

Case study

SUNDARBAN OIL SPILL ASSESSMENT (2014)

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(from Wildlife Conservation Society)

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22/12/2014 16:40

CEDRE MISSIONS

- *Cedre* was established as a consequence of the Amoco Cadiz accident in 1978
- Mission is to assist French authorities in charge of response to accidental **inland** or **marine water pollution** by all types of pollutants including hydrocarbons and Hazardous Noxious Substances
- in order to improve the processes of
 - Preparing response
 - Conducting response
- Support can also be provided to foreign authorities or private sector structures

Sundarbans Oil Spill Assessment



Joint United Nations / Government of Bangladesh Mission

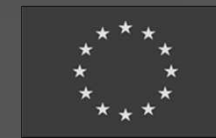
Supported by the Government of Bangladesh, the United Nations Development Programme, the UN Office for the Coordination of Humanitarian Affairs, the United Nations Environment Programme, the European Commission's Department for Humanitarian Aid and Civil Protection through the European Union Civil Protection mechanism, USAID and **France**



OCHA UNEP



*Empowered lives.
Resilient nations.*



USAID
FROM THE AMERICAN PEOPLE

Background

9 Dec

Oil spill accident in Sundarbans releasing **350,000** litres of heavy fuel oil (HFO)



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10 Dec & First response



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Always difficult to locate buried pollution



Waste stockage

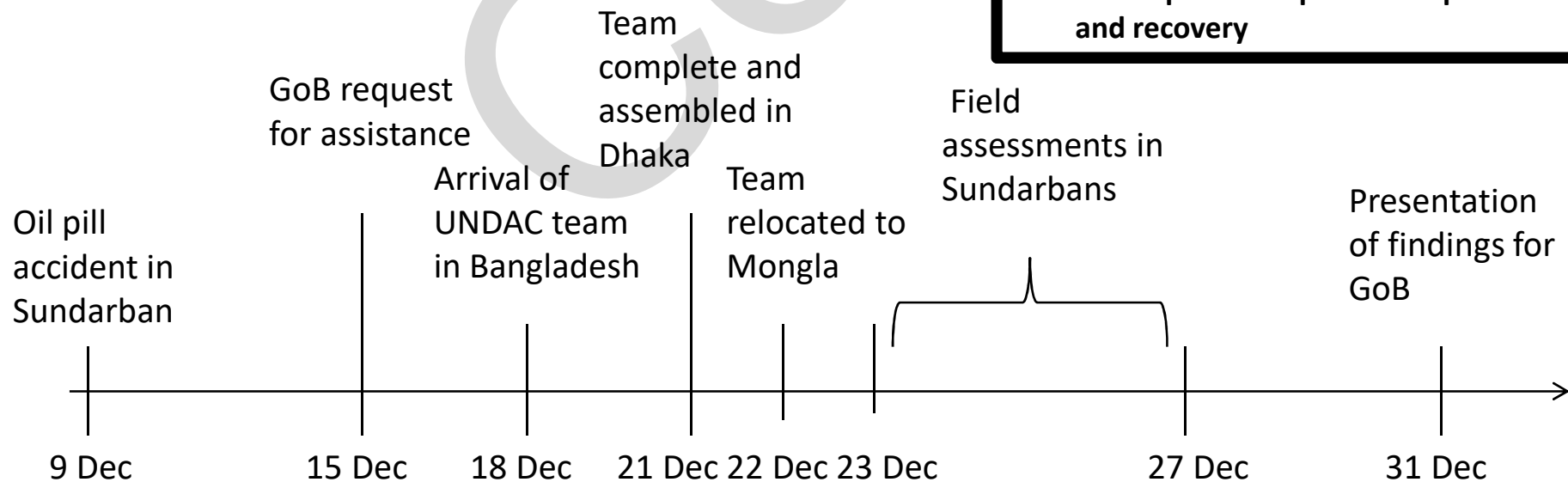


Background

- 9 Dec** Oil spill accident in Sundarbans releasing **350,000** litres of heavy fuel oil (**HFO**)
- 10 Dec &** First response
- 15 Dec** Government of Bangladesh (GoB) request for assistance
- 18 Dec** Arrival of UNDAC team in Bangladesh
- 21 Dec** Team complete and assembled in Dhaka
- 22 Dec** Team relocated to Mongla
- 23-27 Dec** Field assessments in Sundarbans
- 31 Dec** Presentation of findings for GoB

