

LONG-TERM LIABILITY FOR CO₂ STORAGE

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Polycymakers' dilemma

- how to achieve a balance between:
 - operators' concerns about liability risk endlessly into the future
 - demands for legal certainty & limitation (“clean break”)
 - need to secure high level of risk management & environmental protection + public confidence in the safety of CCS
- options not unlimited
 - large, complex body of liability law already exists
 - need to avoid undermining other regimes (by contagion)
 - need to get regulatory framework up and running fast
 - no time to negotiate comprehensive global regime (eg, nuclear, marine)
- solution so far:
 - adapt existing liability/clean-up rules for comparable facilities
 - special arrangements for long-term, post-closure risks
 - after-care + transfer + some funding (subject to qualifications?)

Predicting the future

- **optimist**
 - system will run smoothly/public will hardly notice its presence
 - CO₂ will remain stable, locked underground (like hydrocarbons)
 - few significant incidents or harmful events
- **pessimist**
 - things will go wrong - question is how serious? and how often?
 - because controversial, under spotlight ⇒ will get attention + Nyos analogy
 - immature technology + hurried deployment + remote/inaccessible sites + large geographical footprint ⇒ could be awkward
- **three lessons from the past:**
 - long timeframe makes regulatory & scientific changes inevitable
 - liability not just a legal issue - a public policy one as well
 - never underestimate the effect of a major event/catastrophe

What could go wrong?

- tendency to focus on simple incidents (caused by CO₂)
 - single responsible party, immediate discovery, causation clear
- also chronic, gradual & complex events (esp. long term)
 - poss multiple parties, time lag before discovery, causation complicated
 - multiple aspects disputed, definitions ambiguous, remedies uncertain
 - events with multiple causes
 - disputes about proximate cause, contributory factors, etc
 - eg, disturbance of pre-existing contamination, third party interference, etc
- plus two critical factors where timescales are long:
 - development risk
 - changes in definitions of harm, damage, impairment
 - improved detection techniques & wider changes in scientific understanding
 - regulatory/political risk
 - priorities change, public opinion forces a re-think, problems turn out to be more expensive than anticipated, etc

Types of harm

- damage to the local environment
 - contaminated land & groundwater
 - air & water pollution
 - harm to protected habitats & species
 - damage to other valued natural resources
 - danger to public health
- damage to global environment
 - climate change impacts (release of CO₂, methane, etc)
- bodily injury & property damage
 - poss including pure financial loss, business interruption, etc
- definitions of harm still being debated
 - significance thresholds, ecological interactions, etc
 - legislative provisions ambiguous, application under-developed
- remediation standards changing

Multiple liability regimes

- **CCS laws**
 - primary response: mitigation, removal, initial clean up (correction)
- **other public/administrative laws**
 - contaminated land, water, waste, nature conservation, etc
 - more onerous remediation/compensation (eg, interim losses)
 - differing rules, definitions, defences, etc ⇒ boundary problems
 - ambiguity of key terms + rules still changing
- **civil and common law rules**
 - bodily injury & property damage (some economic loss)
- **secondary litigation**
 - contracts, insurance, product liability, business interruption, PI, D&O, etc
- **criminal prosecution (also civil/administrative penalties)**
- **overlapping federal/state, EU/Member State/regional laws**

Transfer of responsibility

- in principle, transfer to the state x years after closure and/or when condition stable
 - timing, conditions, scope, qualifications/exceptions, etc
- depending on details, unlikely to be total immunity
- main ways in which liability risk may continue:
 - under civil & common law
 - under other public/administrative laws & regulations
 - where damage attributable to fault (incl. criminal offence)
 - where remedial actions, disputes or data remain unresolved
 - under contract (warranties, indemnities, other agreements, etc)?
- key issues:
 - definition of “fault”
 - open-ended/ambiguous conditions for closure & transfer
 - reach of other liability laws (pre-emption, etc)

