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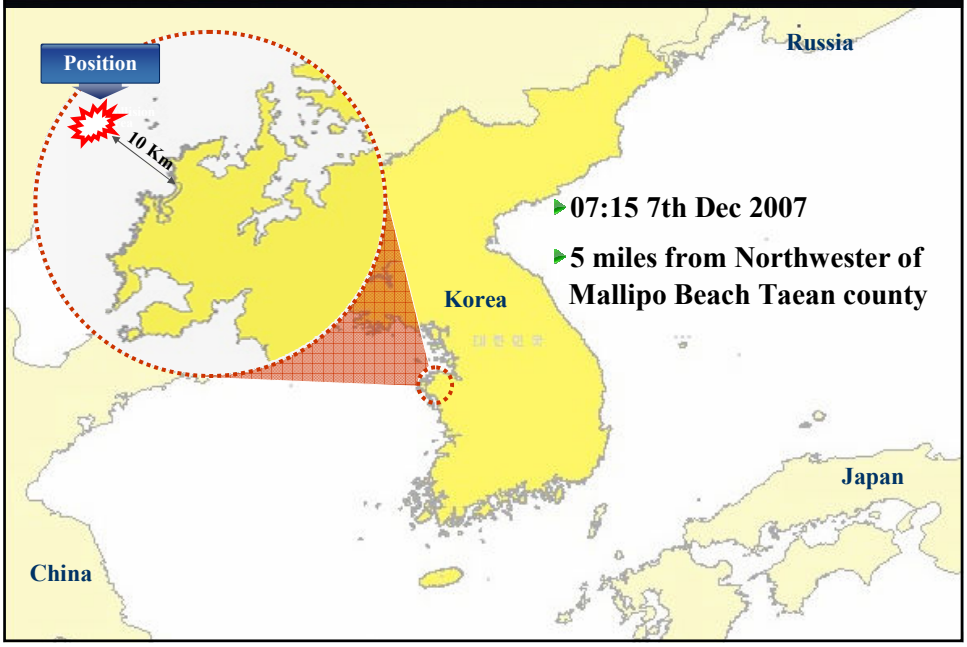
Content

1. Incident Outline



- 07:15 7th Dec 2007
- 5 miles from Northwester of Mallipo Beach Taean county

1 - 1 Cause of Incident

Hong Kong flag VLCC 'Hebei Spirit'was struck by a Samsung floating crane barge was being towed by 2 tug boats while at anchor due to inclement sea condition, and 12,547kl of crude oil escaped into the sea

1 - 2 Punctured

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- No.1 Port : 30 x 3cm
- No.3 Port : 160 x 10cm
- No.5 Port : 200 x 160cm

Single hull tanker built in 1993

1 - 3 Patching

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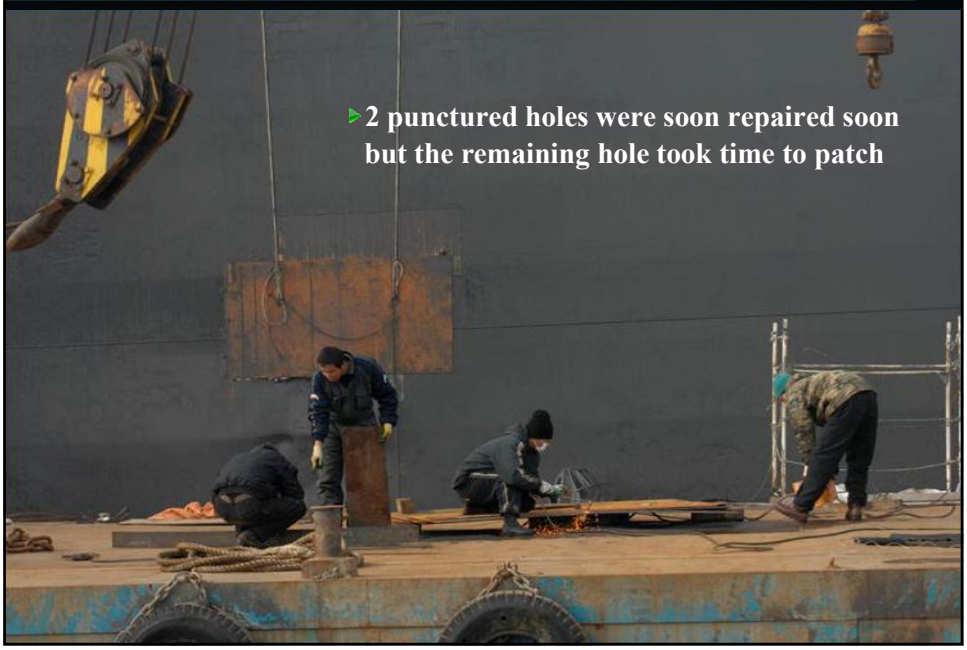

