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**WORKSHOP ON**

**POLYMETALLIC NODULES RESOURCE CLASSIFICATION**

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Jointly organized by the

International Seabed Authority  
Kingston, Jamaica

&

Ministry of Earth Sciences, Government of India

**AGENDA**



Vivanta by Taj, Holiday Village,  
Goa, India  
13 to 17 October 2014

## MONDAY, 13 OCTOBER 2014

9:00 – 10:00 am	Registration
10:00 – 10:30 am	Welcoming remarks Dr. S. Rajan Director, National Centre for Antarctic and Ocean Research, (NCAOR), Goa Ministry of Earth Sciences (MOES), Government of India
10:30 – 11:00 am	Inaugural Address H.E. Mr. N.A. Odunton Secretary-General, International Seabed Authority (ISA)
11:00 – 11:30 am	<b>COFFEE BREAK</b>
11:30 – 12:00 pm	Introduction to the Workshop - (ISA) (i) Objectives (ii) End results (iii) Introduction of participants

### I. MINING TECHNOLOGY FOR THE CLASSIFICATION OF POLYMETALLIC NODULE RESOURCES IN THE AREA

12:00 – 12:45 pm	Mine-site evaluation & reporting in the transition from exploration to exploitation Caitlyn L. Antrim Director, Center for Leadership and Global Diplomacy, Virginia, USA
12:45 – 1:45 pm	<b>LUNCH</b>
1:45 – 2:30 pm	Nodule collector subsystems – Organization of the OMI pilot mining test programme & its use in collaborative tests by contractors Ted Brockett President, Sound Ocean Systems Inc. Redmond, Washington, USA

### II. EMERGING INTERNATIONAL STANDARDS FOR MINERAL RESOURCE EVALUATION

2:30 – 3:15 pm	Information needs of financiers, investors and resource managers Michael Stanley Mining specialist, World Bank, Washington
3:15 – 3:45 pm	<b>COFFEE BREAK</b>

3:45 – 4:30 pm Purpose, design and content of scoping, pre-feasibility and feasibility studies  
[Caitlyn L. Antrim](#)  
Director, Center for Leadership and Global Diplomacy, Virginia, USA

4:30 – 5:15 pm Resource classification - comprehensive extraction and the importance of environmental and social issues  
[David MacDonald](#)  
Chair, Expert group on resource classification of the United Nations Economic Commission for Europe (UNECE)

## **TUESDAY, 14 OCTOBER 2014**

9:00 – 9:45 am United Nations Framework Classification (UNFC) - how it works in practice and its application to seabed mineral resources  
[Charlotte Griffiths](#)  
Senior Economic Affairs Officer, UNFC & Resource classification

9:45 – 10:30 am The Committee for Mineral Reserves International Reporting Standards (CRIRSCO) - Classification Code  
[Pat Stephenson](#)  
Past Co-chair, CRIRSCO (2005/06)  
Director, AMC Mining Consultants, Vancouver, Canada

10:30 – 11:00 am

### **COFFEE BREAK**

11:00 – 11:45 am The 'competent person' in mine-site evaluation and responsibilities for study design, management and findings  
[Matthew Nimmo](#)  
Principal Geologist, Golder Associates, Australia

11:45 – 12:30 pm Best practices – general and specific guidelines from CRIRSCO and its member organizations  
[Pat Stephenson](#)  
Past Co-chair, CRIRSCO  
Director, AMC Mining Consultants, Vancouver, Canada

12:30 – 1:30 pm

### **LUNCH**

1:30 – 2:15 pm Identification of special aspects of polymetallic nodule deposits of the Area that should be addressed in reporting standards  
[Matthew Nimmo](#)  
Principal Geologist, Golder Associates, Australia

2:15 – 3:00 pm Identification of any issues arising from differences in national reporting standards to which the Authority should respond  
[Paul Kay](#)  
Manager, Offshore Minerals, Geosciences, Australia

3:00 – 3:30 pm

**COFFEE BREAK**

### **III. STATUS OF CONTRACTOR ACTIVITIES IN RESOURCE ASSESSMENT**

This part of the workshop will address the status of each contractor's efforts towards the classification of deep seabed polymetallic nodule resources in their exploration areas. Contractors will be requested to indicate the criteria that they have selected for the estimation of mineable areas, including, inter alia, production requirements (annual production rates and duration of mining), grade of nodules, abundance of nodules, and seafloor characteristics. Utilizing the average grade and abundance of nodules, contractors will be requested to divide their exploration areas into areas where nodules have an average grade and abundance higher than a cut-off level, determined by the contractor and below this cut-off level. Based on seafloor characteristics, the contractor will also be requested to divide its exploration area into areas where seafloor characteristics (slope, number and size of obstacles and sediment shear strength) are (a) within an acceptable range and (b) are unacceptable.

