UK SEABED RESOURCES
COMMENTS ON THE REPORT TO MEMBERS OF THE AUTHORITY AND ALL STAKEHOLDERS ON "DEVELOPING A REGULATORY FRAMEWORK FOR MINERAL EXPLOITATION IN THE AREA"

UK Seabed Resources (UKSR) is pleased to submit our response to the International Seabed Authority (ISA) solicitation for stakeholder response to its Report on Developing a Regulatory Framework for Mineral Exploitation in the Area". We applaud the ISA, and in particular the Legal & Technical Commission (LTC), for adhering to a process that is public, allowing for the full engagement of all stakeholders, and request that our comments be made publically available.

UKSR is a UK-sponsored contractor, authorised to explore for polymetallic nodules in the Clarion Clipperton Zone (CCZ), and as such is a direct stakeholder in the timely development of the Framework. As a direct stakeholder, we remain strongly supportive of the development of a framework that is both environmentally sound and commercially viable; this is the only way to deliver on the promise of deep seabed minerals for the full range of stakeholders, from the scientific and environmental communities to Member States to industries, including those market sectors that depend on expanded and affordable sources of minerals.

The first wave of interest in deep seabed mining faced fundamental technical and legal issues, while today's issues are now primarily economic and regulatory, including environmental. In the near term, risks and costs inherent in new technology, in high upfront capital investments and in the historical volatility of the metal market will be mitigated once early developers pave the way for others to follow. The ISA has the opportunity, and the responsibility, to ensure that the regulatory structure is clear and transparent, and promulgated in a timely manner so as to enable market-based decisions regarding this very nascent market. We strongly encourage the ISA to ensure that the regulatory framework is complete by 2017; absent that, licensing and operations are highly unlikely to begin within a decade.

Several key economic and regulatory issues need to be addressed early in the development of the regulations as they will be core to determinations of whether this market will in fact be commercially viable. These issues consist of the treatment of early developers / forerunner operations; financial and operational obligations; mine site size/regulation; and regional environmental management plans. We are focusing our comments on these key areas, and then will indicate in the matrix published by the ISA our specific comments on individual topic areas.

<u>Early Developers/Forerunners</u>

Without defined, commercially reasonable, and stable regulatory provisions – in particular the financial aspects - neither the technical nor market conditions support early developers' investing the significant upfront capital investment in nodule collector technology development, let alone processing and other technologies, to reach commercial production. It is up to the forerunners, or the early developers, to demonstrate that technical and financial risks can be overcome so that others may follow. At this time, early developers will require financial and regulatory conditions that enable their assumption of the capital risks and to approach parity in terms of attracting capital relative to terrestrial projects. One provision that would deter such assumption of capital risks is any unilateral ability for the ISA to revise the financial terms of the

contracts, after they are signed. Given the technological risks, capital costs, and mineral market volatility, the early developers need to be able to rely upon a stable contract terms for a given period of time. The period of early development should be defined as the first 20 years of this nascent industry. In those 20 years, the financial terms should be stable, and then subject to review, informed by the status of the poly-metallic mineral operations, a picture of the minerals market over that period, and the reporting from those early developers regarding their viability with respect to market fluctuations.

The forerunner operations will face significantly different conditions from later entrants. First, nodules are not yet a commodity. Markets exist for metals obtained from nodules, but that requires an integrated process of sustainably handling a significant volume of material from collection, transportation, processing, and tailings management. Developing this integrated process will lower costs of capital for later entrants, by reducing risks of entry. The need for the forerunners / early developers to address an integrated system will significantly raise the initial capital requirements over the requirements for a collection system alone, given the added complexity of the system and introduction of additional technology challenges in the processing sector. At this time, there is no standard deep seabed nodule collection and processing system and the collection system must be considered to be experimental.

It is worth noting that the Law of the Sea Convention recognized that the long term investment and high costs associated with the development of radically new exploration, collection and processing technology, combined with the volatile nature and wide swings of metal commodity markets, might require incentives, financial or otherwise, for contractors to make the multi-billion dollar investments needed to undertake seabed mineral operations. Since the 1976 Revised Single Negotiating Text through the 1994 Agreement on Implementation, the Convention has provided for use of some form of incentives. Specifically, Annex III, Article 13, provides:

> "The Authority may, taking into account any recommendations of the Economic Planning Commission and the Legal and Technical Commission, adopt rules, regulations and procedures that provide for incentives, on a uniform and non-discriminatory basis, to contractors to further the objectives set out in paragraph 1.
>
> For ease of reference, Paragraph 1 includes the objective:
>
> (b) To attract investments and technology to the exploration and exploitation of the Area.