- 2 punctured holes were soon repaired soon but the remaining hole took time to patch

1 - 4 Spreading of Spilled Oil

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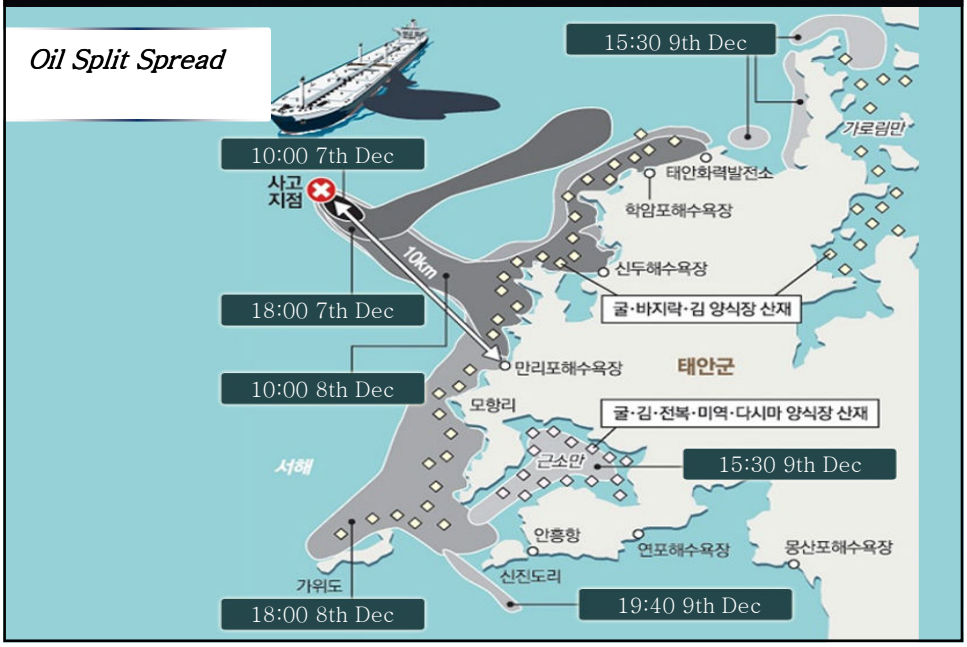

1 - 5 Satellite Photo

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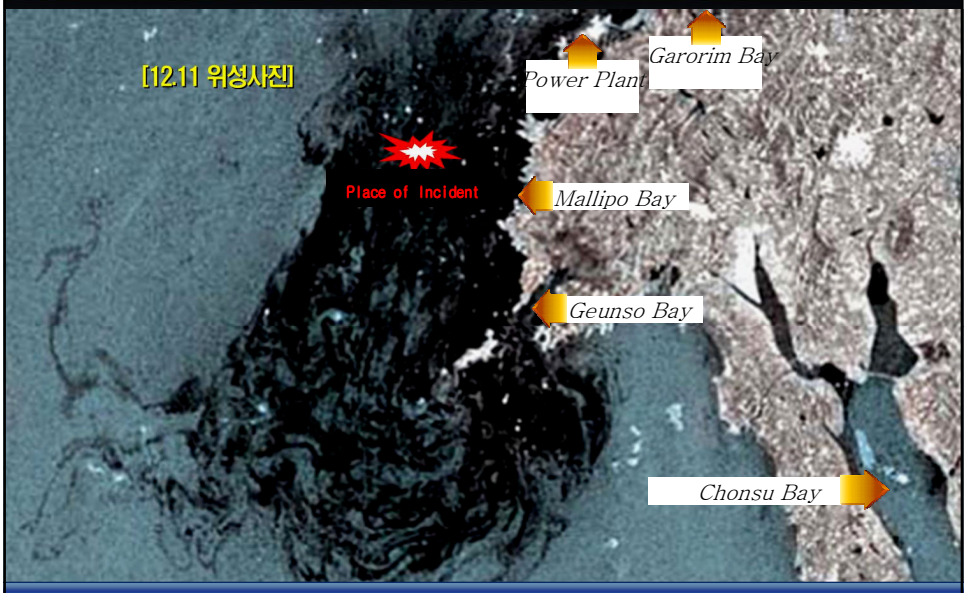