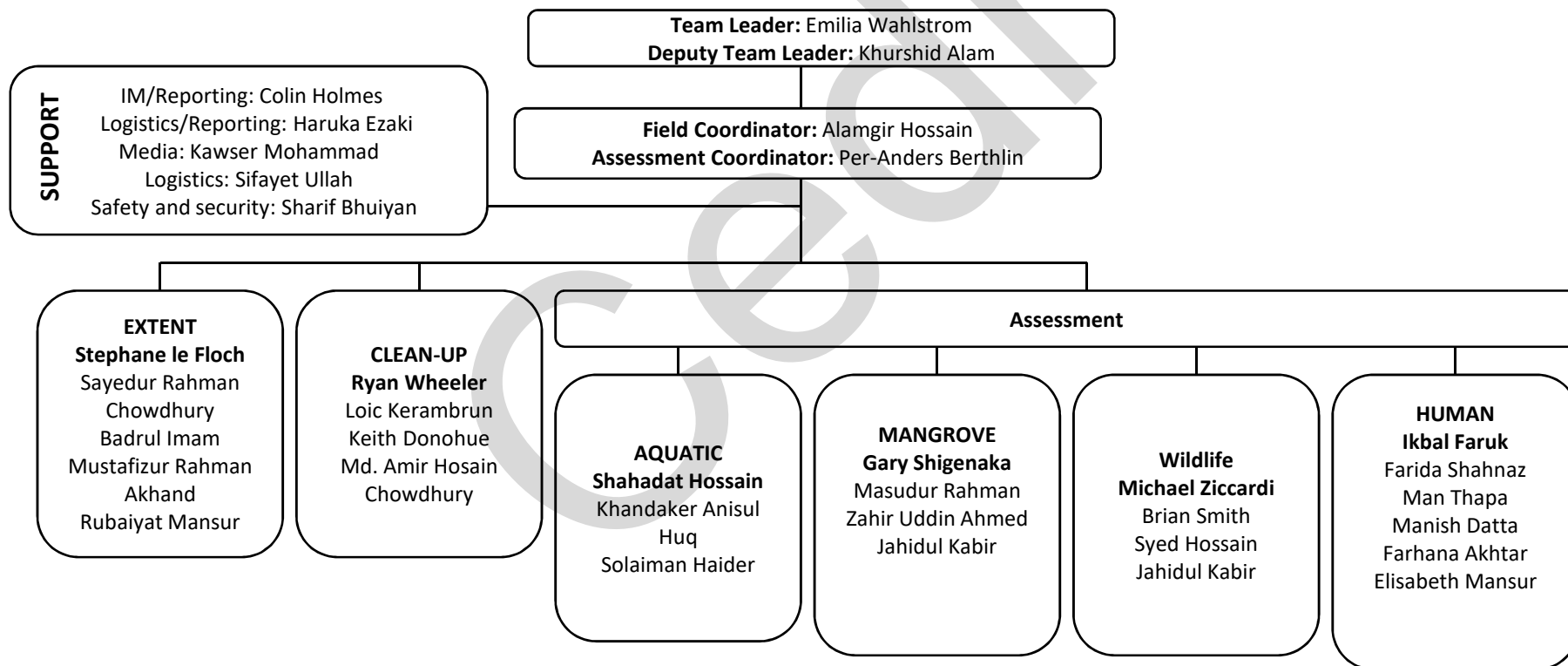
Mission Objective

- > Strengthen **GoB's effort in containing oil spillage and clean-up**
- > Provide **support to GoB in assessing the situation and developing an action plan for a phased response and recovery**



