

Regulatory progresses amongst European Nations for management of contaminated sites

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- The Common Forum
- Several generations of legal frameworks at national level
- Current evolution in some Member States
- Excavated Soil Management



“COMMON FORUM”

- Network of contaminated land policy experts and advisors (since 1994)
- Mission:
 - Being a platform for exchange of knowledge and experiences, for initiating and following-up of international projects among members,
 - Establishing a discussion platform on policy, research, technical and managerial concepts of contaminated land,
 - Offering an exchange of expertise to the European Commission and to European networks.



Evolution of contaminated land policies at national level

- **First generation: the early days 1980**
 - Drastic risk control,
 - systematic approaches (protocols, national inventories),
 - priorities focussed on soil contamination
- Some countries still focused on this type of policy



Evolution of contaminated land policies at national level

- **Second generation: contaminated land risk assessment 1990**
 - Possibilities for tailor-made approaches
 - Cost effective investigations
 - Accuracy and precision where it is most needed.
 - Do not investigate what is already known
 - Land use becomes very important in assessment and decision making

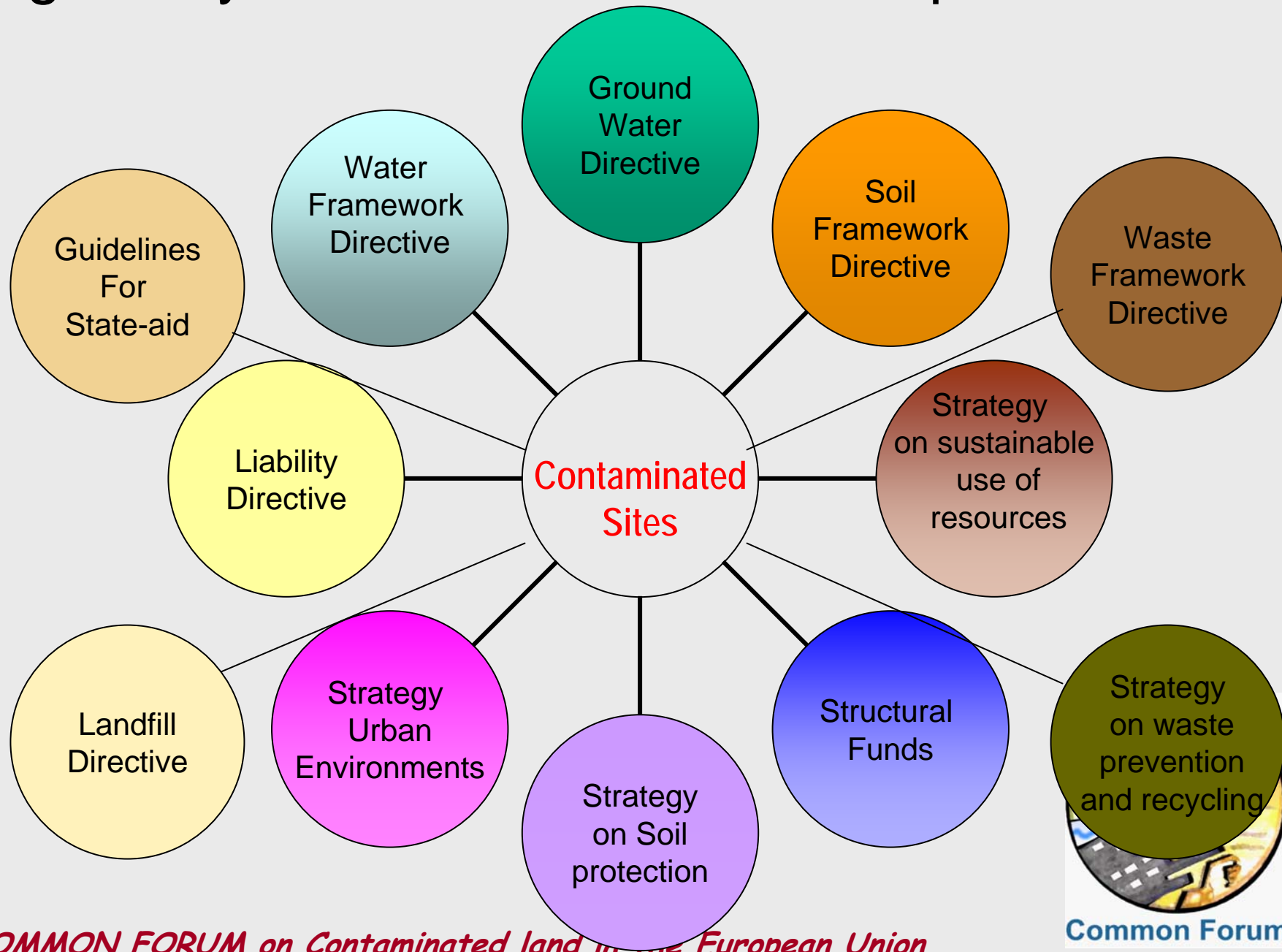


Evolution of contaminated land policies at national level

- **Third generation: Risk Based Land Management and solution design 2000**
 - Integration with spatial planning, water management, socio-economy
 - Economic development vs protection of the Environment
 - Land use becomes even more important

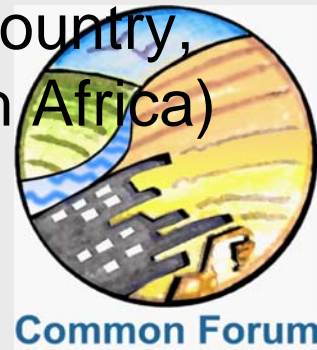


Regulatory environment at the European level



A specific issue: excavated soil management

- Revision of the Waste Directive and its transposition in MS
- Review at International level done within the International Committee on Contaminated Land (www.iccl.ch) – Helsinki Questionnaire
 - General situation