약 70km 확산/ 초 대형기름/ 남하 확산/ 대규모 피해예상

1 - 6 Pollution Status

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South of Mallipo Beach

1 - 7 Pollution Status

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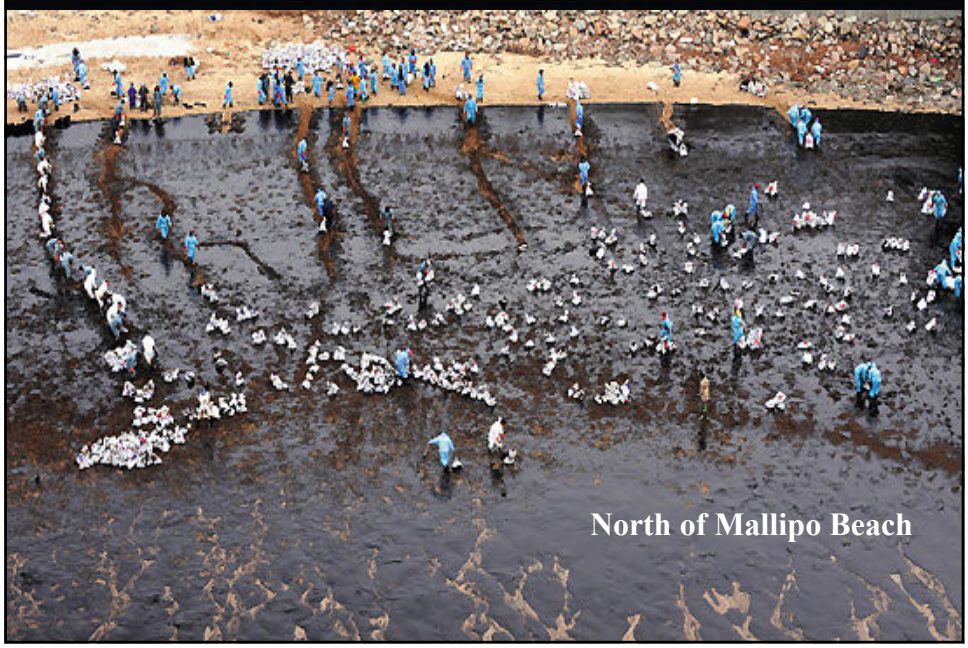

North of Mallipo Beach

2. Offshore Cleaning

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- 28days were spent on operations running from 7 Dec 2007 to 3 Jan 2008 40 Vessels were involved.
- 1,780ton of wastes was collected
  - Oily waster 1,564ton
  - Wastes 216ton

