

Sustainable management of contaminated sites

Presentation 1.1

Phase 1 - Preliminary Site Assessment tasks and deliverables

October 2021

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Phase 1 - Preliminary Site Assessment Deliverables

Phase 1 Preliminary Site Assessment

Initial Conceptual Site Model

Preliminary Risk Assessment
or
Tier 1 Risk Assessment



Phase 1 - Preliminary Site assessment Tasks

Desktop study

Collect all available site baseline information

Site walkover

Visit the site, take a photo report and check collected site information

Reconnaissance survey

Take few samples for to verify assumptions

Swift Site Assessment

Make Initial Conceptual Site Model & Carry out a Preliminary Risk Assessment



Phase 1 - Preliminary Site assessment

Information needed

Desktop study

- Images
 - Google earth
- Site history
 - Archives on-site and elsewhere
- Soil, geomorphology and geological
 - Archives, maps and websites
- Geo-hydrological information
 - Archives, maps and websites
- Geo-technical information
 - Archives, maps and websites
- Site layout information
 - Cadaster
- Land-use planning
 - Archives maps and websites



Phase 1 - Preliminary Site assessment

Site walkover

Site walkover

- Interview people living around
- Meet former & present site management
- Site walk-over with worker(s)
- Visit the surrounding
- Make site location map
- Make site photo report
- Record all collected data!

Using questionnaires

Agenda & minutes

Informal & photo report

Informal & photo report

Select scale

Indicate position & file

Use standard form



Phase 1 - Preliminary Site assessment

Photo report



Stockpiles drums with oil containing PCB and electrical equipment containing PCBs



Burned, buried PCB containing waste



Stockpile of unknown (PCB containing) hazardous waste?

Phase 1 - Preliminary Site assessment

Photo report

Photographs of:

- The potential sources of contamination
- The potential source-receptor pathways
- The potential receptors
- The surroundings
- The entrance road
- The buildings
- The subsoil infrastructure
- The installations
- Etc.



Air strip – Rinsing place spraying planes



Phase 1- Preliminary Site assessment

Reconnaissance survey

Reconnaissance survey

Verify assumptions on risk and cost determining large quantities of unknown waste by taking

- One or two representative soil and/or (ground)water samples
- One or two representative pesticide and/or hazardous waste samples
- Analyze these samples to identify the composition



Phase 1 - Preliminary Site assessment

Reconnaissance survey



Is this none-hazardous waste such as fertilizers
or
Hazardous waste such as HCH or DDT?
**What if this pile is fertilizer and repackaged, removed and
incinerated as hazardous waste for 2,000 US/ton?**