 - Policy Issues
 - Technical issues
- Answers from 15 countries/regions (Europe – Austria, Germany, Denmark, Belgium/Flanders, Finland, Italy, Netherlands, Slovakia, Spain / Federal + Basque Country, Sweden, + Russia, + USA, Canada / Quebec, South Africa)



A specific issue: excavated soil management

- **Soil reuse from 10% up to 90%**
- Applications include
 - Landfill covers (in some countries almost all the excavated soil is used in landfills)
 - Backfilling on site
 - Road construction
 - Other construction projects
 - Noise barriers
 - Landscaping
- Is the remainder disposed of in landfills waste?



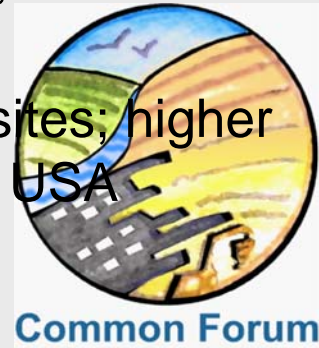
A specific issue: excavated soil management

- **Within waste regulations e.g. on**
 - hazardous and non-haz. wastes (including treatment)
 - Landfilling
 - Using waste for construction purposes
- **Also specific soil regulations e.g. on**
 - Remediation and risk assessment (direct or indirect)
 - Quality and reuse of excavated soil (Flanders, Netherlands)
 - Transport and storage of soil (Quebec, Canada)
- **Several policy and technical *guidelines***
 - Interpretation of the regulations (often not legally binding)
- ***BAT/BATNEEC criteria* on "generic principles"**
 - Based on site-specific evaluation
 - BAT guidelines at least in Austria and Italy, also in preparation in other countries
 - BATNEEC criteria to evaluate, if cont. soil is treatable (Flanders)



A specific issue: excavated soil management

- *Registers/databases* on technologies, policies, treatment facilities etc. on websites
 - Information on reuse sites not available to public?
- *Logistic instruments and systems*, e.g.
 - Treatment centers
 - Storing sites
 - Soil banks (mainly in the Netherlands)
- *Economic and other instruments* e.g.
 - Taxation; e.g. no tax for landfill disposal (many countries), in Flanders this is only the case if soil can not be treated and reused
 - Economic incentives for redevelopment of contaminated sites; higher grant given when soil is treated (Quebec, Canada), in the USA incentives considered site-specifically