2 - 1 Recovery

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Transrec 100

2 - 2 Recovery

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Filterbelt Skimmers

3. Protection of Sensitive Areas

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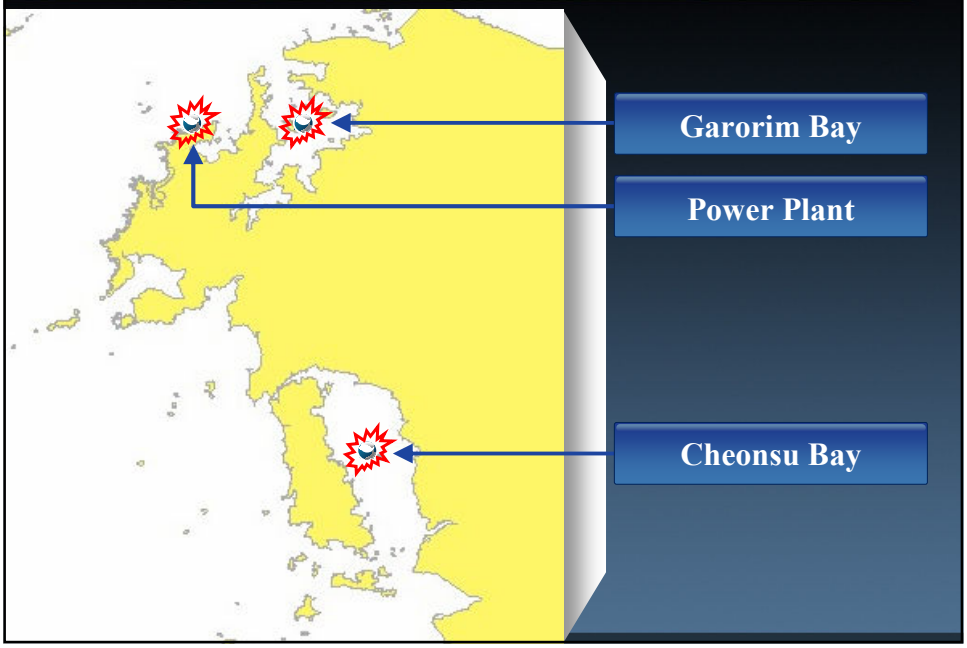

3 - 1 Protection of Garorim Bay

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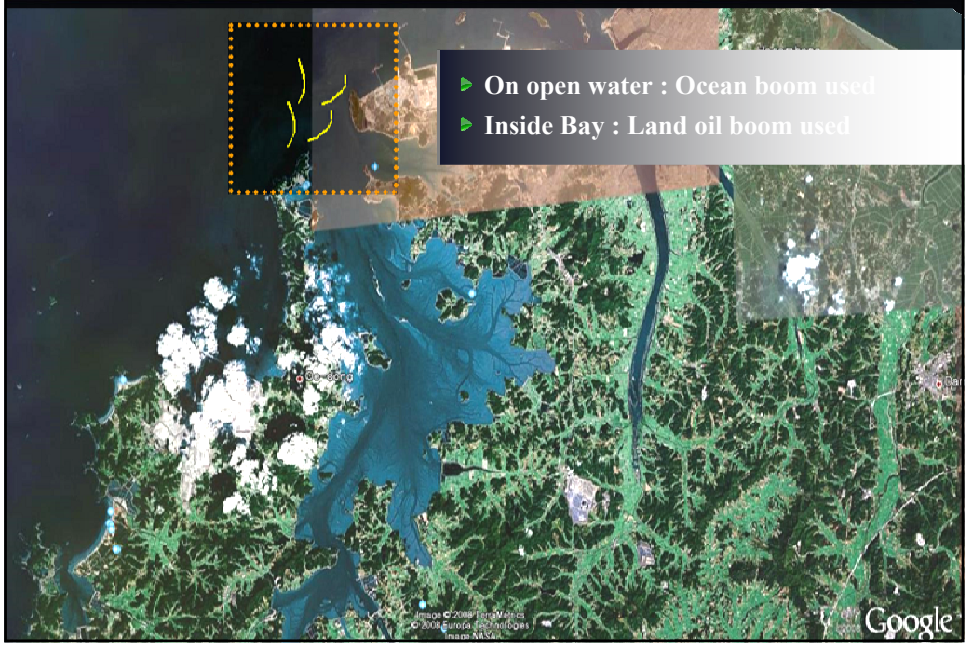

3 - 1 Protection of Garorim Bay

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3 - 2 Protection of Power Plant

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Protection of Power plant intake

- Working Period : 2days(8 Dec~9Dec 2007)
- 3 OSRVs were involved
- 1,200m of oilboom was deployed

3 - 3 Protection of Cheonsu Bay

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3 – 3 Protection of Cheonsu Bay

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3 – 3 Protection of Cheonsu Bay

