

OIL SPILL RESPONSE EXPERIENCES IN SOUTHERN VIETNAM

THE RISK LEVEL OF OIL SPILL INCIDENT IN THE SOUTHERN VIETNAM

- Having the most important oil importing ports in Vietnam
 - Every year about 10 million tons oil products are imported into Vietnam and 70% of which comes through Southern ports such as Vung Tau and Sai Gon.
- The major sea route for oil transportation from Middle East to the Eastern part of Asia
- The most focused zone for petroleum exploration and production activities in Vietnam:
 - Two largest low basins Cuu Long and South Con Son
 - More than 360 oil wells drilled for exploration and production
 - Many oil fields are in production phase such as White Tiger, Dragon, Rang Dong, Ruby, Big Bear, Black Lion, etc.
 - The crude oil production is 17-18 million tons annually.
- Weather condition is adverse (strong waves, winds, currents often present)
- The area having biggest and most of oil spill incidents in Vietnam such as the NEPTUNE ARIES incident in 1994 (1864 tones), the FORMOSA ONE incident in 2001 (750 tones), oil spill incidents in 2003, etc.

According to reported data, there were 18 oil spill incidents occurred in coastal and offshore areas of Southern Vietnam during 1992-2003 in which there were 9 incidents classified in Tier II (under category of National Oil Spill Response Plan).

ENVIRONMENTAL SENSITIVITY IN THE STUDY AREA

- The coastal of the study area has high to very high environmental sensitivity and include:
 - Tourism beaches
 - Aquaculture farms (fish, shrimp, oyster, clam, etc.)
 - Fish and commercial ports / harbours
 - Fish, shrimp grounds
 - Mangrove forests
 - Salt marshes
- There are several sites that need to be protected prior to the others
 - The environmental damaged level in this area is immeasurable if an oil spill occurs and the oil drifts to the coastline.
- Therefore: protecting the regions with high environmental sensitivity should be the first priority on our response strategies for oil spill contingency.

OIL SPILL RESPONSE STRATEGIES

Overviews

- Causes of oil spill: oil tanker collision, ship failure, blowout from the drilling well, oil pipeline rupture, and break down of floating oil storage vessels
 - Response strategies: prevention and response readiness (provide training, increase awareness, prepare response plan, etc.)
 - Things considered during response: natural conditions, type of spilled oil, tiers of the spill, environmental sensitivity, and available response resources.
 - Objectives of response strategies for oil spills:
 - Recovery spilled oil as much as possible
 - Cleaning area contaminated by spilled oil
 - As soon as possible normalizing the socio-economy activities
- (The oil spill response plan is a good measure for response)

Response Strategies for Oil Spill in Offshore Area

- Focus on stopping oil spill from the incident site:
 - The most efficient measure to reduce the amount of spilled oil
- Focus on oil spill recovery means right at the incident site:
 - The efficiency of gathering is only achieved if the equipment can be operated near the incident site where the oil layer is still thick
- Efficient use of natural / artificial degradation of oil at sea:
 - The natural degradation of oil in the tropical monsoon area with high heat radiation, together with strong wave and wind should be considered
- Careful and restrictive use dispersants:
 - The effectiveness and the secondary pollution caused by the dispersant should be considered.
- Controlling oil movement and protecting the sensitive areas
- In-situ burning:
 - The effectiveness and the safety when using in-situ burning should be considered

Response Strategies for Oil Spill in Coastal Area

- Normally it is difficult to response on-site due to severe weather conditions as mentioned above and lack of response equipment so that it is necessary to minimize impact of spilt oil at coastal areas and assess pollution level.
- Protecting coastal areas and estuaries which have high environmental sensitivity prior to the others:
 - If weather is good → maximum deployment of response equipment (divert oil to sacrifice area, protect estuaries (shallow water) → minimize impacts to sensitivity area (avoid the case of incident in 20/3/2003: Can Gio mangrove forest in HCMC not protected from spilled oil).

OIL SPILL INCIDENTS IN COASTAL AND OFFSHORE AREAS OF SOUTHERN VIETNAM DURING 1992-2003
 (Source: Vung Tau Port Authority and MoSTE)