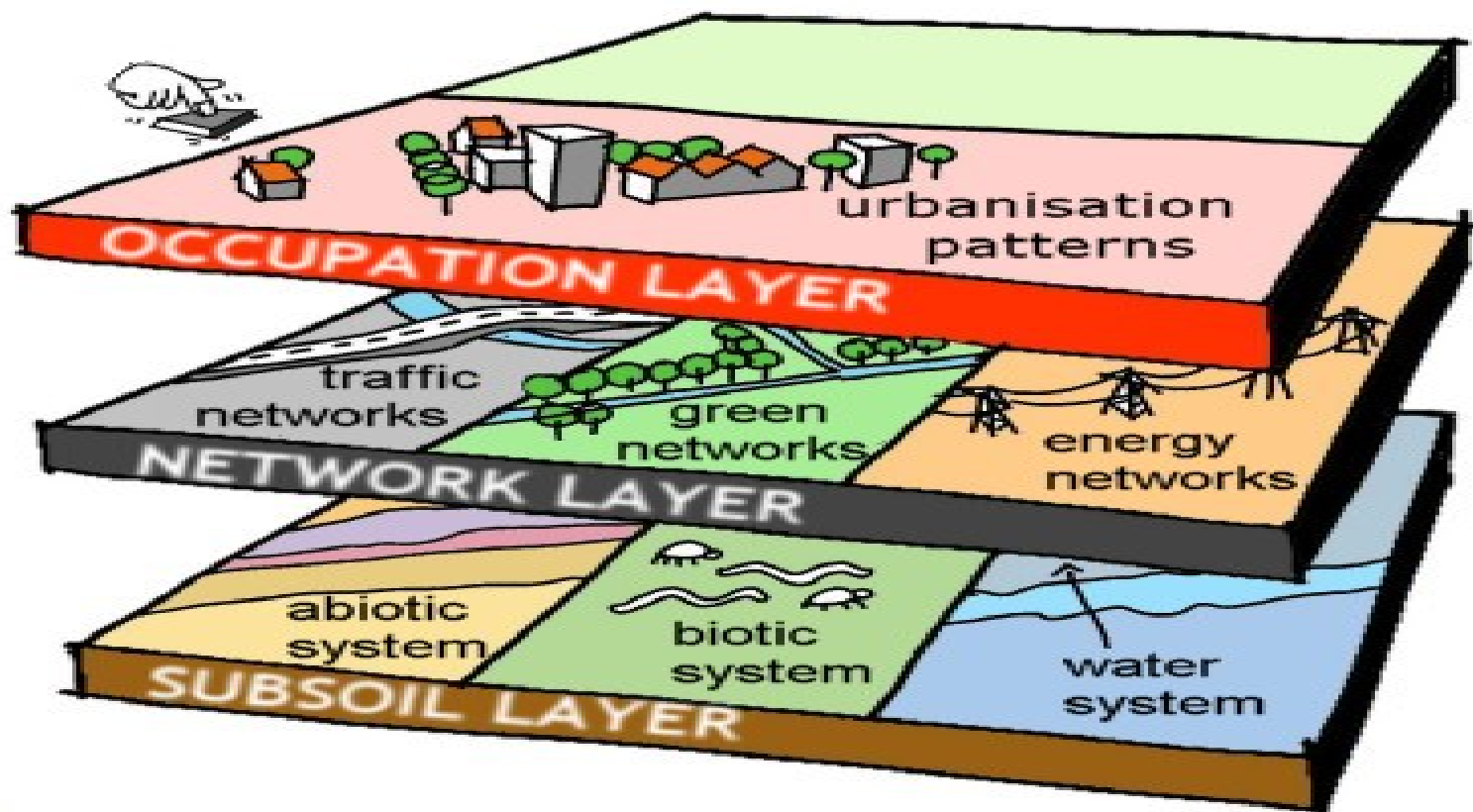


Evolution in some Member States / Netherlands

- **Dutch Policy focused on soil quality (soil properties), prevention of contamination, risk based approach, Sustainable use**
 - Soil when used to exhaustion to satisfy their needs: Mining (gas, oil, coal, clay, salt, sand, etc.), Intensive agriculture, Waste storage, Water extraction
- **contamination (chemical quality pb) => broader horizon -> new opportunities for soil services: e.g energy, infrastructure, urban development, nature, agriculture, climate)**