Article 13 was intentionally left in force by the 1994 Agreement on Implementation. As with other aspects of financial arrangements, the design and implementation of incentives, which need not be specifically financial in nature, was left for future assessment and decision. It is our view that the principal incentive required is regulatory stability in the first 20 year phase of commercial exploitation, in order to attract the necessary capital flow to this new industry. Regulatory stability includes the financial provisions of the exploitation contract, as well as enforcement of the overall regulatory regime, including monitoring, reporting and other matters of environmental and scientific value.

The high risks and costs of the forerunners' operations need to be counterbalanced by appropriate, and generally applicable, incentives for those early developers, as foreseen by the Convention. While we understand a more expansive view of potential incentives may have been contemplated, we believe such incentives can be fairly limited -- regulatory stability with respect to the financial terms; financial terms taking into account comparative maturity of land and sea-based mineral exploitation industries, and, a duration period of the first 20 years of commercial seabed exploitation. However, it is important that any incentives evolve as the industry matures, and the costs and uncertainties are reduced for later entrants. Data collected and provided by early developers will be essential to the evolution and adaptability of the regulatory regime, such as the design of monitoring and reporting systems.

Financial Terms and Other Regulatory Costs

Economics, particularly business and mineral economics, is an essential field of expertise that the LTC should draw from in the further development of the exploitation regulations. Just as it was in 1979, when the LOS Conference undertook negotiations of financial terms of contracts and had specific educational workshops, it is fundamental for the LTC and Council to have an understanding of the nature of investment decisions in the ocean minerals field, specifically the attractiveness of investment and how it is affected by fees and regulations; while this is under discussion in the separate, but related, financial paper distributed in March 2015 by the Secretariat, it is integral to the regulatory framework development. Basic factors that must be included in the framework include:

- The scale of investment and the cost of capital;
- The high upfront costs to be incurred before the first sale is made;
- High startup costs and inefficiencies; and
- The risk premiums applied by investors in a new industry in which sales are based on commodities that experience wide and unpredictable price swings.

Understanding the scale of investment, the cost of capital, operating costs and revenues would provide a framework for arguments on financial terms of contacts, administrative fees, bonds or insurance issues related to ability, the tools for assessing rates of return and uncertainty of outcome, and the likely risk premium relative to terrestrial projects.

Data gained from early developer operations will reduce risks and costs of later systems. In order to encourage these early operations, regulations must overcome several financial hurdles:

- High monitoring costs and risk of operational disruption for early developers;
- Risks resulting from market volatility due to large swings in metal prices;
- High capital costs reflecting high cost of capital for new technologies, premiums associated with risks and the uncertainty of payback periods within expectations of lenders and investors.

In the long term, financial terms of contract should provide comparability with corresponding terms for land-based mining and they must be predictable over the life of a project. Financial terms must be evaluated in conjunction with other financial fees and assessments as well as

regulatory mandates governing technology and operations. However, comparability requires that the ISA take into account that land-based mining has an extensive history, proven track record, with few unknown risks compared to the collection of minerals from the floor of the deep seabed. We cannot consider the land-based and seabed minerals exploitation industries comparable at the moment, so when the ISA considers how to not advantage or disadvantage the one industry vs the other, it needs to recognize the considerable gap in maturity between the two. For example, the concept of profit-sharing, is, at best, premature for the deep seabed minerals industry, which can be described generously as a nascent market. While there are examples of profit sharing in the land-based mining industry, it is nonetheless a model that has appeared along with the maturation of the land-based mining industry. Furthermore, national models of profit-sharing also may reflect the value of in-kind contributions of the domestic government – whether in terms of existing state infrastructure, transportation (e.g., railways), roads, etc.; it is unclear what comparable types of in-kind contributions are envisioned from the ISA.

We would also caution against reliance on national financial obligations, such as corporate taxes, as relevant to the issue of ISA financial / royalty payments. All commercial, as opposed to state, contractors are subject to national tax systems in the jurisdictions where their operations are based and/or their companies are domiciled and will have taxes imposed on their revenues; however, while posted tax rates are interesting, they are also not necessarily reflective on effective tax rates paid by individual companies. For example, , it is well documented that effective tax rates vary significantly among corporations, and in many cases are far lower than the stated rate (which in some jurisdictions fast approaches 39%). Therefore, seemingly easy reference points, they prove to be both inappropriate and inaccurate for purposes of formulating comparisons between land-band and deep seabed sourcing of minerals. .Moreover, it is very likely that sponsoring states will impose financial requirements on contractors given the sponsoring states' liability to the ISA for its contractor's environmental responsibilities.