Fault

- eg, EU geological storage Directive Art.18(7)
 - “In cases where there has been fault on the part of the operator, including cases of deficient data, concealment of relevant information, negligence, wilful deceit or a failure to exercise due diligence, the competent authority shall recover from the former operator the costs incurred after the transfer of responsibility has taken place.”
- the details will matter (incl. regulatory guidance)
- must the damage be causally related to a particular fault?
- if simple negligence, what standard for duty of care?
 - with large enterprises, will harm be deemed *prima facie* evidence of fault (ie, burden of proof be reversed)?
- if deficient data, what counts as deficient? (& when?)
 - what if modelled behaviour needs frequent revision? or storage complex behaves in unexpected way?
- a potential black hole in the transfer agreement?

Grounds for deferral, etc

- failure to meet stability conditions
 - eg, permanent containment, no detectable leakage, evolving \Rightarrow stability
- incomplete long-term remediation, eg,
 - contaminated groundwater (pump & treat for 100s-1,000s years?)
 - damaged habitats and/or species (complex techniques + uncertain standards?)
 - natural regeneration (decades?)
 - where remedial work complete, but extended monitoring required
- unresolved litigation (initiated near transfer date?)
- inconclusive data/changes in scientific understanding
- differences between actual and modelled behaviour?
- unforeseen interaction between different storage sites within same hydraulic unit (both/all affected)?

Grounds for deferral, etc

- Australian Offshore Petroleum Amendment (Greenhouse Gas Storage) Act 2008
 - explanatory memorandum to Australian Senate (2008):
 - “The site closing certificate cannot be given until the licensee has completed the work program that the responsible Commonwealth Minister has directed to be carried out. That work program may take months, perhaps many months. It is also possible that it might take years for the migration of the injected greenhouse gas substance to become predictable enough to enable the responsible Commonwealth Minister to reach the necessary state of confidence about the fate of the greenhouse gas in order to grant the site closing certificate.....Section 249CZFA therefore enables the responsible Commonwealth Minister to defer making a decision on the application for as long as is necessary.”
 - main text provides multiple grounds for refusal & leaves room for more
 - (“...does not limit the matters to which the responsible Commonwealth Minister may have regard...”)
 - memo notes that powers deliberately expressed in broad terms
 - “The greenhouse gas injection and storage industry is a very new industry. The technological processes involved, the conditions that might be encountered within geological formations, perhaps 30 or 40 years from now, must be dealt with legislatively in broad terms so as to enable the regulator to take the most appropriate and effective action when the time comes.”

Duty on the state to remedy

- “subsidiary responsibility”
 - an obligation to repair, instead of a discretionary power
 - considered for EU environmental liability Directive, but rejected
- significant burden on the taxpayer (in perpetuity?)
 - governments dislike & resist (& can amend)
 - competition for funds from other pressing needs
- 2 possibilities if state does not fulfil the obligation
 - environment is left unrepaired
 - state returns to responsible parties for some or all of the money
- one alternative is a dedicated sinking fund
 - small levy on every tonne of CO₂ injected (risk adjusted?)
 - possibility of refunds if not used
- need to separate 2 agencies: regulation v. stewardship?
- international/cross-border disputes?

The long term

- in reality, long term + ultra-long term/historical epochs
 - beyond 20-30 years, possibility of major changes
 - beyond 50 or 100 years, hard to guarantee anything
 - need to be realistic, apply common sense
 - expect (& prepare for) the unexpected
- a lot will depend upon approach of enforcement authorities
 - initial phase, likely to support CCS - honeymoon period?
 - later on, if climate change overtaken by other priorities - less sympathetic?
- will also depend upon the operators' performance (+ luck?)
- in the long run, governments can always find ways to come back for financial contribution
 - whether under liability or via ad hoc financial levy
 - especially if secular failure or catastrophe
- optimist or pessimist?

Definition of civil

Common Law	←CIVIL→		CRIMINAL
	Private claims for damages (comp or punitive)	Public authority orders/powers	Criminal prosecutions
Civil code/law	CIVIL	←PUBLIC→ ADMIN/CRIMINAL	