Evolution in some Member States / Netherlands



Netherlands / Important issues

- **Soil management figures:**
- **Application of soil**
 - 60 million tons/year primary (clean) sand
 - 20 million tons/year reuse of lightly contaminated soil
- **Turnover 200 million euro/year**
- **Sediments – adaptation for climate change and waterway maintenance**
 - 30 – 50 million tons/year
 - Re-allocation in river system/ North Sea



Netherlands / Principles

- **implement soil management policy at local level**
 - **administration and acceptance of soil re-use and application of building materials**
 - ✓ **constructive works (dikes, roads, sound barriers)**
 - ✓ **elevation of land on agricultural, residential or industrial areas in order to improve soil quality**
 - ✓ **application on contaminated sites in order to manage risks on the site**
 - ✓ **shallow former sand mining sites in order to improve water quality and nature development**
 - ✓ **restore sediments in the aquatic system**
 - ✓ **application of sediments on landside**
 - **inspection and maintenance of soil re-use and application of building materials**



- Standstill principle:
Applicable soil should be of better or the same quality as the soil it is applied upon

BACKGROUNDVALUE

- Fit for use principle:
Applicable soil should be of a quality competent for the function of the site it is applied upon

RESIDENCE

INDUSTRY

INTERVENTIONVALUE

AGRICULTURE
NATURE



RESIDENCE



INDUSTRY



REMEDIATION



Netherlands / Important issues

- **Strong points:**
 1. Distinction between historical and new contamination
 2. The owner of a contaminated site is responsible
 3. To reduce the costs for investigations we have a tiered approach
 4. A risk based policy
 5. Annual budget of about 180 million euro's to support competent authorities
 6. The procedures for "easy" and complex sites are quite different.
 7. Groundwater is part of the soil legislation and if possible will be remediated.
 8. Decentralisation of the execution of the legislation, for best judgements and solutions on a local scale.
- **Weak points:**
 - Decentralisation = lot of effort to inform the local organisations for executing the legislation
 - In some situations mixed up of plumes of the different contaminations.
 - If it is not possible to say which owner is responsible for what contamination, new approach: the source will be remediated by the owner and the plumes will be remediated on a regional scale. New legislation under elaboration.
- **Bottle neck:**
 - After remediation the owner still stays responsible for any rest contamination. Current brainstorming for doing something about this "rest responsibility".



Evolution in some Member States / Germany

- **German Policy principles:**
 - To avoid hazards for human beings and for the environment
 - To protect or restore the functions of the soil on a permanent sustainable basis; Responsibility of the polluter, the land owner or occupier
- **Risk Based Approach:**
 - With fixed values as triggers (if exceeded) to step into a site specific approach
 - derivation of the trigger levels for human health based on the assumption that soil pollution contributes 20 % to the hazardous substances exposition (80 % reserved for other sources).



Evolution in some Member States / Germany

- **Current discussions for excavated soil management / Two options:**
 - soils as root-penetrable soil layers, so called lower soil layers
 - Soils as construction materials
- **240 Mt of Mineral wastes for approximately 350 Mt overall volume of waste**
 - 140 Mt soils and debris
 - 73 Mt construction waste
 - 15 Mt ashes and slags from power plants/incinerators



German proposal excavated soil management

root-penetrable soil layer

Allowed if :

- material
 - soil material
 - mixture of soil and fertilizer material
 - sediments
- precaution levels [mg/kg] not exceeded (see federal soil ordinance - 12 July 1999)
- at least one soil function regained or strengthened



German proposal excavated soil management

lower soil layers

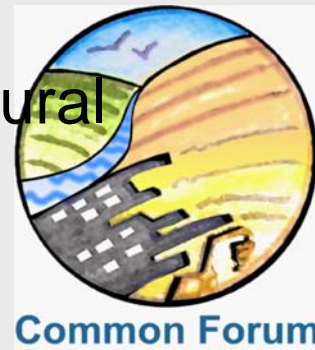
Allowed if :

- material suitable for root-penetrable soil layer
- (precaution levels) x 2 [mg/kg] are not exceeded, or if so: trigger levels GW [mg/l] are not exceeded
- sufficient carrying capacity
- ground water recharge not impaired