Team Structure

25 core members; 14 nationals of Bangladesh and 11 international staff



> Overall Objective of the extend team

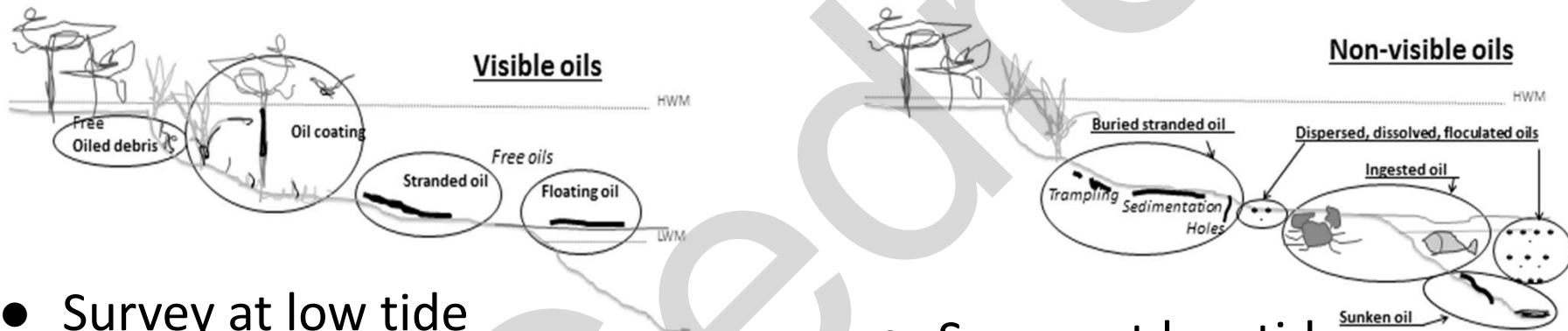
- Determine the extent of the pollution spread area
- Identify and roughly describe contamination levels using a reproducible frame of reference

> Key Questions

- To perform a survey (visual plus touching) of the shoreline in relevant rivers and their connecting channels
- To evaluate whether the pollution can be remobilized or not
- To establish detailed maps to the possible extent of the polluted/oiled areas for situation/assessment reports and for strategizing different field activities involved in the response operations

Methodology followed

> Where is the pollution?



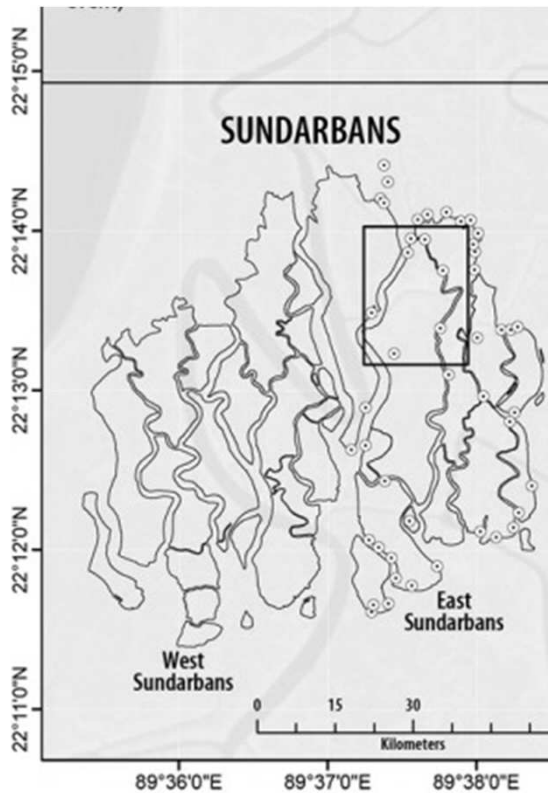
- Survey at low tide
- Visual observation of the shoreline from a speed boat

- Survey at low tide
- Buried versus sunken oil



To look for **visible oil**

> For the potential visible oil



- Large area: to start from the incident location (N22.35'75; E89.66'97) and perform a survey downstream and upstream
- Identify and describe contamination levels using a reproducible frame of reference