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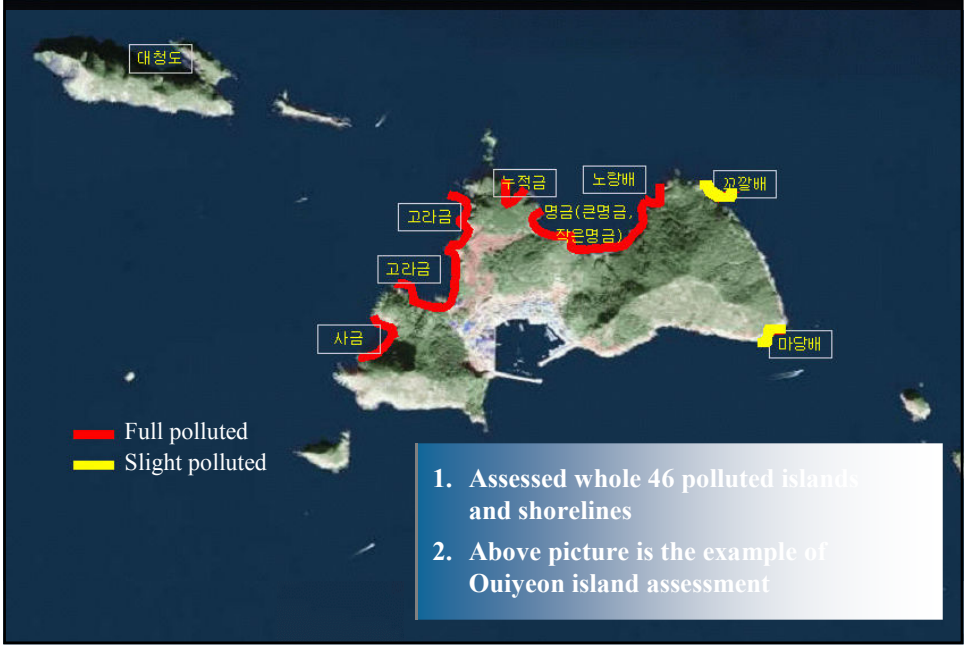
Blocking the entrance of Cheonsu Bay

- 17 Working days(13 Dec~29 Dec 2007)
- 31 Fishing boats
- 2,600m Oil booms for 5 layered

4. Shoreline Assessment & Operational plan



1. Assessed whole 46 polluted islands and shorelines
2. Above picture is the example of Ouiyeon island assessment

4 – 1 General Assessment of Island

Assessor	Kim HS, Jung JW	Sector	6 sites
Geology	Rocky, pebbles	Range of pollution	Length : 3.1 Km beach width : 15-20 m Depth : 30 Cm
Slope grade	Steep	Vehicle approach to working area	Impossible
Berth	Fishing port : appx. 500t vessel possible to access	Pollution status	Serious pollution in rocks and pebbles
Boat approach to working area	Impossible	Wastes stockpile	Possible to fishing port
Cleaning method	Mechanical cleaning since wipe up	Carrying equipment to the working area	Move to fishing port by ship and then manual carriage of resources
Others	Low pressure cleaning from boat is possible		

4 - 2 Sectional Assessment of Island

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Sector	Geology	Pollution area (Length × Width × Depth)	Working method (Resources)	Period (Men × days)
A	Cliff, Rocks, pebbles, cobbles	1km × 20m × 50 Cm	1st wipe up 2nd Flushing & High pressure cleaning	50 × 60
B	Cliff, Rocks, pebbles, cobbles	800m × 20m × 20 Cm	1st wipe up 2nd Flushing & High pressure cleaning	50 × 30
C	Seawall, Rocks, pebbles, cobbles	100m × 15m × 10Cm	1st wipe up 2nd Flushing & High pressure cleaning	20 × 20
D	Seawall, Rocks, pebbles, cobbles	800m × 15m × 40Cm	1st wipe up 2nd Flushing & High pressure cleaning	100 × 30
E	Rocks, pebbles, cobbles	200m × 15m × 30Cm	1st wipe up 2nd Flushing & High pressure cleaning	20 × 10
F	Rocks, pebbles, cobbles	200m × 15m × 20Cm	1st wipe up 2nd Flushing & High pressure cleaning	50 × 20

4 - 3 Others

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1. App. 150~160 villagers were involved in cleanup operations and 150~200tons of wastes were collected and stockpiled
2. Bulk oil removal is the top priority followed by wipe up, and low pressure cleanings is needed on the rocks and pebbles
3. 4WD truck should be deployed to carry response materials and an access road is needed
4. Total no. of villagers involved to date is 123 and possible manpower is app. 150~160.. External workers would be difficult to find food, lodging, clothes…etc for non-locals
5. Over 500 ton of car ferry is possible to berth to the port and crane on the port seems to be involved to carry response resources