Evolution in some Member States / Switzerland

- **Swiss Policy principles :**
 - obligation to remediate if polluted sites lead to harmful effects or nuisances or if there is a serious danger that such effects may arise
 - remediation measures have to ensure, that no more action is necessary after 1-2 generations
- **Risk based approach**
 - reduce unacceptable immissions from a site in groundwater, surface water, indoor-air or agricultural soil/children playgrounds to an acceptable level (remediation goals)



Evolution in some Member States / Switzerland

- **Guidance for excavated soil management since 1998:**
 - Soil materials (A & B horizons) that should be valorized as fertil soils,
 - Excavation soils (C horizon) and other materials (sub-soil, concrete, etc)
- **Risk based land management with trigger values**
 - For soil materials, Indicative values, investigation values, remediation values depending of the land use (agriculture, garden, children playgrounds)
 - For materials, geogene values, tolerable values

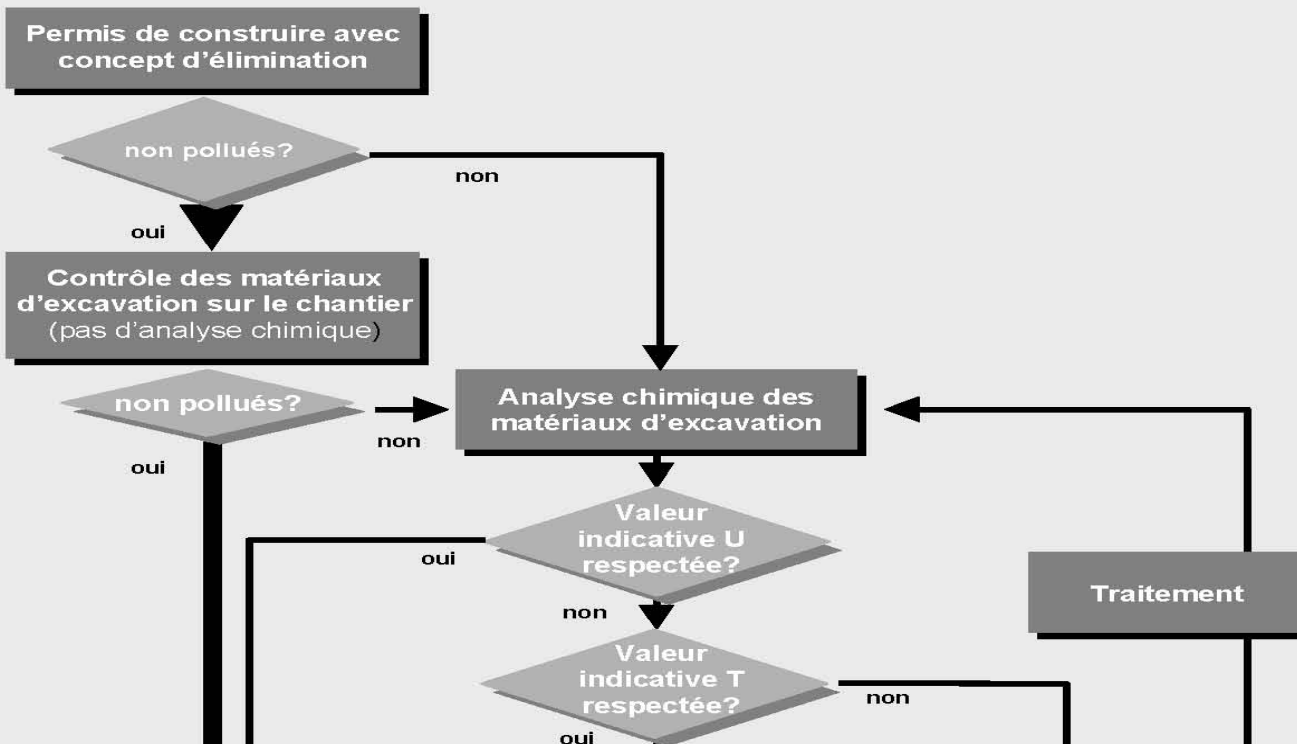


Elements	U Value	T Value
Arsenic	15	40
Cadmium	1	5
Chrome total	50	250
Chrome VI	0,05	0,05
Cuivre	40	250
Mercuré	0,5	1
Nickel	50	250
Plomb	50	250
Zinc	150	500
Cyanures facilement libérables	0,05	0,1
Hydrocarbures chlorés volatils	0,1	0,2
PCBs	0,1	0,1
Hydrocarbures aliphatiques C5 à C10	1	5
Hydrocarbures aliphatiques > C10	50	250
Hydrocarbures aromatiques monocycliques BTEX	1	5
Benzène	0,1	0,5
Hydrocarbures aromatiques polycycliques HAPs	1	15
Benzo(a)pyrène	0,1	1
MTBE	0,1	0,1