In this context, mineable areas will be defined as having a combination of grade and abundance above respective cut-off levels and acceptable seafloor characteristics. A mine-site has to contain a sufficient number of mineable areas capable of supporting an economic mining venture.

There are currently twelve contractors for polymetallic nodules exploration. The expiring dates for their contracts range from 28 March 2016 to 7 February 2028.

#### **CONTRACTOR'S EFFORTS**

3:30 – 4:00 pm

Interoceanmetal Joint Organization (IOM)  
Representative

4:00 – 4:30 pm

Yuzhmorgeologiya  
Representative

4:30 – 5:00 pm

KORDI  
Representative

#### **WEDNESDAY, 15 OCTOBER 2014**

9:00 – 9:30 am

China Ocean Mineral Resources R & D Association  
(COMRA)  
Representative

9:30 – 10:00 am

Deep Ocean Resources Development Co., Ltd. (DORD)  
Representative

10:00 – 10:30 am

Institut français de recherche pour l'exploitation  
de la mer (IFREMER)  
Representative

10:30 – 11:00 am	<b>COFFEE BREAK</b>
11:00 – 11:30 am	Ministry of Earth Sciences, Government of India Representative
11:30 – 12:00 pm	Tonga Offshore Mining Limited (TOML) Representative
12:00 – 12:30 pm	GSR Representative
12:30 – 1:30 pm	<b>LUNCH BREAK</b>
1:30 – 2:00 pm	UK Seabed Resources Ltd. Representative
2:00 – 3:00 pm	Working groups selection
3:00 – 3:30 pm	<b>COFFEE BREAK</b>
3:00 – 5:00 pm	Initial meeting of the working groups

#### **THURSDAY, 16 OCTOBER 2014**

#### **IV. WORKING GROUPS DELIBERATIONS**

Working Groups will comprise eminent experts, contractors and international resource classification experts, to examine the objectives of the workshop on nodule resource classification in the Area. These groups would be constituted as follows:

Working Group 1, will address the state-of-the-art collector device, possible collaboration among Contractors to test their collectors, and analyze the exploration data & estimates of mineable areas presented with a view to identifying where standardization is required in the relevant areas of the CCZ and CIOB.

Working Group 2, will address the guidelines for estimation of mineral resources and reserves as per the international reporting standards and the steps required to implement them for the deep seabed mineral resources, and to help the contractors to standardize the classification of polymetallic nodule resources into proven, probable and possible reserves of metals. This working group will also address any issues arising from differences in national reporting standards and how they can be resolved.

Working Group 3, will determine the amount of work required by each contractor to complete the resource classification exercise for their respective areas and how long it would take.

9:00 – 10:30 am	Working groups meet to discuss & draft recommendations
10:30 – 11:00 am	<b>COFFEE BREAK</b>
11:00 – 1:00 pm	Plenary meeting to discuss working groups progress & to draft recommendations
1:00 – 2:00 pm	<b>LUNCH BREAK</b>
2:00 – 3:00 pm	Working groups to finalize recommendations
3:00 – 3:30 pm	<b>COFFEE BREAK</b>
3:30 – 4:00 pm	Working groups report on recommendations to plenary
4:00 – 5:00 pm	Finalization of working groups reports and recommendations
5:00 – 5:30 pm	Workshop recommendations

## **FRIDAY, 17 OCTOBER 2014**

9:00 – 9:15 am	Concluding remarks H.E. Mr. N.A. Odunton Secretary-General, ISA
9:15 – 9:30 am	Closing remarks MOES, India
9:30 am – 1:00 pm	Visit to the National Institute of Oceanography (NIO), NCAOR, Indian Ocean Research Vessel
1:00 – 2:00 pm	<b>[Lunch onboard]</b>  [Travel from Vasco-de-Gama to Old Goa]
3:00 – 4:00 pm	Visit to old Goa heritage churches