



OVERVIEW OF THE INTERNATIONAL EVOLUTION OF POLICY AND APPROACHES TO CONTAMINATED LAND REMEDIATION AND MANAGEMENT

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TYPES OF SITUATION FACED

◆ Suspected land: is it a problem? Is it risky? Is it TOO risky?



- Are the operating site impacts acceptable?

- Is future redevelopment feasible on this particular site?

- Site closure: What should I do to regenerate the land?

OTHER
SITUATIONS

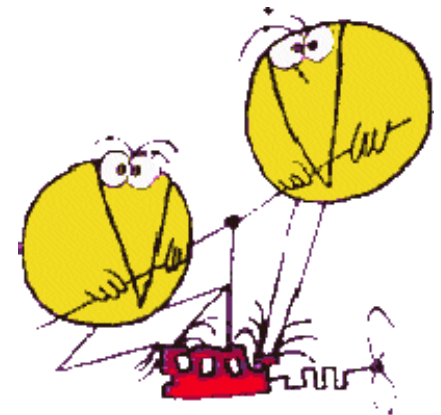
* Accidents:
how to mitigate
damages?

OPERATING SITES

Evolution of CLM policies the early days 1980



- ◆ **First generation:** Drastic risk control,
 - systematic approaches (protocols, national inventories),
 - priorities focussed on soil contamination
- ◆ Some countries still focused on this type of policy