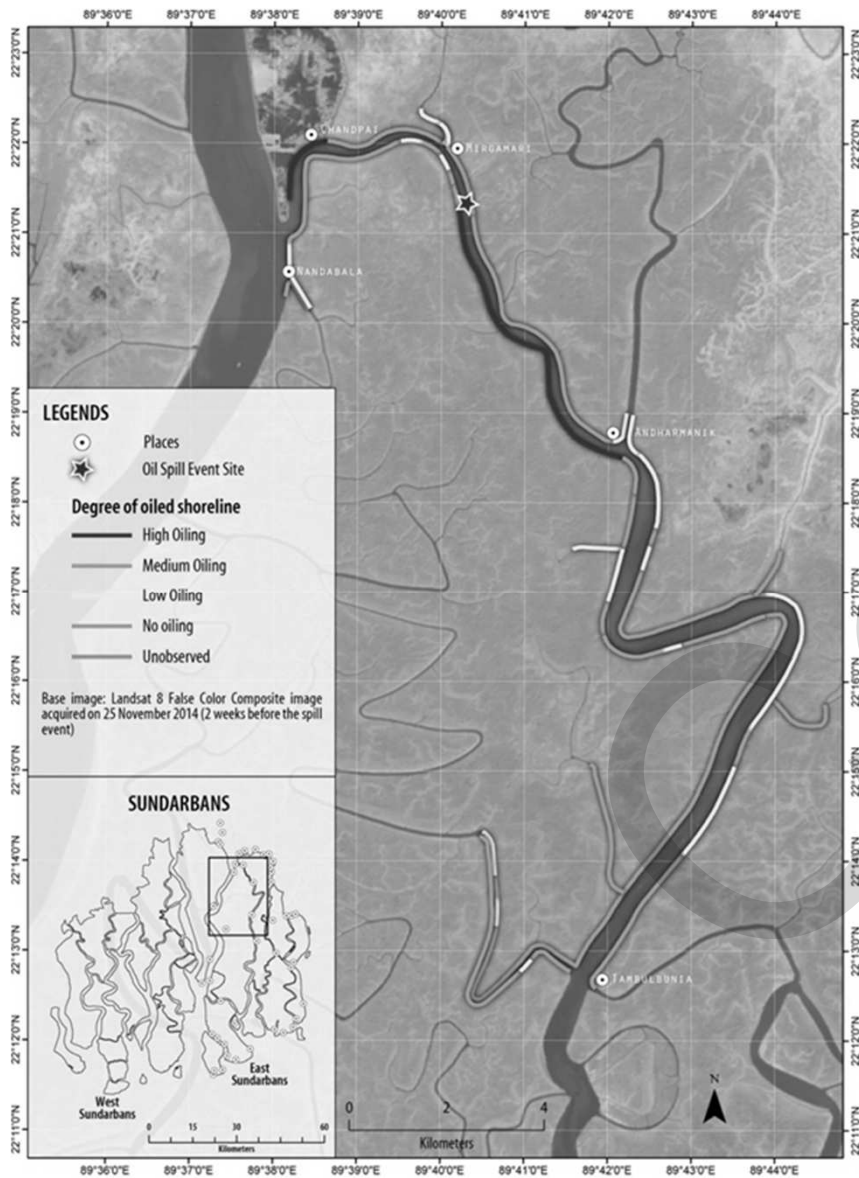
An appropriate scale to describe the spill

	<p>No: no visible oil on the shore</p>
	<p>L: low level of oil pollution; from many sporadic tar balls on the shore to a continuous thin layer of oil on the vegetation (< 30 cm).</p>
	<p>M: Medium level of contamination; no visible oil on the shoreline but a line (< 30 cm) on the vegetation or/and on human constructions.</p>
	<p>H: High level of contamination; oil on the shoreline and on the vegetation (> 30 cm coverage).</p>

GPS coordinates and quick description

Start way End way Scale Short comments

Way	Start	End	Scale	Comments
1	752000	752000	1	No visible oil on the shore
2	752000	752000	1	Low level of oil pollution; from many sporadic tar balls on the shore to a continuous thin layer of oil on the vegetation (< 30 cm).
3	752000	752000	1	Medium level of contamination; no visible oil on the shoreline but a line (< 30 cm) on the vegetation or/and on human constructions.
4	752000	752000	1	High level of contamination; oil on the shoreline and on the vegetation (> 30 cm coverage).



Degree of oiling	Length (km)	Percentage (%)
No oil	35,73	44
Low	17,79	22
Medium	18,99	23,5
High	8,41	10,5
Total of shoreline assessed	80,92	

But

- Only a first assessment
- No oil doesn't mean no oil
- Not possible to estimate the volume of oil

