Prospecting and exploration for cobalt-rich ferro-manganese crusts and polymetallic sulphides in the Area - Framework established by the code

International Seabed Authority Workshop. Kingston, Jamaica
31st July - 4th August 2006

Dr Lindsay Parson
National Oceanography Centre
UK
Structure of the presentation

• The draft regulations
• Generic considerations
• Definitions
• Approach of the LTC adapting nodule code
• Rationale behind framework set up by the code/draft regs
• Regs at the 12th Session
The draft regulations - 1

• Definition of terms
• Prospecting - notification, outline description, SG
• Protection and preservation of the Marine environment - necessary measures, establishment and implementation programmes
• Annual Reporting
The draft regulations - 2
(Exploration)

- Plan of work, sponsorship certification
- Area: 100 blks, contiguous
- Financial and experience statement
- Reserved area/equity interest/joint venture
- Fees, processing by ISBA, LTC, Council
- Relinquishment
- Part V: Marine environment, emergency orders
- Confidentiality, general procedures
- Annexes of contracts, etc
Generic considerations

- Physical differences between Mn nodules and both Co-rich/FeMn crusts and PMS
- “Cherry-picking”
- Alternative to site banking provisions
- Environmental issues
- Encouraging to contractors
Definitions

- Prospecting
- Exploration
- Co-rich ferro-manganese crusts
- Polymetallic sulphides
Prospecting

- Phase preliminary to exploration and exploitation
- Activities in the Area
- General survey large area, view to evaluation
Exploration

- Searching with exclusive rights
- Adoption of certain responsibilities
The resources

- Cobalt-rich FeMn crusts
- Polymetallic sulphides

Polymetallic manganese nodules
Co-rich FeMn crusts

- Complex nucleation of metallic minerals
- Seamount and guyots
- Depth limit to viability of deposit
- Distribution non-uniform
- Site specific biomass
Co-rich FeMn crusts

- Sediment cover
- Grade, age, thickness
- Mining technique
- Annual tonnage for viable mining operation
- Summit of seamounts, large surface area
- Clusters preferred
Co-rich FeMn crusts - Mine Site

• 3-7 av. sized seamounts for viable 20yr mining operation
Polymetallic sulphides (PMS)

- High-temperature hydrothermal vent products
- Massive metallic minerals
- MORs and other volcanic settings
- Volcanic/ tectonic controls
- Distribution constrained
- Active and inactive
- Site specific biomass
- Site modelled every 50-100km of ridge
- 300 sites recorded, 100 host PMS
PMS

- Different substrates
- Different levels of maturity
- Different levels of tectonic significance, segmentation/dismemberment
- Poorly known in three dimensions
- Slow vs fast sites (largest HT systems, some off-axis, wider spaced)
- 10s to 100s m across, stockwork few km wide, and 100s m deep
- Use ancient analogues
PMS -mine site

- Only two sites quantified: TAG, Middle Valley
- Bulk wet tonnages 2.7 m, 10-15 m, respectively
- ‘Cyprus’-type ophiolite-hosted PMS - 1.6 mt av.
Environmental considerations

- Baseline
- State of knowledge
- Current political consensus
- Realistic/practical requirements
The draft regs at the 12th Session

- 31st July - 4th August workshop
- Number and size of exploration area, block size
- Geometry of exploration areas, contiguity clusters
- Relinquishment provisions
- Joint venture options
- Environmental considerations
- Speed of development of code
Summary

• Context of geological character of the deposits and the development of the draft regulations/code
• The significance of the environmental aspects of these deposits
• The revenue options to the Authority
• The absence of a worked-through mining model