No	Date	Incident/Co-ordinates	Spill volume	Oil type	Damage Assessment
1	Jun. 29, 1992	The oil spilled (4 times) from Chi Lang tanker (Vung Tau)	Not reported	Crude oil	Administrative adjudication for the Chi Linh tanker (USD45,000)
2	Nov. 26, 1992	Flexible pipe from Chi Linh Tanker to Ten Ei Maru Tanker (Bach Ho field) was broken	>300 tons	Crude Oil	Administrative adjudication for the Chi Linh tanker (USD30,000)
3	Sept. 18, 1993	Collision between two tankers at 20km distant from Ky Van cape, Vung Tau (Pan Havert tanker was wrecked)	300tons	FO + DO	Damage estimated USD640,000
4	May 08, 1994	Tanker and small oil tanker collided in the estuary area of Can Gio (HCMC)	About 130 tons	FO	Damage estimated 2 million USD
5	Oct. 03, 1994	Neptune Aries Tanker collided to Terminal jetty at Cat Lai (HCMC)	1,864 tons	DO	4.2 million USD compensatory payment
6	Feb. 08, 1995	Flexible pipe from tanker to offshore loading buoy was broken—Dai Hung field	14 tons	Crude Oil	Not reported
7	Dec. 03, 1995	Maco Arabico tanker was wrecked at position of 9°49'N and 108°05'E	Not reported	FO + DO	Not reported
8	Dec. 18, 1995	The dash of two tankers at position of 9°16'N and 106°40'E (the Jannifier tanker was wrecked)	Not reported	FO + DO	Not reported
9	Dec. 23, 1995	The collision between two tankers at co-ordinates of 10°16'13"N and 109°41'15"E (the Memed Abashiza tanker was sank)	500 tons	FO + DO	Not reported
10	Jan. 27, 1996	Oil spillage from Gemini tanker (Cat Lai)	70 tons	DO	USD 400,000 as the compensation
11	July. 15, 1996	Maersk Retriever supply boat collided to Batst platform caused fuel tank broken (Block 04-1)	83m ³	DO	Administrative adjudication as much as USD20,000
12	Aug. 17, 1998	Collision between Sokimex 12 And sand Barge in the Phu Xuan—Nha Be Area	41 tons	DO	Damage estimated VND 2.5 billions
13	Apr. 16, 1999	Barge collided with tanker in the Nha Be river—HCMC	About 95 tons	DO	Damage estimated VND 1.2 billions
14	Mar.19, 1999	Marine accident of Viva Ocean caused oil spill (Bai Truoc-Vung Tau)	Not reported	—	Not reported
15	Jun. 01, 1999	The transportation pipe from second Center Platform to Ba Vi vessel was snapped off (Bach Ho field)	Not reported	Crude oil	Not reported
16	Jun, 1999	The residual oil in broken pipe on 1st Jun as above was spilled due to transportation of Sao Mai 3 supply boat	Not reported	Crude oil	Administrative adjudication 50 millions VND
17	Sep. 07, 2001	Tanker Formosa One collided to tanker Petrolimex 01 (Ganh Rai bay—Vung Tau)	900m ³	DO	Damage estimated USD 14 millions
18	Jan. 12, 2003	Collision between vessel FORTUNE FREIGHTER and tug boats AG-7174H alongside barge AG-6139H on Sai Gon river	388m ³	DO	Damage estimated 2.1 billions VND
19	Mar. 20, 2003	Tanker Hong Anh was sank at position 10°25'73"N and 107°00'723"E near buoy N° 7 at Ganh Rai bay, Vung Tau	>100 tons	FO	Damage estimated 19.6 billions VND

- Oil spills in river with strong current, complicated topography → difficult to deploy equipment → simple response is the most effective (guide people in response activities:
 - Simple equipment could be picks, absorbed materials (straw, dry grass) and others etc. → Mobilizing local inhabitants and using simple method to recover oil is high efficiency and low cost as well as reduce the damage caused by oil spill.
- Timely notification, active responses and ensuring synchronized coordinate among resources.
- Timely notification to local resident to undertake preventive measures (mitigate damages due to spilt oil (ie. control, close drain of aquatic rising area).

EXPERIENTIAL LESSONS

Response

- From practices, it is recommended that each area, on its own, should have a feasible and comprehensive oil spill response plan;
- Regular practice will avoid embarrassment in real situations;
- Direct local residents when they participate in response activities
- Have information system to people to have a prevention/response plan so that any damage from a spill is minimized.

Cleaning

- Mobilize and direct local residents in term of technique to clean contaminated areas;

- Take full advantage of natural cleaning;
- Beware of use biological product which not be tested in Vietnam condition;

Collecting Evidences and Data

- Assess affected area by mathematics model and field survey;
- Establish observing stations at significant locations which are also capable of representing the damage level;
- Co-ordinate with local authorities to carry out surveys and collecting evidences (photographs and samples);
- Ensure that sample and evidence collecting methods are conforming to international protocol and persuasive (by having with concrete scientific supports);
- Use a reputable and reliable laboratory

Pollution and Social-economic Loss Evaluation

- Have strict supervision and direction, command with unique management, and avoid establishing irrelevant or function-cross bodies;
- Consult with lawyer having good expertise in the related field.
- Evaluating personnel should be well-trained;
- Guide local residents how to estimate their loss due to spilt oil (statistic and calculating methods);
- Conform to domestic and international law;
- Closely co-operate with experts and professional consultants, including representatives ship owner;
- Be careful and consistent when providing information to public.