The negotiation of financial terms of contracts calls for extensive study and consideration of matters of attractiveness of investment, introducing internal rate of return and net present value measures to account for needs of early developers to maximize early returns to pay off development costs and repay lenders. At the time of the UNCLOS negotiations, prospects for development looked bright, so little study was done of incentives, but by the time of the 1994 Agreement, at which point the metal market was depressed, it was decided to retain the option of incentives for developers. Negotiation of long term financial terms of contracts must consider the risk and return needed by developers to enter this market, to unleash the value for the benefits expected of this common heritage of mankind.

Intermediate "Pilot Tests"

Given the high costs of developing and integrating new technologies, it is important to avoid over-management of the technology development process. Testing of components, combined with computer design and simulation, and experience in past at-sea testing, can allow early developers to proceed to full scale at-sea operations without the need to design and test complete systems of intermediate capacity. The decision to test intermediate capacity systems or full scale systems is one for the developers and should not be mandated in regulations. In reality, the commercial markets will most likely require a phased approach to reduce risk as

capital commitments increase, but without the adverse impact of a mandate to do so, which again will increase costs of capital, and impact potential early developers' continued interest in this field.

Early developers will need to invest extensively in monitoring systems to document system behavior, understand effects of operations and develop standards of operational behavior to a degree that is unlikely to be needed by later phases of developers. Early developer/forerunner operations should be expected to provide scientific and environmental data to the ISA to assist in any periodic updates to the regulations.

Regional Environmental Management Plans

Each contractor will be required to establish an environmental management plan. The contractor should have ability and responsibility to self-designate in its exploitation application those areas that it will set aside as part of its EMP. We also understand that regional EMPs will be developed and these larger plans may designate permanent marine protected areas and establish rules for operations in adjacent areas.

Environmental management plans at both project level and regional plans should make scientific transparency a key feature in sharing the benefits of seabed development as part of the benefits of this common heritage of mankind. This includes having the ISA function as a 'knowledge organization' that facilitates the sharing and analysis of data. Sharing of data will also empower stakeholders in monitoring activities and should help the regulatory process target priority issues. Sharing of scientific data should be a mandatory condition of contracts and failure to report or share data should be treated as a fundamental breach of contract subject to penalties or, under the most extreme conditions, suspension of contracts.

Exploitation Site Regulation

We highlight that there is a direct impact on operational decisions that must be also be taken into account when considering proposed regulations related to exploitation site size, including any proposed mandates for reduction of the exploration area to a smaller exploitation size, determination of sub-blocks, duration of contracts and number of renewals. In the first 20 years, the ISA should consider its regulatory role as one that enables the sustainable emergence and development of this industry to be sufficiently robust to operate and provide benefits over decadal timescales. Furthermore, we note that exploration contractors, in particular the commercial contractors like UKSR, have invested, and continue to invest, significant sums of money in advance of any regulatory framework for exploitation; as a result, it is our expectation that we will be permitted exploitation rights consistent with our exploration contract area. Commercial business models, developed through our exploration activities, are entirely dependent upon our ability to determine where to prioritize our commercial operations, and having the ability to adaptively manage across our exploration site as a whole to meet economic and environmental expectations is critical to a commercial undertaking.

Toward that end, we would strongly recommend that the ISA develop a regulatory mining directorate, in time for the start of exploitation operations by contractors; a regulator can inspire confidence in a highly regulated market by operating consistent with sound regulatory principles - transparency, non-discrimination, independence, and predictability. These general regulatory

principles are echoed by various intergovernmental organizations, such as the OECD and the WTO. We would encourage the delegation of authority to such a directorate for implementation and enforcement of the Exploitation Regulations, which will allow the regulator to act without delays by requiring referral to other ISA bodies. For issues not covered by the Regulations, the Directorate could be required to refer the matter directly to the LTC, for example.

Section 2: Draft Framework for the Exploitation Regulations

We now take the opportunity to comment selectively on issues contained in Section 2, as our views on many of the topics – environmental and technical -- have been set forth in our prior response to the ISA Multi-stakeholder Survey last year. Overall, we support the top-level categories contained in the proposed structure of the regulations, and urge the ISA and the LTC to move forward expeditiously so that commercial contractors can move forward accordingly. We also fully support the multi-stakeholder process for all of the proposed areas of further development, whether financial, environmental or technical.

Part I.

We strongly support the proposed plan to rely heavily on internationally agreed definitions where they exist.

Part II.