5. Shoreline Cleanup

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5 - 1 Results

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- Working period : 21days (8Dec ~28Dec 2007)
- Collected oil : 1,229ton(Oily Water: 229ton, Wastes : 1,000㎘)
- Equipment involved

Type	Number	Remark
Beach Cleaners	70	
Skimmers	37	
Temporary Storage	103	
Vacuum vehicle	430	Including 26 Super vacuum vehicles
Oil boom	2,980	

5 - 2 Recovery

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Unisep (Drum type)

Uniskim (Drum type)

5 - 3 Recovery

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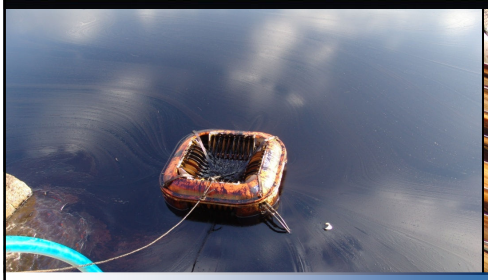
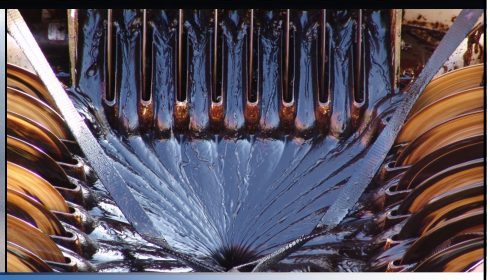
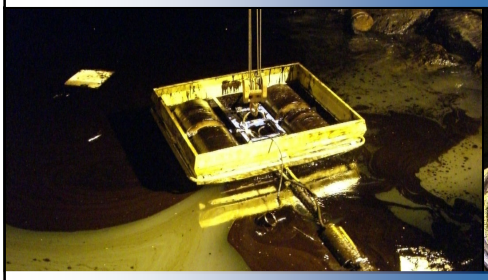




Komara 20K (Disc type)



Magnum 100 (Drym type)

5 - 4 Recovery

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Mini-Vac (Vacuum device)

SMBC50 (Vaccum tank)

5 - 5 Recovery

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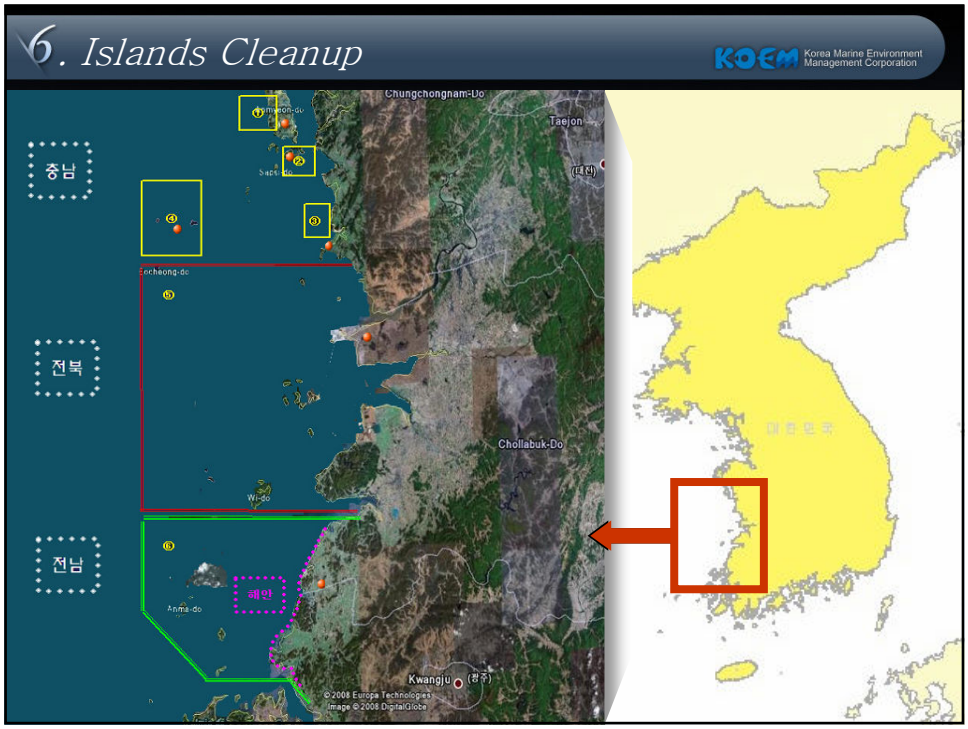
Skimming via vacuum vehicle

