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

I Gusti Suarnaya Sidemen

Good morning. It is an honor for me to be here to participate in the Petroleum Oil Spill Workshop 2017 hosted by Petroleum Association of Japan. Before I started my presentation, on behalf of Directorate General of Oil and Natural Gas of the Ministry of Energy and Mineral Resources of the Republic of Indonesia, I would like to extend our thank to Petroleum Association of Japan for inviting us to join this very important forum.

Oil spill is the risk that our society should deal with in modern life. The impact of oil spill could be devastating. In addition is almost impossible to remove oil spill risk from our life. There are a lot of effort has been in place to reduce oil spill from oil and gas production or crude oil transportation. We witness the continuous global declining trend both on the number and volume of oil spill. However, we still witness a major oil spill such as Macondo and Montara oil spill. I believe form the PAJ annual workshop we could learned together and to seek collaborative effort to improve our capacity in managing oil spill disaster. A low probability with high consequence accident.

I will share my view on we improve Low probability high consequences Oil spill respond plan. Main focus will be how cooperation and networking emergency response will work better in the future.

I will start by elaborating potential risk of oil spill in Indonesia and explain the existing emergency response strategies. Growing demand on energy especially oil, lead Indonesia moving to explore and produce oil and gas from deep water in Eastern part of Indonesia as oil fields located in shallow water in western part of Indonesia going to be mature. More remote location and deep water will certainly change the circumstances on how oil exploration will be conducted. The changing in circumstance lead the changing in potential risk of sources of oil spill. After explaining the changing

circumstances then the new imperatively more appropriate oil spill response strategy will be discussed.

There two condition that determines the risk of oil spill in Indonesia. First, the role of oil in Indonesia energy supply and demand. Indonesia oil demand is projected to increase from 425 million barrel 2015 to 625 million barrel in 2025 to 700 million barrel by 2030. Oil demand mainly growing in transportation, commercial and industry. Growing demand of oil will be translated into more domestic exploration and production, increasing refinery capacities and more crude and oil product transportation. Indonesia's refinery capacity expected will increase by 300 MBOPD in 2021. Another additional capacity expected come on stream by 2025. By 2050 Indonesia refinery capacity projected to be doubled form current capacity.

To meet current oil demand, Indonesia produces oil from 29 domestic producing fields. 40 percent of 860 MBOPD produced oil come from offshore fields located in offshore North West Java, Offshore North East Java, Natuna Sea, Macassar Strait, and Papua. Currently, about 40% of produced from domestic field exported. While to meet domestic demand Indonesia import crude oil about 140 million barrel and import fuel products about 27 million kiloliter.

Domestic refinery nameplate capacity is 1.050.000 BOPD distributed in 5 major refineries located in Cilacap, Balongan, Balikpapan, Dumai and Plaju and several small refinery such as Sungai Pakning, TWU in Tuban, and Kasim.

Fuel products distributed around Indonesia to 109 fuel depots with 49 oil tanker. Among 49 tankers, 10 are small tanker (1500-3700 MT DWT), 12 small of 6500 MT DWT, 6 General purpose tanker (15000-17000 MT DWT), 12 medium tanker (30.000-40.000 MT DWT) and 9 large oil tankers (88.000 – 107.000 MT DWT).

Indonesian water, especially that part of the Malacca strait, Sunda strait sea lane and Lombok strait sea lane are the main passages of international oil transportation from producing country in Middle East, Africa and Australia. Currently, According to the

survey launched by Nippon Foundation and the Institution for Transport Policy Studies about 127,000 vessels passed Malacca/Singapore straits in 2012, and the oil tanker shared 6.5% of it or about 8,300. Capacity of oil tanker pass through Malacca strait usually 1.1 Million Barrel. While VLCC tanker will travel Sunda Strait and Lombok Strait.

The second factor is the fact that Indonesia is an archipelagic state. It's extending 5,120 kilometers from east to west and 1,760 kilometers (1,094 mi) from north to south. The land area is about 1,919,317 square kilometers distributed in 17.508 islands with total 99.000 km coastal line. While the water area is about 5 million kilometer square in which includes 93,000 square kilometers of inland seas, territorial sea and exclusive economic zone. The geographical nature of Indonesian water put it on rich in biodiversity. It host mangroves, sea grass, coral reefs and hundreds fish species. It richness also put Indonesian water venerable from oil spill.

There was several notable tanker accident in Indonesian water such as Showa Maru in 1975 that spilled 54.000 barrel crude oil, Todutsu in 1978 that spilled crude oil 293.000 barrel, Nagasaki Spirit and Ocean Blessing 1992 spilled 100.000 crude oil.

Oil spill response and preparedness in Indonesia started not along after offshore oil operation. Although awareness of oil spill in refining could be traced back to 1904 when the first Indonesian refinery was built by Shell. In 1973, after the first oil production from offshore field known as Cinta field in North West Java and increasing activities of exploration and production of oil offshore area stimulated the promulgation of Minister of Mines Regulation No. 04/P/M/1973 regarding Prevention and Mitigation of Marine Environment from Oil and Gas Exploration and Production. Under the regulation, companies conduct exploration and production in Indonesian water is obliged to have oil spill response plan in place. The oil spill responses consist of recovery equipment, trained personnel and reporting mechanism.

The requirement to have oil spill emergency response emphasized again in Government Regulation No. 17/1974 concerning Supervision of offshore oil and gas activity and Government Regulation No 11 / 1979 concerning Refinery Safety.

Experiencing detrimental impact from Showa Maru and Todutsu oil spill in 1975 and 1978 respectively, Government of Indonesia issued Joint Decision/Regulation between Directorate General of Oil and Gas (DGOG) and DGSC: DKP/49/1/1 No. 01/KPTS/DM/MIGAS/1981 Permanent Procedure concerning Protection of Strait Malacca again Pollution. The regulation stipulated collaborative action among stakeholder to response oil spill in Malacca strait.