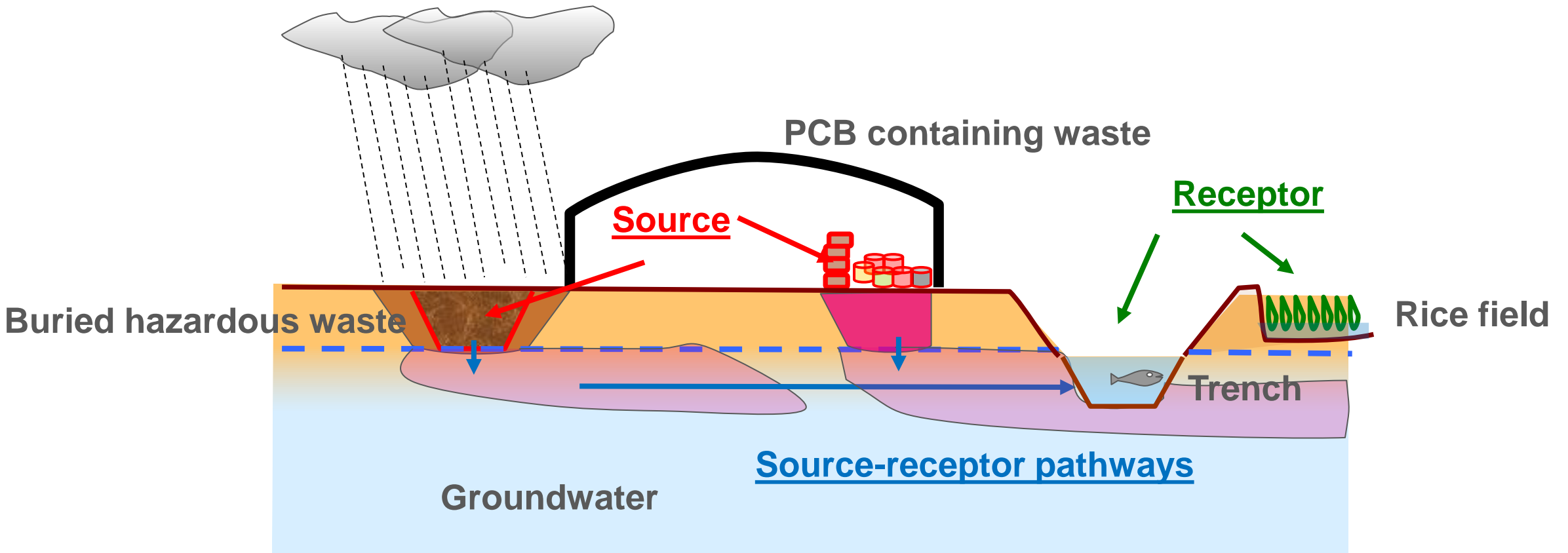


Is the bunker filled with contaminated soil
or
Pure hazardous waste?
**What if the clean-up is budgeted as if the bunker contains
contaminated soil and it turns out to be hazardous waste
during operation?**