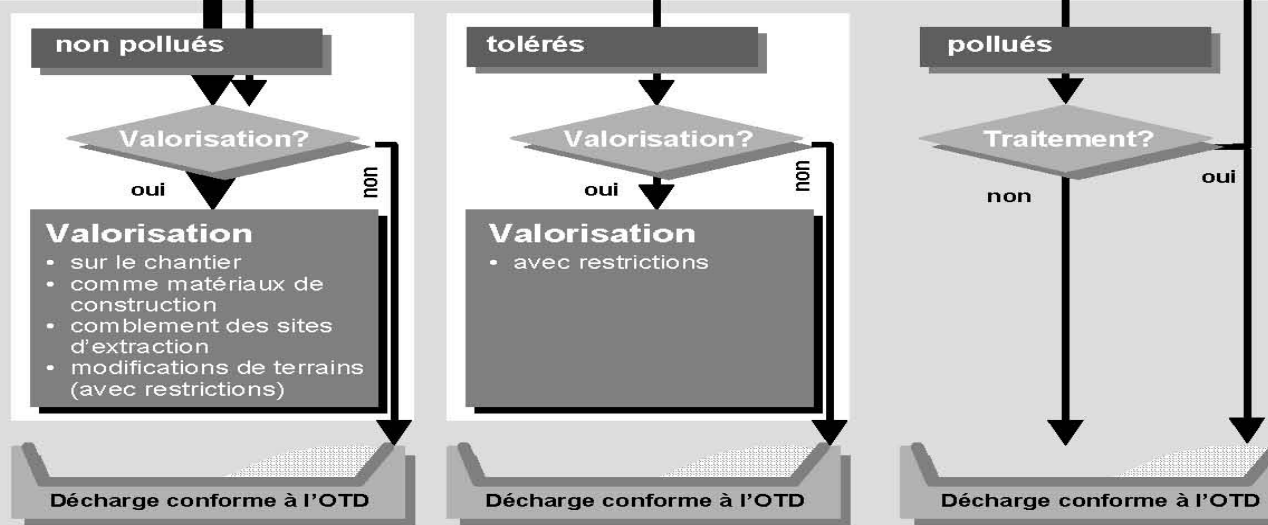


Common Forum

Evaluation



Elimination



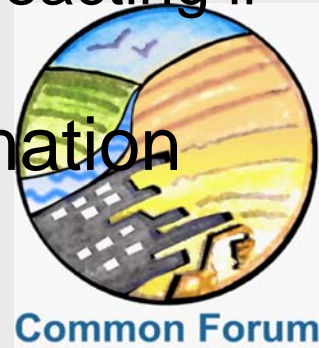
Evolution in some Member States / Switzerland

- Feedback after 12 years of implementation:
- Strong points:
 - obligation to long-term effective measures
 - Federal and local funding motivates quite strong to be active
- Weak points:
 - simple legislation (with few possibilities for lawyers), is easier to communicate to the public and to accept by incorporate companies
 - most of the contaminated sites lied in the densely populated areas, where the land price is often much higher than the remediation costs, a high percentage of polluted and contaminated sites were fully decontaminated
 - Key driver being the land market, remediation in rural areas needs mostly strong political pressure. Real danger of generating hopeless brownfields.
- Lesson learnt: possibility to realize all necessary measures without any decree, distribution of costs often by a non-official agreement



Conclusions

- A lot of Similarities (e.g. Risk assessment – the common tool in developed countries)
- But with national / regional adaptations, e.g.
 - Types of allowable reuses, Levels of tolerable risks, management practices
- In many countries instruments still under develop.
- Need for taking into consideration public & private interests but also the protection of the environment
 - On the long term, With a dynamic way for acting/reacting if any evolution
- Need for international cooperation and information exchange



- Merci, Thanks for your attention!



- More information on www.commonforum.eu

