TECHNICAL COURSES BEFORE THE CONGRESS

Courses are free for registered participants. English/Spanish interpretation available in both courses.

TECHNICAL COURSE 1

Thursday, May 6

11 -13

Who Decides? A participatory learning activity

Taught by **Dr. Jocelyn Fraser**, Univeristy of British Columbia, Canada; and **Dr. Cathryn MacCallum**, Sazani Associates, United Kigdom

TECHNICAL COURSE 2

Friday, May 7

11 -13

Energy Transition and the Life Cycle of Critical Metals

Taught by **Dr. Ir. Eric Pirard**, University of Liege, Belgium; and **Dr. Ir. Sandra Belboom**, Helmo University of Applied Sciences, Belgium

TECHINCAL COURSE 1:

Taller ¿Quién decide? / Workshop: Who Decides?

Jueves 6 de mayo 11.00-13.00 (Hora Chile)

COORDINADORES:

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TECHINCAL COURSE 2:

Energy Transition and the Life Cycle of Critical Metals

By Professor Dr. Ir. Eric **PIRARD**, University of Liege, BELGIUM

Professor Dr. Ir. Sandra **BELBOOM**, HELMO University of Applied Sciences, BELGIUM

Friday May 14, 11 -13 hrs. English Spanish interpretation available

Course Objectives and Lecturers

This course is aimed at students and professionals from the mining and mineral processing sector who look forward to gain a better understanding of the notions of criticality and circular economy which are being used and abused of by most media but also by scientists and professionals. The course introduces the principles of Life Cycle Analysis (LCA) and shows how this method is now becoming a standard tool for environmental impact assessment, while still requiring improvements to fulfil its ambitious goals.

The course is given by experts from academia with proven expertise in mineral resources engineering and in developing lifecycle analysis for industrial processes.

Course Content

The energy transition will not happen without a very significant increase in metal extraction. Among these metals, some are known as being critical. A closer look at the notion of criticality as defined by several operators reveals that it is a complex combination of indicators most of which are rather difficult to quantify and to assess objectively. Moreover, criticality is very much time and location dependent. Hence, instead of referring to a simple list of elements or looking at a scatterplot with poorly defined thresholds one should think of criticality as a dynamic notion very sensitive to trade agreements, technological developments and … exploration.

In this course, we will clarify the European notion of criticality and further explore the geopolitical, geological and technological dimensions of it with a special focus on the metals which will be essential for the energy transition (incl. windmills, solar panels and batteries).

We will then broaden the scope of criticality by taking into account the whole lifecycle (incl. the fate of the technologies at end of life) and we will discuss how a circular economy thinking will be absolutely key in achieving a significant cut in the carbon emissions as expected by the European Green Deal.

The principles of Lifecycle Analysis (LCA Analysis) will be presented. It will be shown how the choice of appropriate scope and methodologies can serve the purpose of demonstrating a better sustainability of mining and metallurgical operations. The needs for further improvements in LCA to better account

for resource depletion and for recycling at end-of-life will be briefly discussed as well as the necessity to improve the accuracy of current databases.