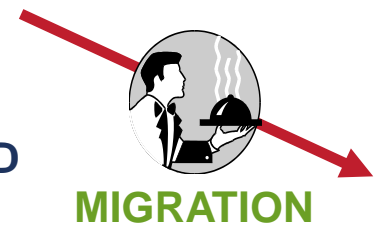


Evolution of CLM policies the 90s

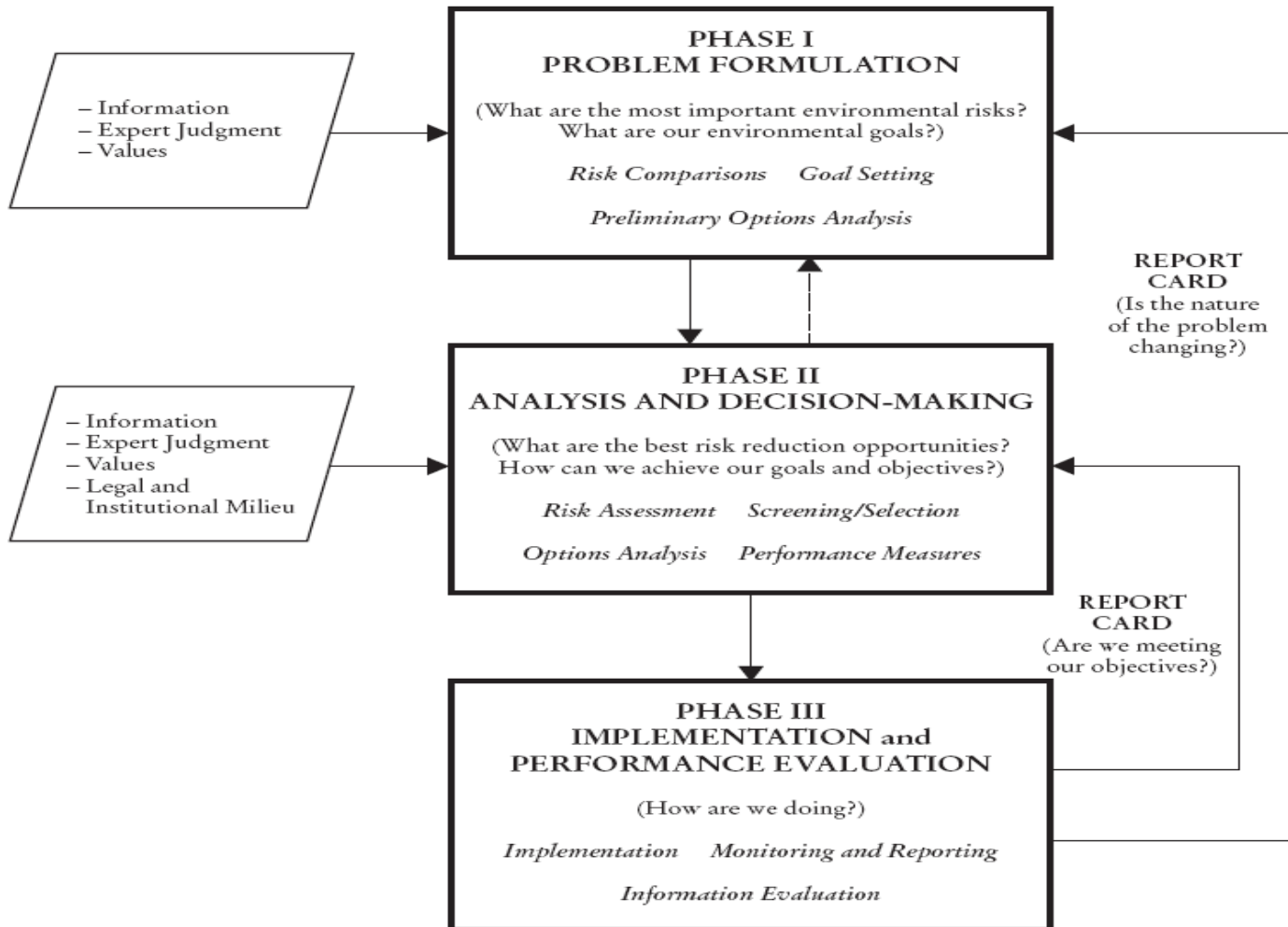


◆ Second generation: contaminated land risk assessment

- Possibilities for tailor-made approaches
 - Cost effective investigations
 - Accuracy and precision where it is most needed.
 - Do not investigate what is already known
- Fit for use principle: Land use