Phase 1- Preliminary Site assessment

Initial CSM

Swift Site
Assessment

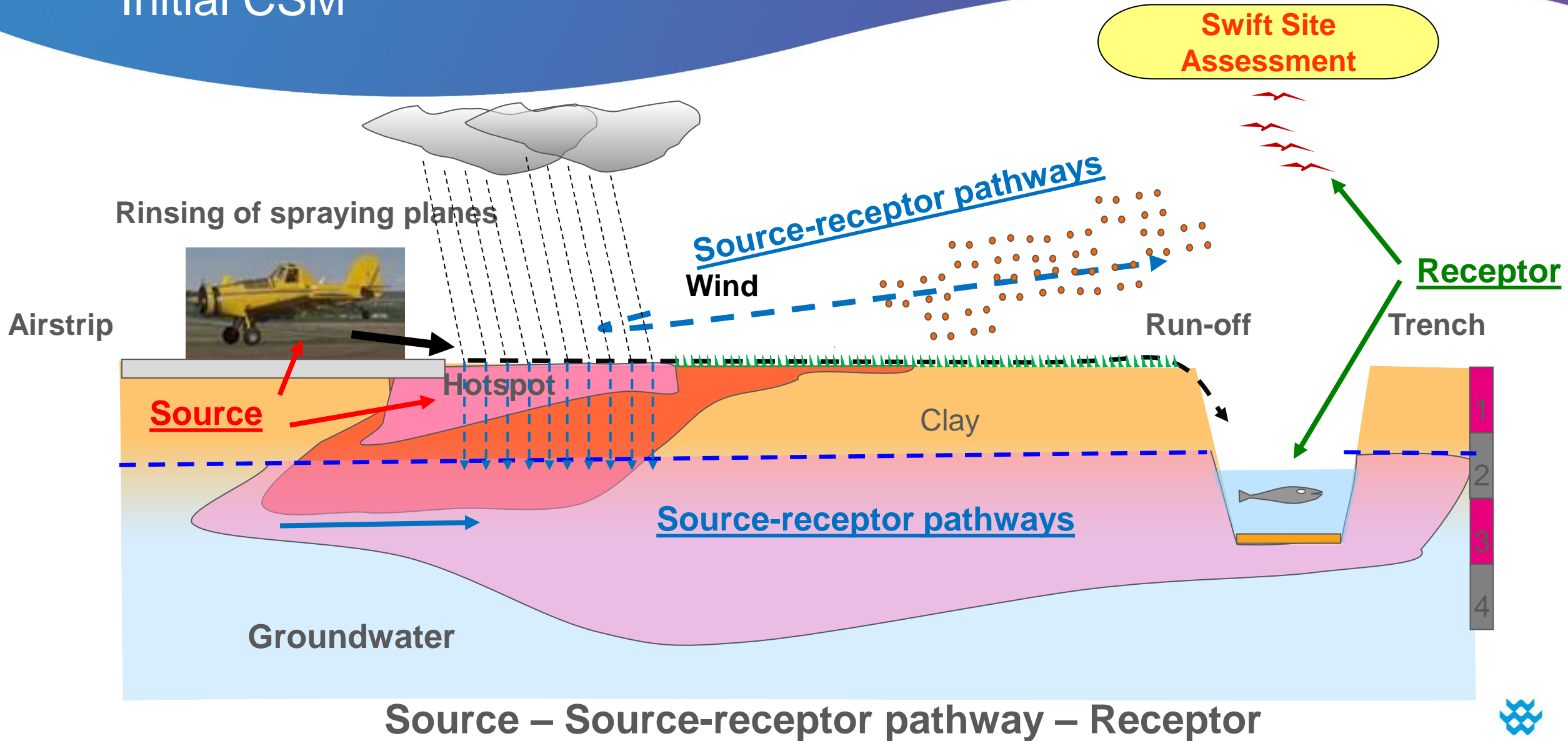


Source – Source-receptor pathway – Receptor



Phase 1 - Preliminary Site assessment

Initial CSM



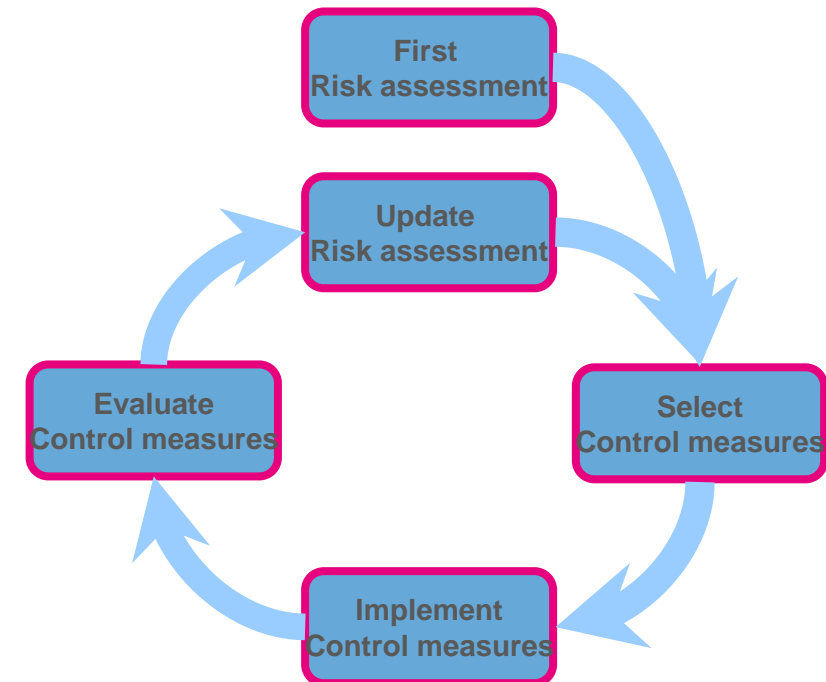
Phase 1 - Preliminary Site assessment

Preliminary Risk Assessment

Swift Site Assessment

Definitions

- Risk = An event, that, when triggered, causes problems
- Risk assessment = Likelihood x Impact
- Each identified risk should be assessed



