



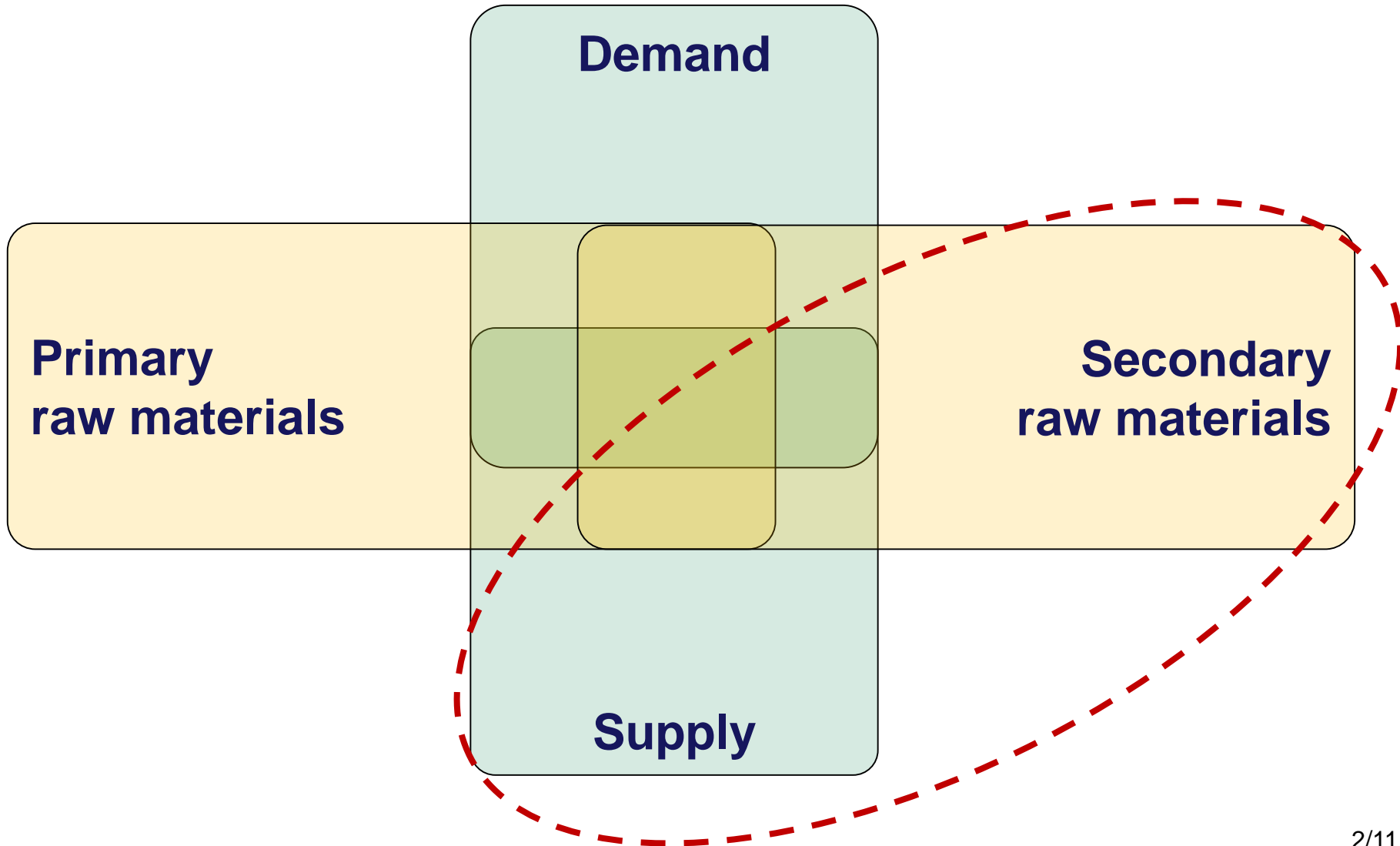
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# Why and how to classify material quantities from secondary sources?

