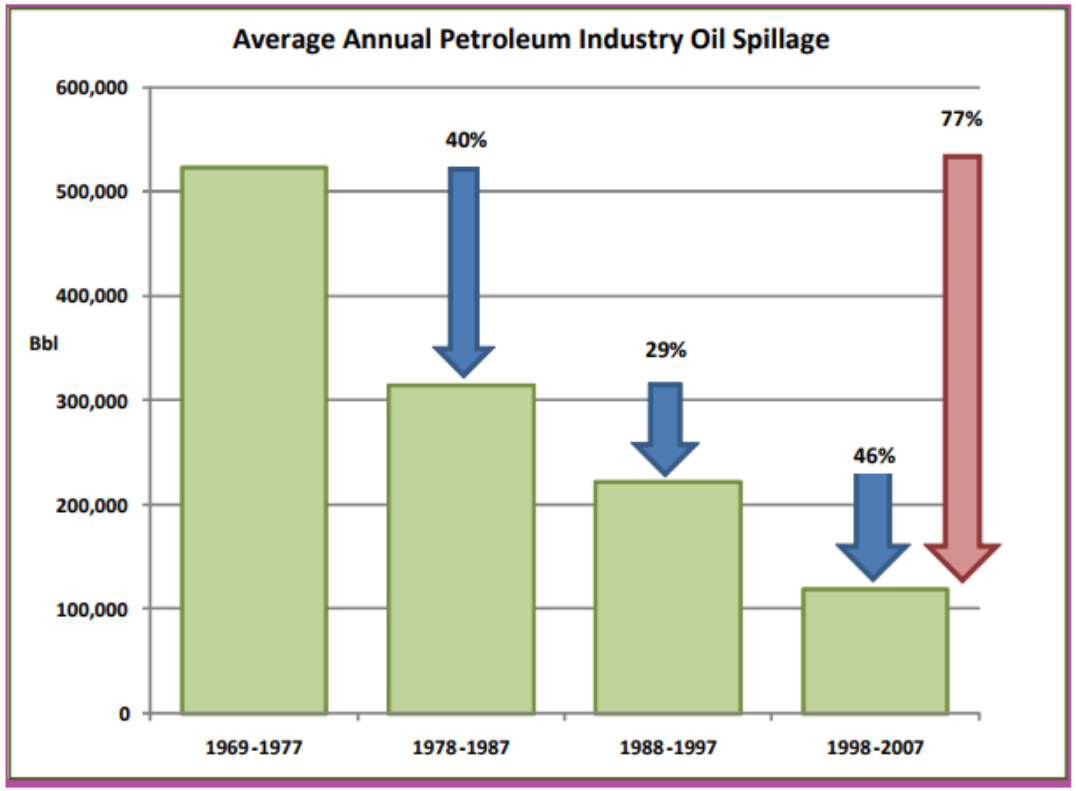
Projected LNG Trade Flow 2040

Choke point		2014		2030		2040	
		MT	number of tanker passages	MT	number of tanker passages	MT	number of tanker passages
Hormuz	Asia bound	61	1,537	62	1,580	72	1,820
	Atlantic bound	20	503	24	608	28	700
	Total	81	2,040	96	2,431	111	2,801
Malacca/ Singapore	East bound	94	2,388	67	1,693	102	2,589
	West bound	0.5	13	9	215	11	278
	Total	95	2,401	75	1,908	113	2,867
Panama		0	0	18	450	63	1,597
Bering		0	0	3	76	10	242

Outlook of LNG shipping through major choke points

Source: ERIA, 2016

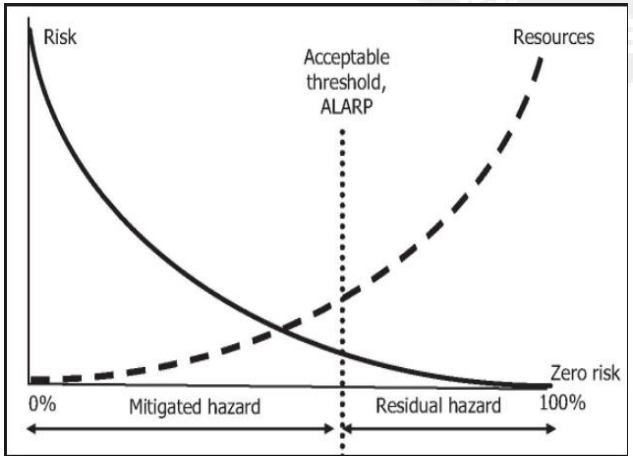
Oil Spill Volume in US, UK and Worldwide



Source API

Oil spill is decreasing:

1. Imple**mentation of comprehensive regulation on technical regulation, management, system, human factor and Safety culture,.**
2. **The development new technology increase reliability and redundancy of the system**
3. **Pressure from society**



BUT, Risk Never Be Zero

Oil Spiil: Low Probability Highs Consequence need to be addressed

Macondo and Montara oil spill are among of them

4. New Oil Spill Response Strategy

NEW STRATEGIES

1. Under news circumstance such as Macondo situation, existing response plan in place deem to be inappropriate
2. New technology need and circumstance need more specific response ad technology
3. Single effort from companies tend to fail
4. Focus on collaborative response plan
5. Development new technology to be able to handle deep water spill
6. Development more environmentally dispersant is also is in demand
7. Regional cooperation to optimize existing response plan and infrastructures is imperative

THANK YOU

www.esdm.go.id