Consistent with our strong adherence to the principal of non-discrimination, we support a clearly articulated set of requirements for a successful exploitation application - the financial and technical capabilities, other data, feasibility study, etc…. it will be essential to ensure equal treatment of all applicants and contractors, regardless of whether they are commercial or state-owned entities. However, subject only to environmental monitoring results, the ISA should not have the regulatory authority to reach into the planned business operations of a commercial contractor – commercial entities are the optimal entity to manage commercial operations and productions. Thus we would discourage the LTC from further consideration of giving the ISA negotiating authority with the contractor on such matters.

It is important that the standards applied ensure that fully-qualified entities are those authorized to engage in the exploitation of deep seabed minerals. Moreover, we urge the ISA to continue its multi-stakeholder process and engage with the private sector to ensure that the requirements are consistent with the realities.

We would urge the LTC to ask for feedback from the multi-stakeholder community on how to update the current EIS template so that it may in fact serve as the basis for the regulatory requirement for an EIS.

There may be value in combining the EIS and SIA, but UKSR would suggest that this included as a question in the call for stakeholder discussion, along with the rationale for such a combination. It will be important that the rights of duly-authorized exploitation contractors to their geographic sites be clearly articulated and understood in the context of other marine users, regardless of their regulatory status in international waters.

We agree a closure plan will be a necessary part of the regulations; however, greater details may need to emerge as real operations commence. Given the expected 30+ year life cycle for one exploitation site, we believe that practical information will emerge that will allow greater detail in the ultimate requirements.

Again, we emphasize that the commercially-oriented contractors are best positioned to make financial determinations on where to begin exploitation; however, contractors will need to work with the ISA to add the environmental considerations into the decision making as to where within the economically viable area it can begin operations. The environmental information necessary for this decision making should be held by the ISA, while the financial assessment of the exploitation site is commercially confidential.

We think it would be valuable for the LTC to establish a timeline for processing of applications; deadlines for submission for approval; and any evaluation criteria that it would use in acting on exploitation applications. Sound regulatory principles require such an approach to ensure transparency, non-discrimination, independence and predictability in its decision-making. Moreover, we urge the LTC to consider an appeal process for either rejections of applications or enforcement decisions. Moreover, the applications should be placed on public notice, keeping only confidential that economic information that is commercially sensitive.

Part III.

As stated previously, a clear understanding of the exclusive rights to the minerals is important both for the contractor and the ISA, as well as any obligations that the ISA may have toward the contractors or the broader stakeholder community. In the context of defining rights, legal rights of transfer of title and the regulatory procedures for transfer of title to and from existing contractors should be clear. For example, an outright ban on transfer of title could significantly impact the value of, and ability to obtain financing for, the operations; at the same time, no review and evaluation could result in an unqualified entity assuming operations of a collection site. The right balance has to be struck.

We emphasize again the need to understand the current business models under consideration for deep seabed mineral companies, their tempo, and needed duration to achieve an acceptable internal rate of return on capital in order to determine the appropriate duration of the contracts. We would urge 30 years as a starting point. There may be a review period halfway through, but absent discovery of violations of ISA regulations or general non-compliance, there should be no substantive impact on the contract (with the one exception noted of a 20 year review period in the context of appropriateness of the original contract financial terms).

We agree with the need for the notification of the submarine cable/pipeline owners to ensure that they avoid laying cables in areas likely to be subject to operations that could have an impact on their equipment; however, the ISA requirement to notify should be accompanied by an ISA requirement to maintain the appropriate contact list for the contractors to use. The requirement will be considered satisfied by using the ISA-provided information.

Part IV.

UKSR is committed to the development of a sustainable approach to the commercial collection of polymetallic nodules. Toward fulfilling that commitment, we fully support the need for the ISA to regulate the dumping of waste material, etc….However, consistent with other comments herein, we would urge the ISA to leverage existing protocols and standards, and not develop unique ISA standards where accepted alternatives exist.

UKSR suggests that insurance should definitely be a requirement as part of the application itself. UKSR also suggests that it is not practical to consider "restoration" from either an environmental or economical perspective; we should instead focus our collective efforts on the concept of adaptive management and preservation techniques for application in the CCZ. We do think that an ecosystem-based adaptive management approach allows for the monitoring for events that could be of concern, and for appropriate modification of operations if any such events do in fact occur. We would fully support this approach to commercial recovery of polymetallic nodules.

Part V.

UKSR supports the greatest transparency possible for data collected, with the only exception being that of commercially sensitive data relating to site-specific mineral content and density, and any proprietary techniques employed in connection with the gathering of such data. The scientific and environmental communities stand to benefit considerably from the sharing of data collected, providing the most insight into the least known part of our planet.