Organization of this talk

• Clarification of some important concepts and focus of the talk

• The ethics of an impending environmental crisis

• A radical response to environmental crises: the use of technology

• A not so crazy example: geoengineering

• International law context for geo-engineering

• Conclusions
Our premise: environmental decline is fast turning into a crisis that must be addressed effectively.

Crisis: important distinctions for regulatory purposes:

- Natural *versus* Man Made causes
- Intentional *versus* Unintentional causes

Our focus: all man made causes, both intentional and unintentional.

In this paper, we focus on two distinct classes of man-made intentional acts.
Further premisses underlying our argument

- regulators are faced with two distinct but interconnected challenges, one relating to **effectiveness** (in the sense of the regulation being ‘fit for purpose’) and the other relating to **legitimacy** (in the sense that regulation represents the right thing to do, and also in the right way).

- They are **interconnected**, because fundamental guarantees that protect legitimacy work as a constraint on environmental regulators who, **but for those guarantees**, would instinctively pursue regulatory effectiveness as their sole goal.

- In order to avert environmental crises, regulatory priorities must and will tilt towards effectiveness, at the expense of legitimacy.
Possible ethics that may help avert environmental crisis: the example of Hans Jonas

What is needed: a departure from anthropocentric, individualistic ethics (i.e. liberalism and, to a lesser extent, utilitarianism)

• ‘Leitziel der Überlebenssicherung der Menschheit’

• ‘Handle so, daß die Wirkungen deiner Handlung verträglich sind mit der Permanenz echten menschlichen Lebens auf Erden.’ (Das Prinzip Verantwortung )

• In dubio pro malo

• No prima facie hostility towards new technologies
Challenges and opportunities to change catastrophic behaviour deemed ‘normal’

• Faced with an environmental crisis, regulators must find a way to engage with the general public in a way that will radically change behavior;

• Since regulatees in such cases are likely to resist regulatory intervention in their chosen way of life, regulators will want to go about their business in such a way that non-compliance is either no option, or triggers automatic detection and punishment;

• High degrees of scientific certainty about the effects of those activities put regulators in a strong moral position to act in such a way.
The choice of regulators that have effectiveness as their sole focus: technologies as regulatory instrument

- Technology as a regulatory instrument does not seek to engage with regulatees, but simply *imposes* a norm that has been embedded in a technology (such as speed restrictions build into wired cars, emission controls that shut down industrial plants, etc.) from which deviation simply is not an option.

- Choice between omnipresent surveillance (where deviation is always detected) and absolute preclusion (where there is no possibility of deviation)

- This translates in differences in ways in which a regulatory approach based on the use of technologies can impact on an agent’s choice, and *possible* differences in moral acceptability.
The success of ‘first generation environmental technologies’

- Environmental product standards (catalytic converters, diesel filters, etc.)
- Environmental process standards (Best Available Technologies used in Integrated Pollution Control, ISO standards)
- Satellite surveillance (e.g. of discharges at the high seas)
- Terminator technologies used in GM seeds
- Etc.
States have access to technologies of surveillance, that are so sophisticated and reliable that where an environmental offence is committed, the offending agent will always be detected. The fact that all offences will be observed, all offenders detected, might be a cause for concern.

But why?
When regulators adopt a preclusionary rather than a surveillance strategy, the engagement with regulatees’ practical reason changes: the signal to regulatees is no longer “if you do x, you will be detected; doing x is contrary to your self-interest”, it becomes “you cannot do x”.

- agents are excluded from the discourse and debate of regulatory standard-setting;

- by excluding the most important moral matters, technology will take over the role of moral community
Regulating radical Technologies shrouded in scientific uncertainty

• The dilemma:

“… the contribution technology can make to averting both natural and man-made catastrophes, including the man-made catastrophes that technology itself enables or exacerbates” (Possner, *Catastrophe*)
Predicted Regulatory response to radical technologies

- as the contours of the environmental crisis towards which mankind is heading are becoming clear, and risks assessments take into account the risks associated with upholding the status quo, this should have a major impact on the attitude of regulators towards potentially radical technologies.

- Example: geo-engineering which has as its sole and exclusive purpose to avert environmental catastrophe.
  - Solar radiation management (SRM)
  - Carbon dioxide removal (CDR)
But what about international law?

1. Customary international law
2. Human rights
3. Conventions, explicitly dealing with GE
4. Conventions NOT explicitly dealing with GE, but applicable
Conditions set by customary international law

- GE must not lead to serious or irreversible damage to the environment of other states or of areas beyond national jurisdiction.
- GE can only be implemented after an EIA has been carried out and participation of citizens has been made possible.
- GE can only be implemented after uncertainty about negative impact has been researched and minimalized, and when remaining uncertainties have been taken into account.
- Precautionary principle thus applies, but in favour or against GE?
- GE can only be applied when continuously monitoring of impact on environment.
- GE cannot limit developmental opportunities of future generations.
Conventions explicitly dealing with GE

- **Convention on the prohibition of military or any hostile use of environmental modification techniques, 10 December 1976.**
  
  Preamble: ‘Recognizing that scientific and technical advances may open new possibilities with respect to the environment’

- States cannot develop and deploy GE on their own account, cooperation is needed: exchange of knowledge

- States have to contribute to international economic and scientific cooperation aimed at protecting the environment

- States have to take into account the needs of developing countries

- **CBD: resolution against GE in general**

- **London Dumping Convention & 1996 London Protocol: resolution against ocean fertilization at the moment**

- **UNFCCC: no explicit decisions yet**
Conventions NOT explicitly dealing with GE, but applicable

- Convention on Long-Range Transboundary Air Pollution 1979
- Vienna Convention ozone layer & Montreal Protocol
- Outer Space Convention 1967
  - liability for damage to the environment
  - State responsibility for actions by private actors
- UNCLOS
- OSPAR (North-East Atlantic marine environment)
Some conclusions:

• Technology as a regulatory instrument is becoming increasingly important.
• This may increase the effectiveness of regulation, but also raises questions about legitimacy.
• International law provides some important procedural conditions.
• Regulation cannot be entirely substituted by technology!
• Discussion is needed about the preferred relationship between technology and regulation. Preliminary questions that need to be addressed:
  – Which actors are most likely to employ GE?
  – Do we need substantive requirements?
  – Which phase is the target of regulation?
  – What can we learn from the regulation of other new technologies?
Thank you for your attention!

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