A tiered approach

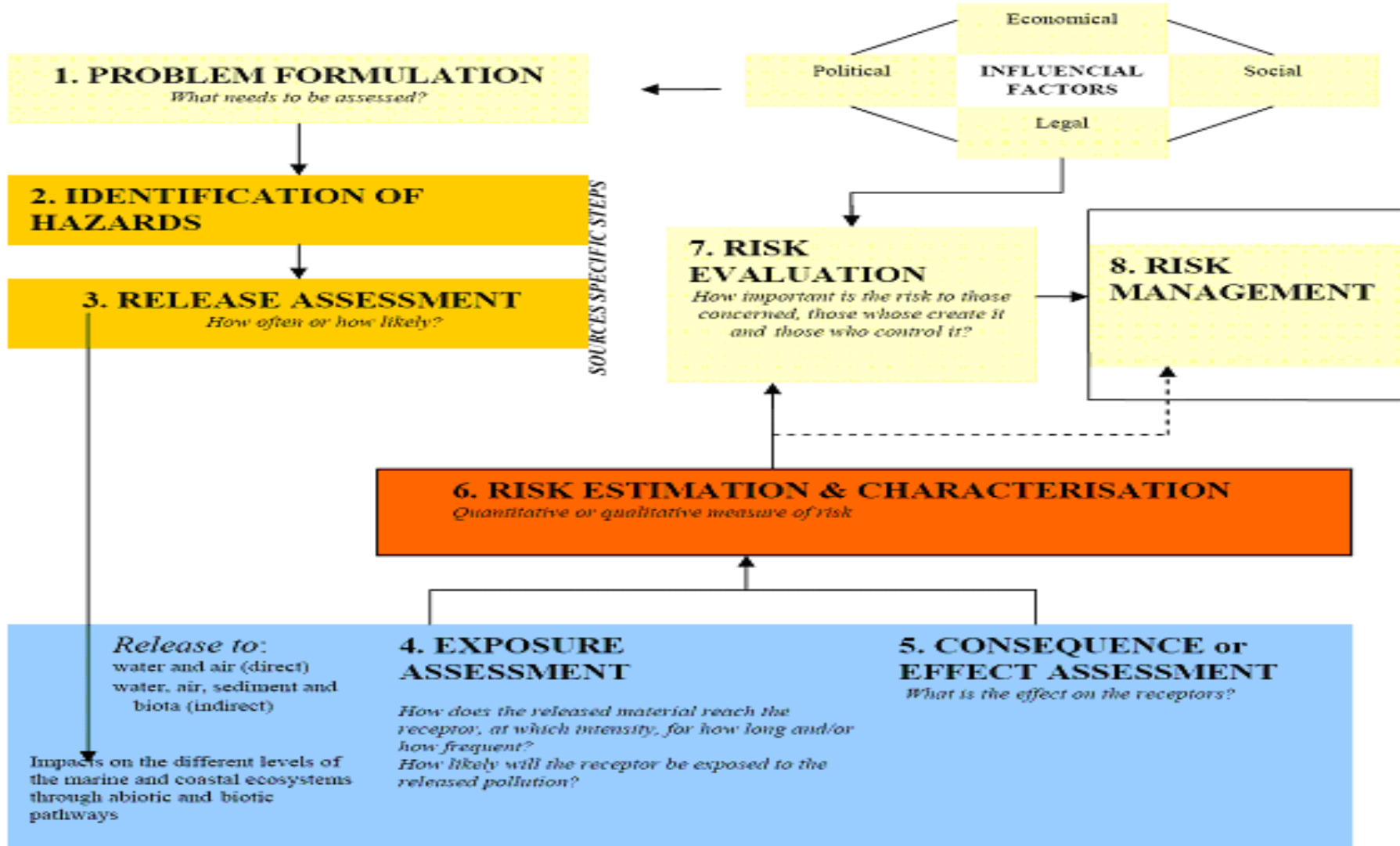


Evolution of CLM policies the 2000s



- ◆ **Third generation: Risk Based Land Management and solution design**
 - Integration with spatial planning, water management, socio-economy
 - Economic development vs protection of the Environment
 - Land use becomes even more important

Risk Assessment vs. Risk Management



Contaminated Land Management



- **Several dimensions / a single framework**
 - **With legal, technical, financial, organisational tools**
 - Preventing new pollution – Impact Assessment of new projects
 - Operating industrial sites:
 - Preventing Accident / special infrastructures, warning systems, monitoring
 - Reducing emissions / Use of BATNEEC (processing, filtering)
 - Polluter pays principle
 - Act as soon as emission.
 - Legacy pollution:
 - Risk based approach – from RBLM to sustainable land management
 - Use a tiered approach using cost-benefits approach
 - Combining and balancing the three pillars of sustainable remediation

Harmonisation or common Ground?



◆ Technical level:

- Tool box for Risk Assessment, with several models, different levels of details
- Common protocol for choosing the appropriate models
- Common set of exposure factors, reference doses?
- Recommendations for i.e. use of safety factors? Taking into consideration background levels?
- Smart combination of models and measurements needed!!!

◆ Political level:

- Acceptable risk for different land uses?
- Targets to be protected (Human Health, Ecosystems? Ground water, Surface waters, Others?)
- Substances to be covered / excluded
- Risk management tools (e.g. restriction of use)



Food

Water

Air

Products

Is the surrounding population exposed to unacceptable risks?

- ◆ Suspected site: is it a problem? Is it risky?
- Is the future redevelopment project feasible on this particular site?
- Is an Area approach more suitable (cumulative)?



- Are the operating site impacts acceptable?
- Are the industrial area impacts acceptable?
- Site closure: What should be done for regenerating the land?

Will the new project have an impact (BATNEEC use, best practices for operation, controls)?
 Is there a potential cumulative impact with other sources?

