Deep-sea mining and the precautionary principle

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The precautionary principle

'The precautionary principle provides justification for public policy and other actions in situations of scientific complexity, uncertainty and ignorance, where there may be a need to act in order to avoid, or reduce, potentially serious or irreversible threats to health and/or the environment, using an appropriate strength of scientific evidence, and taking into account the pros and cons of action and inaction and their distribution.'

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Unpacking the PP definition

Precautionary principle	Deep-sea mining questions
…situations of scientific complexity, uncertainty and ignorance	What are the uncertainties, the stakes, the unknowns? Which are the reducible and irreducible uncertainties (unpredictable behaviours inherent to the system)?
… may be need to act to avoid, or reduce	What available actions? How do they compare?
… potentially serious or irreversible threats to health &/or environment	What environmental and societal risks? Is the harm potentially serious (nature and extent)? Is it reversible?
… using appropriate strength of scientific evidence	What do we know? vs. What do we need to know?
… taking into account pros and cons of action and inaction	What are the arguments for and against mining / waiting?
…and their distribution	Who benefits and who loses if we mine and if we do not mine?

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Uncertainty in DSM

- Benthic communities at inactive vents and seamount cobalt crusts poorly understood.

- Species composition and the biogeography of these species mostly unknown.

- Rehabilitation and recovery rates yet to be established.

- Fragility and vulnerability of species and habitats to be assessed.

- Uncertainty also about technologies, demands, economic and social values

ISA Mandate (Jaeckel, 2015)

- "ISA has a clear legal mandate to apply the precautionary approach". Challenges:
  - identifying procedural obligations
  - identification of uncertainties and assessment of management options
  - adequate institutional arrangements.
  - combining best scientific advice with accommodating public values
  - value judgments on risks and benefits of mining and support for protection of biodiversity and ecosystem services.

Four main versions (Stewart 2002)

- Non-Preclusion PP: uncertainty should not preclude regulation if potential risk of significant harm.

- Margin of Safety PP: Activities limited below level at which no harm observed or predicted

- BAT PP: best available technology to minimize risk of harm (unless proponent demonstrates no appreciable risk of harm)

- Prohibitory PP: prohibit activities with uncertain potential for significant harm (unless proponent demonstrates no appreciable risk of harm)

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Procedural questions

- Critical question for developing an EMP for the Atlantic is what data exist to support such a plan?

- Which condition of PP is to be applied to DSM / the ISA?

- How is this to be achieved in practice?

Distribution of pros and cons

- ☐ Precaution can mean different things to different actors and at different scales
- ☐ Private companies (small and big), directors, investors, governments, local communities, society as a whole have different motives and incentives
  - ➢ Asymmetric incentives
  - ➢ Asymmetric information
  - ➢ Ethical dilemmas
- ☐ An analysis of drivers and justifications of different actors may help to understand decisions and offer insights for resolving conflicts and reaching socially beneficial outcomes

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Timing and scale as decisions

- Benefits of waiting/learning:
  - reduced risks, better understanding, better technology, lower costs
  - but requires investment in R+D

- Reconcile approach driven by sense of urgency (needs/demand for the resources and geopolitical/strategic imperatives) with a precautionary approach?

- Can we think of a staged approach?
  - exploiting resources with lower risks
  - learning as we go, exploiting others after, if appropriate

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Precautionary Strategies for DSM

Nowhere

Trial and error
On-the-job
learning
Spatial zoning

Eggs in many baskets

Devil you know

"Maxi-min" (**excessive precaution**)

Immediate

Never

"Maxi-max" (**insufficient precaution**)

Fools rush in

Look before you leap

Research first
Long-term planning

Everywhere

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Precuationary solutions

- Recognise uncertainties / ignorance regarding potential economic and environmental impacts
- Design decision processes which allow for staged, adaptive and iterative implementation of mining
- Monitor, experiment and learn as we go.
- Maintain options of expanding or not depending on learning / evidence
- Requires starting exploitation where lower estimated risks, but also in variety of areas
- EMP could combine strong protection of APEIs with strategic approach to enhance learning

CHM and precaution

- States Parties "meant to act as a kind of trustee on behalf of **mankind as a whole**"

- "indicates that the **interests of future generations** have to be respected in making use of the international commons".

- requires that deep seabed "activities should **avoid undue waste** of resources and provides for the **protection of the environment**."

- Close link to precautionary principle.

Rüdiger Wolfrum, 'Common Heritage of Mankind' in *Max Planck Encyclopedia of Public International Law* (2009)

Optimising CHM: ISA financial mechanism

❑ Needs broad consideration of CHM

➢ not just minerals: the whole deep sea package

➢ a form of natural capital

➢ return is not just financial: includes ecosystem services, option values, non-use values

❑ Separate objectives:

➢ extracting resources for low/'minimal' impact on environment

➢ using rents on minerals in a sustainable way i.e. ensuring that rents are

❑ captured for mankind not private profits

❑ invested in capital not spent on short-term consumption

Ongoing work in MIDAS

- What does the precautionary principle imply for DSM?
  - Identified key questions to support decision-making
  - Comparison of options: what do we know, what can we measure, what are data gaps?
  - How should precautionary approaches be implemented?
  - Fitness check of existing governance and policy mechanisms
  - Analysis of possible policies to influence behaviour and improve outcomes

Thank you!

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