Ulrich Kral

Symposium on the  
Availability of raw materials from secondary sources – a key aspect of circular economy  
24. April 2018, Palais des Nations, Geneva

# Raw material context



# Supply from secondary sources



**Tailings**



**Landfills**



**Built environment**



**Consumer goods**

**How to assess the availability of material quantities  
for future raw material markets?**

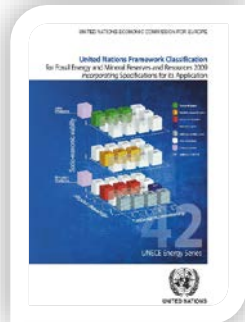
# Assessing the availability

1. Investigating  
the quantity, quality, location
2. Evaluating  
the recoverability and  
reusability  
under technological,  
economic, environmental and  
social conditions
3. Classifying  
the recoverable amount  
based on a Resource  
Classification Framework

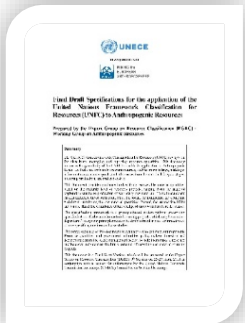


material  
quantities

# United Nations Framework Classification for Resources



Specifications for its Application to  
to all energy and mineral resources



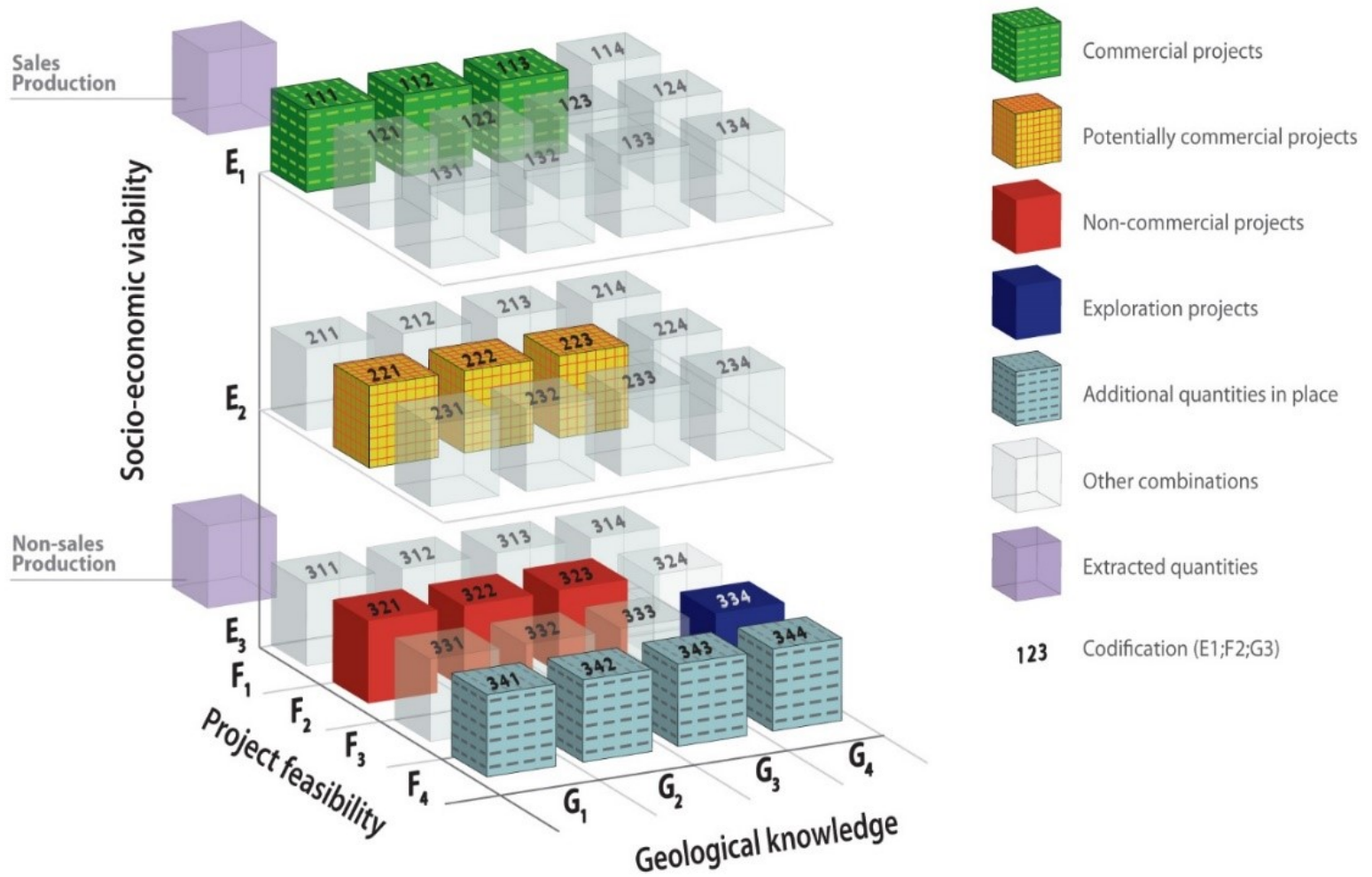
Specifications for its Application to  
Anthropogenic Resources