Other New Challenges



- ◆ Sustainable use of natural resources:
 - consumption of resources should not exceed the carrying capacity of the environment,
 - de-coupling of resource use and waste generation from economic growth.
- ◆ Life cycle thinking integrated to sector policies
- ◆ EU climate and energy targets (“20-20-20”-targets): highly energy-efficient, low carbon economy.

CLM: A new paradigm



- ◆ **Risk Assessment:** investigating and understanding environmental impacts and risks taking a tiered approach
- ◆ **Land Management:** designing and implementing actions to reduce negative consequences and *balance benefits*

WATCH OUT:

- ◆ **not trading unacceptable risks against other management objectives & aspects**

Example 1: Action Scale issues



- ◆ At site scale (if it is isolated, ...),
- ◆ At an impacted area due to site(s) emissions – even when authorised by a operation permit (low punctual incremental on a long term).
- ◆ At community scale, in case of existence of several contaminated sites or in case of redevelopment project leading to land use change,
- ◆ At the scale of a catchment or even an entire river basin, if many contaminated sites are impacting the same water resources.

Example 2: time frame issues



- ◆ Time vs specific impacts :
 - If emergency or safety measures are considered as necessary when the risks are demonstrated / immediate action or at least on the short-term.
- ◆ Acting on soil and groundwater : Consider the transfer time in the unsaturated zone and in the aquifer
- ◆ Timeframe of the redevelopment project or even of the urban planning in general.
- ◆ Time needed for assessing the efficiency of the actions taken at the relevant geographical scale.



What's common? What's different?

	Risk	Sustainability
origin / use	economy/science	ecology/policy
based on ...	mental construct	ethical construct
objective	transparency	fairness
important	<ul style="list-style-type: none"> • single target • accountability • effectiveness 	<ul style="list-style-type: none"> • multi-objective • interdependency • efficiency
question	Should we act?	How can we act?
support to	better decisions	better action
strategy	prevent or limit	synergy

What do we need to enhance?



MANAGING “LAND” (soil & groundwater)

- ◆ matching human needs to natural resources and capacities
- ◆ crossing geographical and time scales (site to globe and back; short-, mid- and long-term)
- ◆ promoting synergies, avoiding irreversibility
- ◆ Balancing the three pillars of sustainable land management

◆ Environment protection

- No problem shifting
- Protecting Environment and Health against risks on the long term
- Reducing Emissions and footprints in land remediation and management (water, energy, soil & land, ...)

◆ Social

- Fostering local employment opportunities in communities where sites are reclaimed and reused.
- Integrating reuse in land development needs
- Ethics & Equity

◆ Economics

- Decrease Direct costs & Increase benefits
- Rising property values
- Project lifespan & flexibility

Additional Principles



- ◆ **Fitness for use:** to ensure safe use or reuse of contaminated sites by preventing unacceptable risks for citizens and the environment
- ◆ **Stand-still:** no further degradation of natural resources (soil and groundwater)
- ◆ **Supporting sustainable development:** to balance benefits at an appropriate scale and time frame
- ◆ **Transparency and fairness:** to establish well known assessment and decision criteria within appropriate consultation processes facilitating possible consensus of involved stakeholders

National Programme Content



- ◆ Should include **goals** and **objectives** for the program, **appropriate fiscal and environmental measures** to define progress, and **timeframes** and **regular reporting** associated with implementing the program
- ◆ Several tools
 - Legal framework
 - Technical issues
 - Financial issues
 - Organisational issues
 - Communication

Conclusions



2015
International
Year of Soils



ICCL
international
committee on
contaminated
land

- ◆ Recognise the efforts already done
- ◆ Different pieces of legislation
 - Existing Common Ground for managing Contamination
 - RTD needs remaining
- ◆ Need of real integration for more sustainability
 - The Soil – Sediment – Water system and its services!
 - Need for sustainable land use and integrated management of the soil-sediment-water system
- ◆ Better common understanding/ building consensus

Thanks for your attention!



More information on:
www.commonforum.eu
www.iccl.ch