Phase 1- Preliminary Site assessment

Preliminary Risk Assessment

**Swift Site
Assessment**

7 origins of risks

1. Technical
2. Organisational
3. Legal or legislative
4. **Environmental**
5. Financial
6. Social
7. Political



Phase 1 - Preliminary Site assessment

Preliminary Risk Assessment

**Swift Site
Assessment**

Quantitative risk assessments

1. Project risks – Project risk assessment

- These risks are influencing the site rehabilitation process
- These risks are related to the project management

2. Environmental risks – Environmental risk assessment

- Human health risk
- Ecological risk
- Contaminant migration



Phase 1 Preliminary Site assessment

Preliminary Risk Assessment

Project Risk Assessment

Swift Site Assessment

Likelihood

- Not likely
- Possible
- Likely
- Probably
- Very likely

Value

- Very small
- Small
- Reasonable
- Large
- Very large

Likelihood					Impact on				
					<ul style="list-style-type: none"> • Planning • Effectiveness • Safety • Interference surrounding 				
Not likely	Possible	Likely	Probably	Very likely	Very small	Small	Reasonable	Large	Very large
1	2	3	4	5	1	2	3	4	5



Phase 1 Preliminary Risk Assessment

Preliminary Risk Assessment

**Swift Site
Assessment**

Environmental risk assessment

Likelihood

1. Not likely
2. Possible
3. Likely
4. Probably
5. Very likely

Impact

1. Very small
2. Small
3. Reasonable
4. Large
5. Very large

Burned and buried empty packaging of pesticides									
Likelihood					Impact on				
					<ul style="list-style-type: none"> • Human health • Ecosystem • Migration 				
Not likely	Possible	Likely	Probably	Very likely	Very small	Small	Reasonable	Large	Very large
1	2	3	4	5	1	2	3	4	5



Phase 1 - Preliminary Site assessment

Preliminary Risk Assessment

**Swift Site
Assessment**



**Burned, buried PCB
containing waste**

Preliminary assess the exposure risks for people working here?



Phase 1 Preliminary Risk Assessment

Deliverable Preliminary Risk Assessment

**Swift Site
Assessment**

Environmental risk assessment

Likelihood

1. Not likely
2. Possible
3. Likely
4. **Probably**
5. Very likely

Impact

1. Very small
2. Small
3. Reasonable
4. **Large**
5. Very large

Preliminary assess the exposure risks for people working here?

Burned and buried empty packaging of POP-pesticides									
Likelihood					Impact on				
Not likely	Possible	Likely	Probably	Very likely	Very small	Small	Reasonable	Large	Very large
1	2	3	4	5	1	2	3	4	5