Oil spill responses in oil industry both upstream and downstream are evolving by the promulgation of new Oil and Gas Law in 2001. Each oil companies mandated to prepared oil spill response plan and submitted it for approval to Ministry of Energy and Mineral Resources. In practices the response plan developed together between the Ministry and Oil companies. During the preparation every oil spill scenario will be identified. Risk based responses will be determined based on sensitivity of the area, trajectory or oil spill movement and possible sources of spill. Containment equipment are required to deal with foreseeable worst case spill scenario. Pre-approved dispersant considered as a tool in mitigating impact of the spill.

Considering growing risk of oil spill for sea transportation and oil production Government issued President Regulation No. 109/2006 concerning Emergency Response to Oil Spill in Indonesian Water. The regulation is to facilitate stakeholder's coordination in responding oil spill. Oil spill response tiered into three tier local, regional and national. The regulation mandated regional government to set up tier 2 emergency response. Tier 3 oil spill will be handle by National Response team headed by Minister of Transportation with Ministry of Environment and Ministry of Energy and Mineral Resources and related institution as a members. Regular exersice conducted to test the readiness of emergency response. Exercises are conducted for tier 1, 2 and 3.

SKKMIGAS special task force under the Ministry of Energy and Mineral Resources issued Guidelines for upstream oil companies to set up cooperation among the companies in the adjacent working area. The guidelines provide direction for mutual agreement to assist each other in need.

In 2013, Ministry of Transport Issued Minister Regulation No. 58 concerning Oil Spill preparedness in waters and port/terminal. It cover oil and gas terminal. Under the Minister Transportation's régulation emergency response of oil and gas terminal jointly developed between Ministry of Energy and Mineral Resources and Ministry of Transport and the cpmpanies.

In case oil spill escalate to tier 3 where oil companies, regional emergency response team could not provide an appropriate responses a tier 3 National Emergency Response Plan will be activated. Oil spill response ships owned and operated by Port authority under auspices of Ministry of transport will deployed, in addition all available resources will be used. Regional and International cooperation will be requested if needed.

In addition to oil companies, refineries, ports and terminals who developed tier 1 emergency response there are several private oil spill response organization who developed its capacity in oil spill equipment, personnels and experiences in combating oil spill. Oil spill Combat Team (OSCT) is the leading private sector in the area. The private companies built capacity to be able to provide service in various aspects of oil spill to industries including oil industry and petrochemical. The company not only provide it services to Indonesia but also overseas. The other companies is Leadership Indonesia with smaller capacity and competency.

Existing oil spill responses found work quit well in dealing tier 1 oil spill. Oil spill came from pipe line leak, fail in loading, collision etc. However, we have no experience in dealing with tier 2 or 3 oil spill accidents.

Our effectiveness is responding oil spill may be in question as the circumstance of oil industry changing. Indonesia offshore oil industry is moving to deep and deeper water, as the conventional oil fields in shallow water is mature. The deep water oil production era in Indonesia started in 2013 when West Seno oil field went on stream.

The production from oil field 1000 meter below sea level employed Tension Leg Platform and Floating Production Facility. Another deep sea field went on production in 2017 is Jangkrik field located in water depth more than 400 meter. The next deep water production will Krueng Mane field located in 650 meter depth offshore North Aceh, Gendalo, Gehem, Ganal and Rapak fields located in 1000 m – 2000 meter water depth in Makassar strait.

Indonesia share the global trend of oil exploration and projects going to deep water (125-1500 meter) and ultra-Deepwater (more than 1500 meter).

This changing circumstance is likely increase the tier 2 and tier 3 oil spill risk as experienced by the USA, Australia and Brazil.

Currently we experiencing more severe weather as a result of climate changes that may also contribute to the growing oil spill risk. Early of this month severe weather just caused problem to the mooring system FPSO MV 8 at Langsa Field in Aceh. Fortunately, we successfully prevent oil spill. Oil spill response team was deployed to be ready in case the situation become worsened. Recently the weather also caused to problem to Japan's flagged MV Centaurus Dream when the ship approaching the port in west Java. The weathers impact to oil and transportation industry could be increase in the future.

In term of international oil trade Indonesia especially Malacca strait, Lombok Strait and Sunda strait will continuously become main passage of oil flow from Middle East, Africa and Australia to East Asia. Projected doubled demand of oil in Indonesia will increase fuel traffic around Indonesian waters. This situation strongly suggest that oil spill risk is also growing.

Internationally, we observes the declining oil spill in oil industry in USA, UK or Europe. Low oil price lead to growing pressure to oil companies to operate more efficiently. Emergency response capability to deal with oil spill considered as low

probability to happen could become a victim of improving efficiency. Oil Company may leave emergency oil spill preparedness to consultants or government institution.

Those changing circumstances need new strategy in regulating and developing oil spill response plan. Experience from Montara and Macondo strongly indicated that available seemingly workable emergency response was fail to response real situation. The problem is not that there is no capacity or technology available. But, more likely on how industry perception on risk, communications and coordination. The development of new technology need to be assessed thoroughly to ensure risk are appropriately identified and mitigation toll are prepared. The development of new technology such as underwater dispersant, well capping is in need. Complexity of system such as production system, logistic system lead to the need of complex response. In this circumstance, single effort from government o companies will be not effective. All stakeholders need continuously do our utmost to prevent oil spill ad its impacts. Indonesia has embarked to this new circumstance. A new strategies to response oil spill from new circumstance is needed. We seek collaborative work on this endeavor.