



Pollution Risk Assessment

Training on Contingency Planning for Jordan

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Objective

- Provides the port authority with information on the risks faced by the port
- Enables the port to reach decisions about contingency planning and what to do after an incident
- Risk = the probability of something happening x the consequences of the incident.
- Not possible for Contingency Planning to cater for every eventuality that may be encountered, but a full and proper risk assessment will enable an effective response to be mounted in a controlled and efficient manner.

Stage 1 Potential Pollution Assessment

1) Identifying the ships and cargoes likely to be used in the port

This should include:

Vessels	Cargoes	Bunkering
Type, size and traffic density	Types and quantities	Bunkering facilities – fixed or mobile
Collision/Allision – potential and mitigation	Gas, liquid, solid – inherent dangers with each	Types and quantities of bunker operations
Availability of VTS	Cargo handling facilities	Management of bunkering procedures
Tug availability and Pilotage	Incorrect labelling, documentation	Clear instructions in the event of a bunkering failure available to all.
What fuel is carried	Access to cargo manifests	Availability of Tier 1 equipment at the bunkering position.
Limiting environmental factors – winds, tides etc.		Shore tank storage facilities

- 2) Identification of potential hazards in the port that could cause a spill:
 - should include collisions with a ship or berth, spill from bunkering, spills from shoreline operations, spills from cargo loading etc.
- 3) Based on data from previous historical incidents in a port and the operations in the port the probability or likelihood of an incident and spill can be estimated.

4) From this data worst case scenario can be developed on how much pollutant may be released and modelling can be done,

i.e

- loss of a container
- break of a wing tank following a collision
- burst of a pipeline

DWT	collision wing tank	Grounding 2 wing+centre	Bunkers carried
30000	700	3000	1350
50000	1100	5000	5200
70000	3000	12500	6300
100000	5500	21000	7000
200000	10500	45000	8300
240000	15000	60000	12000

Stage 2: Assessing the Risk

The Risk Assessment brings together a list of potential risks should be drawn up together with the potential consequence and likelihood of each.

A Risk Matrix should also be drawn up in order to prioritise the risks.

	Likelihood				
Consequence	1	2	3	4	5
	Rare	Unlikely	Possible	Likely	Almost certain
5 Catastrophic	5	10	15	20	25
4 Major	4	8	12	16	20
3 Moderate	3	6	9	12	15
2 Minor	2	4	6	8	10
1 Negligible	1	2	3	4	5

Sensitivity Analysis of the risk assessment should also be undertaken

- identify where results are particularly sensitive to changed assumptions

Stage 3: Assessing Potential Impact

Based on the Risk Assessment an assessment of the impact of the most likely spills can then be made on:

- the environment,
- Any priority habitats and species
- Any use of the port area (Fisheries, industry and recreation)
- Health effect on port workers, visitors and the local population including mortality, morbidity.
- The need to evacuate, relocate or shelter these people
- The economic impact on the port and local industry

- Through modelling the potential spread of the impact can be estimated
- With this information the priority habitats/resources that need to be protected can be identified
- Ways to protect and clean these resources can be identified
- The equipment needed to protect the resources can also be identified and purchased
- Mitigation measures can also be undertaken address any Intolerable risks. This could mean changing operations, bringing in new management options, replacing equipment and increasing training

Strategies to be pre-agreed - based on priorities

Techniques available (may be in combination)

monitor and wait

dispersant

containment and recovery including protective booming

shoreline cleanup

Each strategy has to consider

logistic requirements

limitations of techniques



Any questions?

Thank you!

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