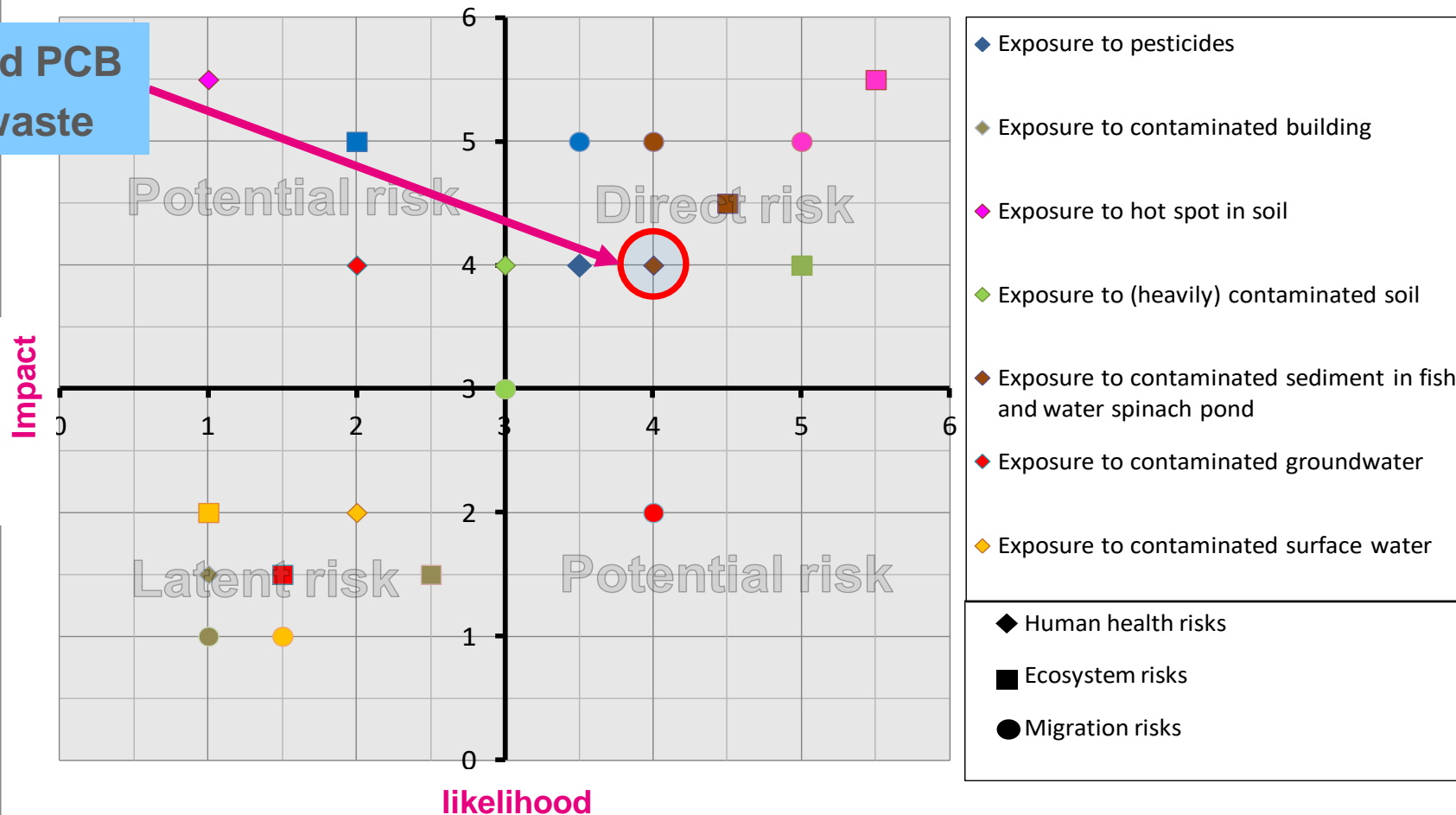


Phase 1 Preliminary Site assessment

Preliminary Risk Assessment

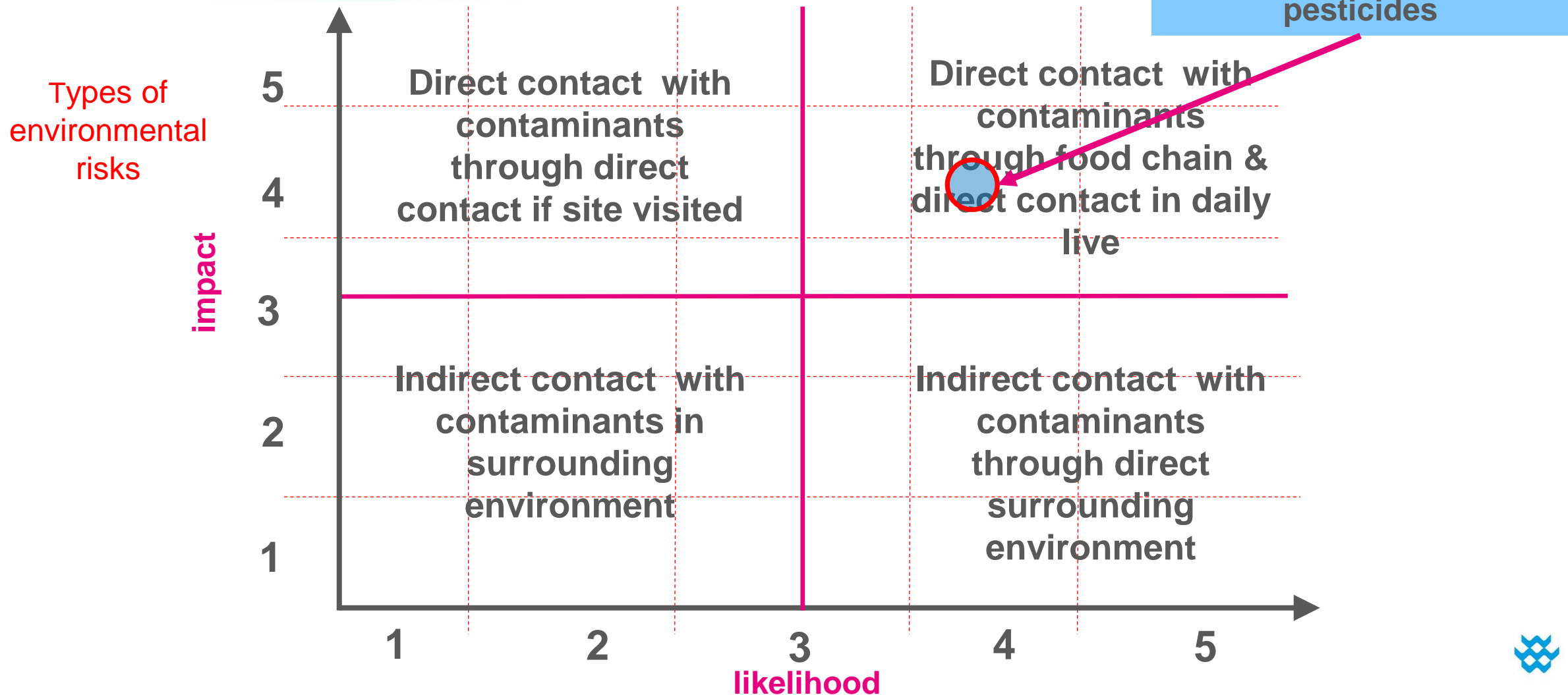
Burned, buried PCB
containing waste

Preliminary Risk Assessment



Phase 1 Preliminary Site assessment

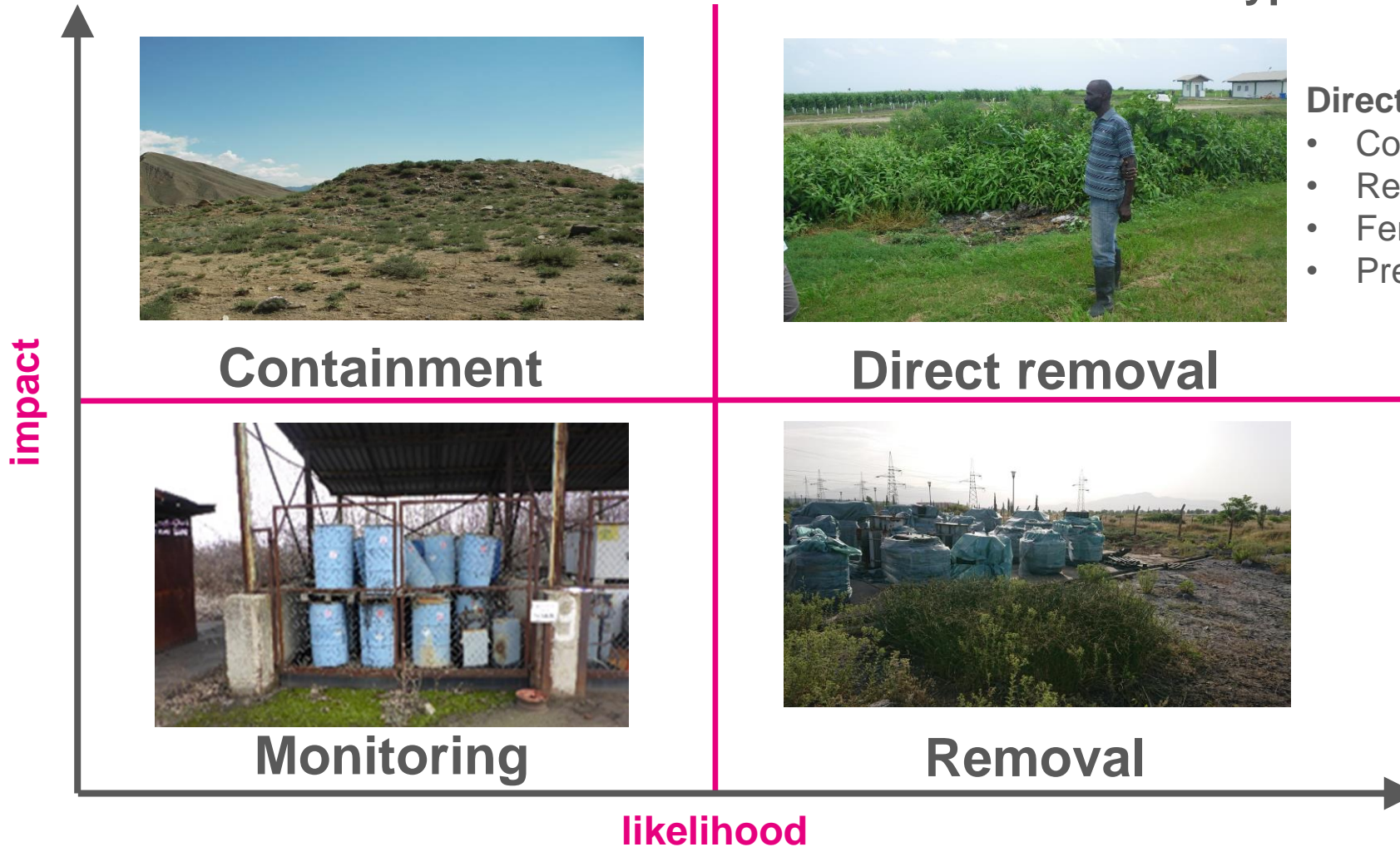
Preliminary Risk Assessment