To look for **non visible oil**

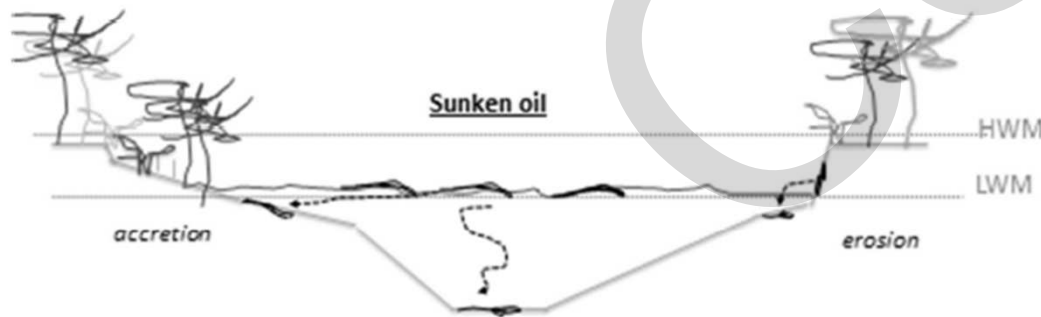


> Tool

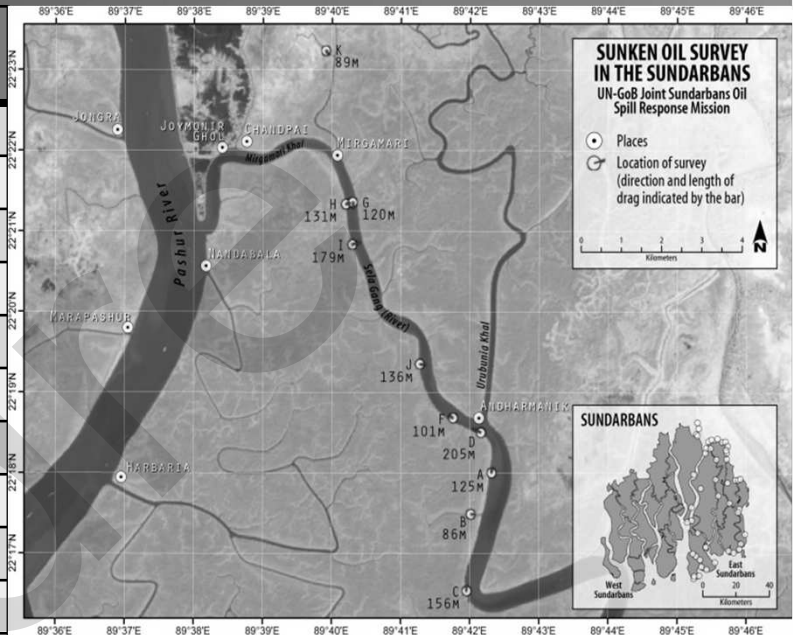
- 20m long rope weighted with 2 weights (<1 kg) one at the extremity and 7 meters before
- Equipped with some stripes of oleophilic material, each 50 cm

> Methodology

- The rope is dragged along a 100m long transect parallel to the shore
- Transects were carried out in particular sites according the initial oiling severity
- Transects were geo-referenced and depth recorded



Area	Time	Geo-Coordinate	Depth (ft)	Concentration of oil on Bank	Dragging Length (m)	Result
Point A	09:57	N22.30003 E89.70523	3.4	High	125	Nil
Point B	10:14	N22.29153 E89.70022	8.6	High	86	Nil
Point C	11:11	N22.27561 E89.69926	13.4	High	156	Nil
Point D	12:18	N22.30837 E89.70264	11.5	High	205	Nil
Point F	12:33	N22.31139 E89.69592	35.6	Low	101	Nil
Point G	13:16	N22.35556 E89.66998	3	High	120	Nil
Point H	13:25	N22.35596 E89.67167	11	High	1031	Nil
Point I	13:51	N22.34723 E89.67152	4	High	179	Nil
Point J	14:05	N22.32252 E89.68790	8	High	136	Nil
Point K	17:05	N22.38730 E89.66512	2.5	Low	89	Nil

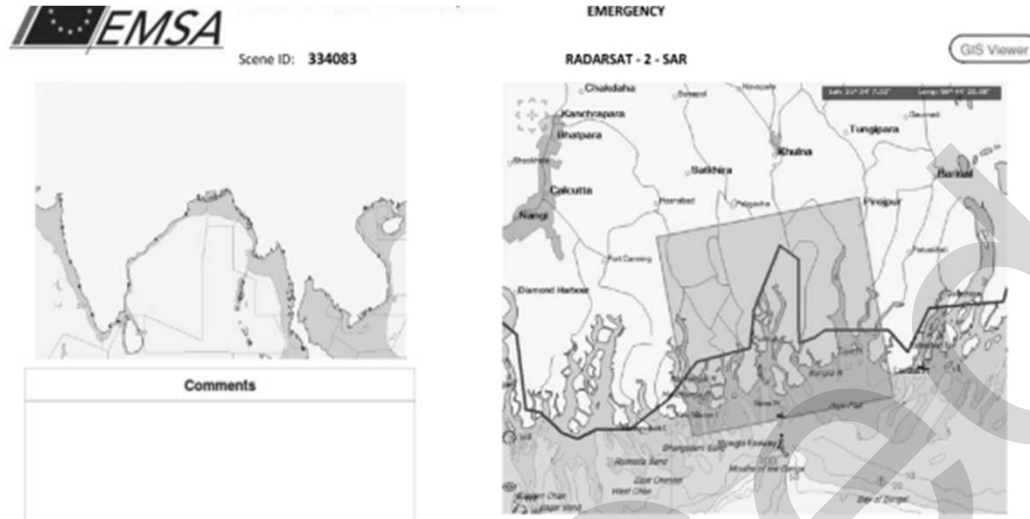


> Preliminary conclusion

- Survey in the more polluted part of the river,
- No proof of sunken oil (slicks or patches)
- BUT only preliminary result (clay-oil flocculation)

