WORKSHOP ON

PROCESSING TECHNOLOGIES, METAL RECOVERIES & ECONOMIC FEASIBILITY OF DEEP SEA MINING

Jointly organized by the International Seabed Authority, Kingston, Jamaica;

Interoceanmetal Joint Organization (IOM)
(Bulgaria, Cuba, Czech Republic, Russian Federation, Slovak Republic and Poland), &

Ministry of the Environment, Republic of Poland

AGENDA

Warsaw, at the Ministry of the Environment
3 to 6 September 2018
MONDAY 3 SEPTEMBER 2018

08:30 – 09:30  Registration

09:30 – 09:45  Inaugural Address
Hon. Minister Mr. Mariusz Orion Jedrysek, Government of Poland

09:45 – 09:55  Welcoming remarks
Dr. Tomasz Abramoswki, Director-General, IOM

09:55 – 10:05  Introduction
Mr. Michael Lodge, Secretary-General (video), International Seabed Authority

10:05 – 10:30  Introduction of the participants
Participants

10:30 – 10:50  DeepGreen processing technologies from an environmental perspective
Dr. Jeffrey Donald, DeepGreen Metals

10:50 – 11:10  COFFEE BREAK

11:10 – 11:30  Group Photograph

11:30 – 11:50  International cooperation, regulations, and the role of the ISA as regulator
Mr. Thembile E. Joyini, South Africa

11:50 – 12:10  National experience of alternative payment systems, a case study from Chile
Mr. Sergio Hernandez Nunez, Chile

I. R&D in metallurgical processes, including functional materials, ore pre-treatment, metal recovery, energy utilization & waste disposal [Moderator: Georgy Cherkashov, Rapporteur: Hong Vu]

12:10 – 12:30  Potential alternative utilization of manganese nodules
Prof. Ng. Hong Vu, Czech Republic

12:30 – 12:50  Smelting of polymetallic nodules in electric furnace – results from laboratory tests
Dr. Andrzej Chmielarz and Dr. Tomasz Sak
12:50 – 13:50  LUNCH BREAK

13:50 – 14:10  Identification and determination of complexity factors encountered in marine minerals processing, influencing world metal markets.
Mr. Mario Cabello [Caribbean Nickel SA]

14:10 – 14:30  Status and prospect of polymetallic nodules process development in Korea
Dr. Kyungho Park, Republic of Korea

14:30 – 14:50  Process consideration and economic evaluation of polymetallic nodule by DORD
Mr. Tadayuki Ishiyama, DORD

14:50 – 15:10  Representative, GSR

15:10 – 15:30  COFFEE BREAK

15:30 – 15:50  Metallurgical Processing of Manganese Nodules – Indian Perspective
Dr. Sanjay Kali, MOES

15:50 – 16:10  Hydrometallurgical Processing of Polymetallic Nodules from the Clarion Clipperton Zone (CCZ)
Dr. David Dreisinger, UKSRL

16:10 – 16:30  Representative, YUZHMORGEOLGIYA

16:30 – 16:50  JOGMEC’s activities on processing and metallurgy for CFC
Dr. Nobuyuki Okamoto, JOGMEC

16:50 – 18:00  Formulation of three Working Groups

18:30 – 21:00  COCKTAIL RECEPTION (ISA)
TUESDAY 4 SEPTEMBER 2018
CONTRACTORS' EFFORTS

09:00 – 09:20 Representative, BGR
09:20 – 09:40 Representative, NORI
09:40 – 10:00 Representative, COMRA
10:00 – 10:20 Representative, China Minmetals Corporation
10:20 – 10:40 The influence of Metals Processing Economics on the choice of a Financial Payment Mechanism for DSM polymetallic nodules Dr. Richard Roth
10:40 – 11:10 COFFEE BREAK

II. ECONOMIC FEASIBILITY OF DEEP SEABED MINING, including product market, cost model from deep sea mining to shipment to land, cost analysis for metallurgical process, techno-economics and venture comparison study to terrestrial resource exploitation [Moderator: Richard Roth, Rapporteur: Harald Brekke/Mario Juan A. Aurelio]

11:10 – 11:30 Determination of uncertainties in economic models and searching for ways to eliminate them Mr. Peter Balaz [IOM]
11:30 – 13:00 Working Group 1: would address the overview of R & D in processing technologies and metal recovery, comprehensive utilization and waste disposal. Nobuyuki Okamoto (Chairperson), Sanjay Kali (Rapporteur), Georgy Cherkashov, Hong Vu, Piotr Nowak

Working Group 2: would address the economic feasibility issues such as economic consequences of different processing options, the cost model, global metal market, supply and demand, techno-economic feasibility & venture comparison. Richard Roth (Chairperson), Peter Balaz (Rapporteur), Pratima Jauhari, Harald Brekke, Tomasz Abramowski

Working Group 3: would determine environmental concern including the waste disposal issue, processing plant location choice and determination Sandor Mulsow (Chairperson), Jeffrey Donald (Rapporteur), Sergio Hernandez, Thembile E. Joyini
13:00 – 14:00  
**LUNCH BREAK**

14:10 – 15:00  
**Working Groups Resume**

15:00 – 15:20  
**COFFEE BREAK**

15:20 – 16:30  
**Working Groups report to the plenary**

16:30 – 18:00  
Concluding Remarks
**ISA and IOM**

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**WEDNESDAY 5 SEPTEMBER 2018**

08:00  
Depart from Warsaw

13:00 - 14:00  
Arrange in Glogów; lunch in Copper Smelter

14:00  
Begin visit at Glogów Copper Smelter

15:30  
End of visit; drive to Qubus Hotel

17:00  
Depart from Qubus Hotel

17:30  
Dinner in Lesna Dolina tavern

Overnight in Glogów (Qubus Hotel)

**Please note that attendees should wear casual clothes (sport shoes recommended, preferably coloured).**

**THURSDAY 6 SEPTEMBER 2018**

09:00  
Depart from Glogów

14:00  
Arrive in Warsaw