Light for night working

Temporary storage(5ton)


Volunteers
1,226,730 volunteers were involved till 14 July 2008


6. Islands Cleanup
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충남
전북
전남
해안
Chungchongnam-Do
Taejon
Chollabuk-Do
Kwangju
Anma-do
Wi-do
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6 - 1 Scope & Results

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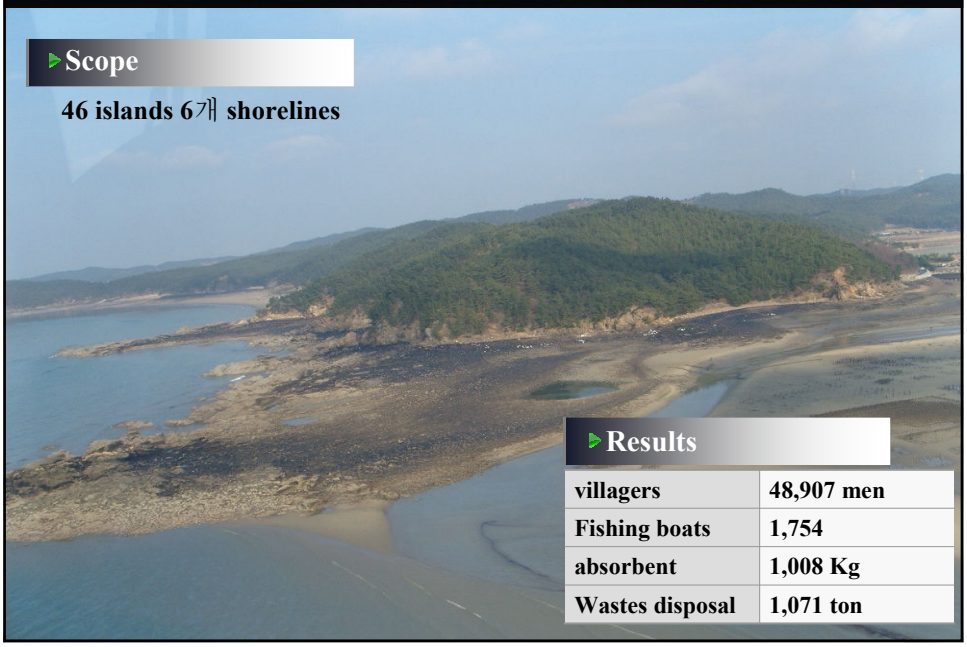

Scope

46 islands 6개 shorelines

Results

villagers	48,907 men
Fishing boats	1,754
absorbent	1,008 Kg
Wastes disposal	1,071 ton

6 - 2 Oil Wastes Removal

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6 – 3 Flushing

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6 – 4 Tilling

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6 - 5 Pebbles Cleanup with Oil Snare

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6 - 6 High Pressure Water Cleaning

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6 - 7 Pebbles down for Surf-washing

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6 - 8 Pebbles Cleaning

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7. Wastes Collection & Disposal

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Oil barge (↑) (Bangje1003)

Oil barge (↑) (Bangje1001)

Car ferry (↑)

Working Boat (↓) (Hwangkyung3)

Working Boat (↓) (Hwangkyung1)

7 - 1 Transferring Oil Collected at Sea

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Transfer collected oil from oil barge to vacuum vehicles

7 - 2 Transferring Oil Collected at Shoreline

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7 - 3 Transferring Oil Collected at Islands

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8. Conclusion (Lesson Learnt)

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1. Efforts to make systematic national contingency plan and response capability were not that effective despite the preparedness in Korea for oil spill response
2. More than 1.2mil volunteers gathered to help but a weak point was found in managing that number of people
3. Realized the importance of training and exercising for spill response
4. No one except KOEM staffs were able to maneuver response equipment therefore there should be a plan for training and mobilizing private response resources

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Thank you