Support from the EMSA

European Maritime Safety Agency



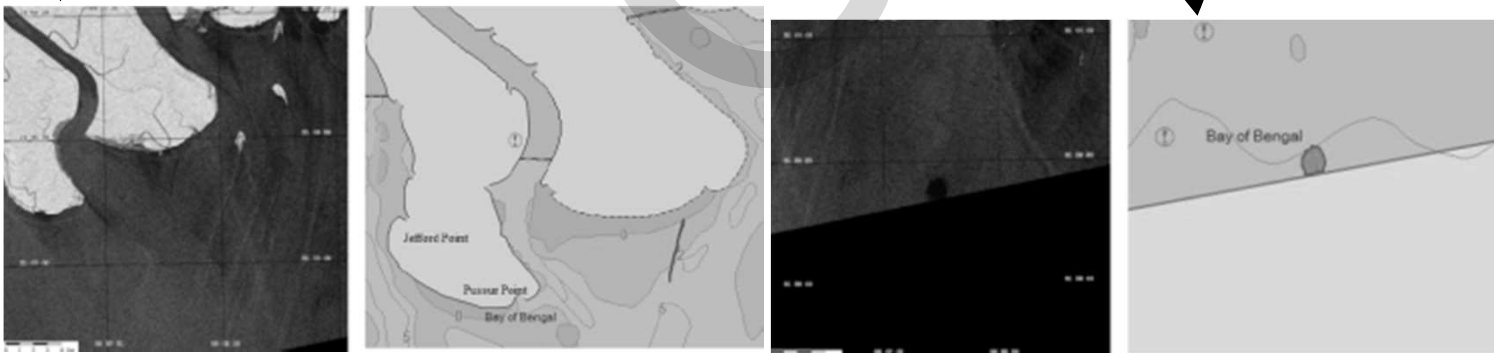
> Probable oil slicks but

- Persistence and location **15 days** after the spillage?
- Shape is round, compact and coherent



Linked rather to a wreck-source spillage or a viscous oil slick than a remaining fluid oil

Spill # on map	Spill Identifier	Centre Position		Area (Km ²)	Length (Km)	Width (Km)	Alert	Oil Spill Warning Issued	Possible Source	
		Latitude	Longitude						Detected	Identified
1	OS_334083_1	021° 44' 09.38" N	089° 40' 11.98" E	1.83285	3.080	0.144	Not applicable	No	No	No
2	OS_334083_2	021° 38' 44.64" N	089° 50' 00.90" E	1.847456	1.834	1.594	Not applicable	No	No	No



Findings - extent

Oil tanker accident in wildlife sanctuary

- > Main shorelines 40 km up and downstream of incident site, except creeks, show varying degrees of oil
- > Timely tidal variations and the decision to ban tanker traffic after the spill minimized the impacts
 - No visible impact on mangrove forest floor observed
 - Implications that most of oil washed out along Shela and Pashur rivers (main rivers)

Findings - response



Litres of oil collected (data from Bangladesh Petroleum Company)

Date	Oil collected / litres
12 December, 2014	5,200
13 December, 2014	18,000
14 December, 2014	17,000
15 December, 2014	8,200
16 December, 2014	7,800
17 December, 2014	4,600
18 December, 2014	4,700
19 December, 2014	800
20 December, 2014	1,400
21 December, 2014	500
Total	68,200

Lost 281 800 ???

CONCLUSION

- > Important support from the GoB (transportation of the team, food, security...)
- > Nice collaboration between experts and representatives of Bangladesh (Ministry, University...)
- > Recommendations were delivered to GoB
 - Immediate: waste treatments, maritime traffic, surveillance network...
 - Mid-term: to develop a follow up strategy
 - Long term: oil contamination in specific species, need for mangrove ecosystem restoration...



आपका बहुत बहुत धन्यवाद

Tank you

*Great thank you to **Budrul, Mostafizur, Sayed and WCS***



OIL SPILL INDIA 2016, 11TH & 12TH AUGUST, 2016



COMMITMENT, SYNERGY, EXCELLENCE