Phase 1 Preliminary Site assessment

Preliminary Risk Assessment

Different types of risks require different types of control measures



Direct risks demand emergency measures

- Cover/cap
- Restrict site use
- Fence
- Prevent rainwater infiltration

Phase 1 Preliminary Risk Assessment

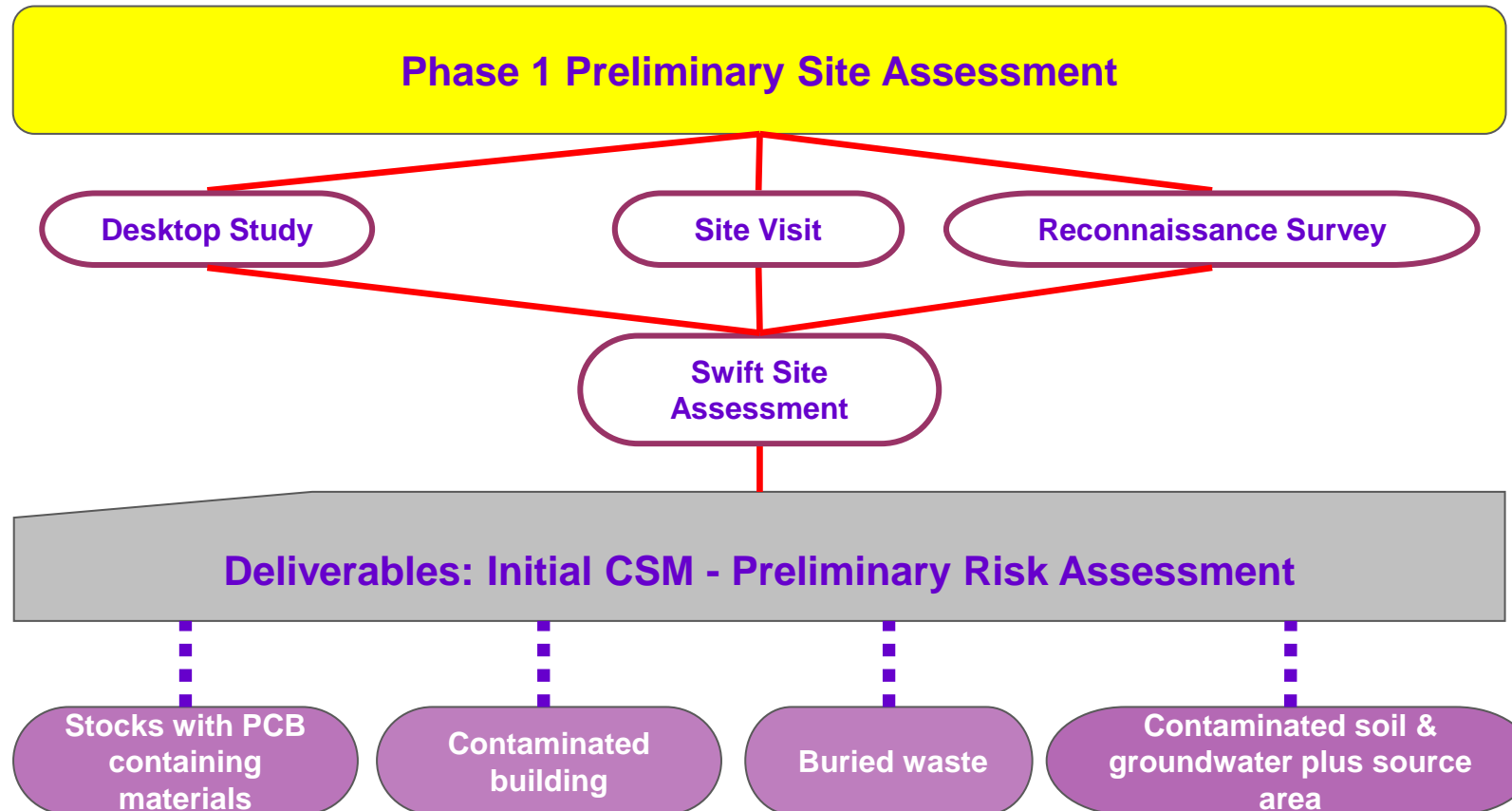
Preliminary Risk Assessment

Burned and buried PCB
containing waste

Risk	Human health	Ecosystem	Migration
1 Exposure to contaminants	Direct	Potential	Direct
2 Exposure to contaminated building	Latent	Latent	Latent
3 Exposure to hot spot in soil	Potential	Direct	Direct
4 Exposure to (heavily) contaminated soil/waste	Direct	Direct	Direct
5 Exposure to contaminated sediment in ditch	Direct	Direct	Direct
6 Exposure to contaminated groundwater	Potential	Latent	Potential
7 Exposure to contaminated surface water	Latent	Latent	Latent



Phase 1 Preliminary Risk Assessment Tasks & Deliverables



Questions?

Contact



Thank you for your attention

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