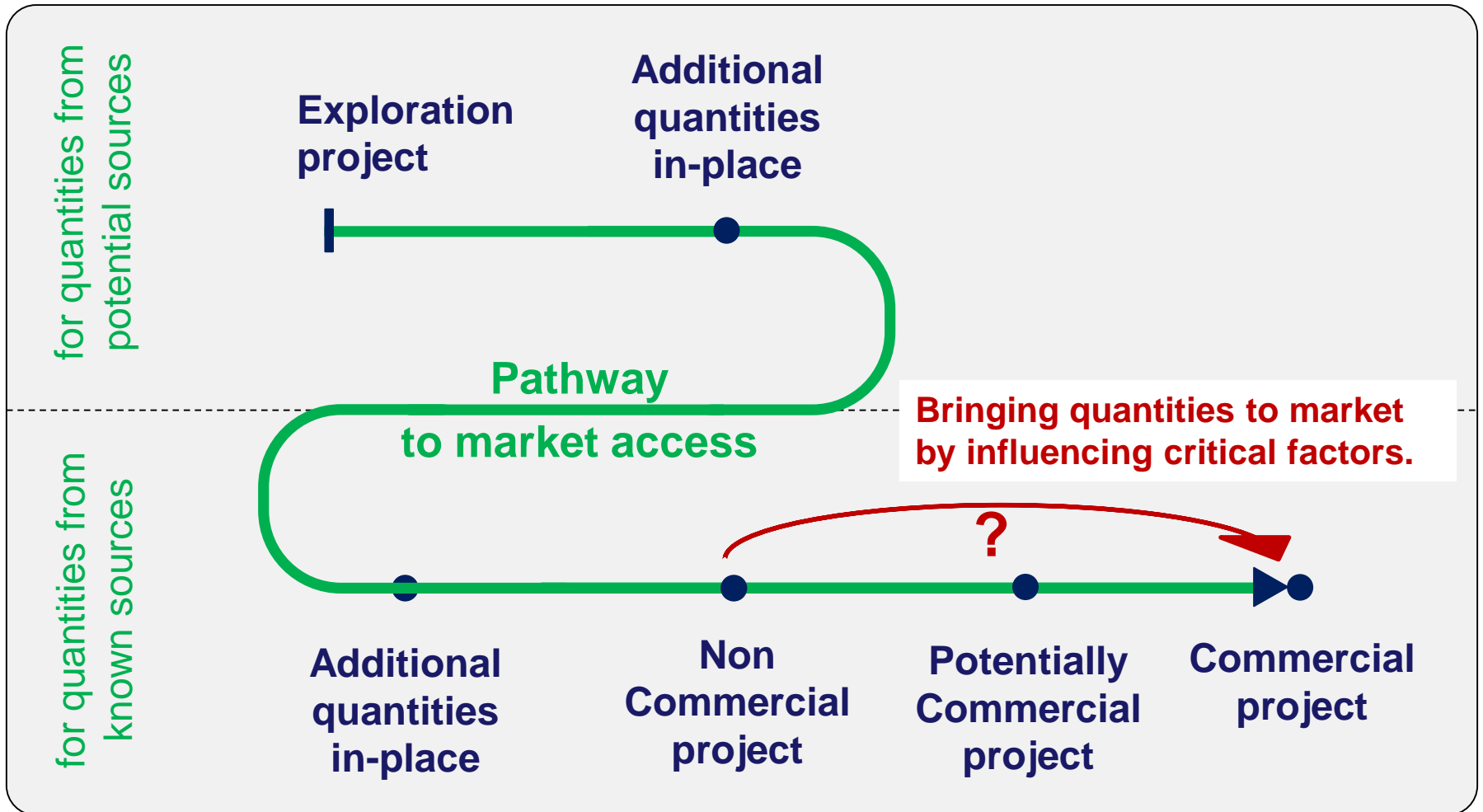
Guidelines

Case studies

# UNFC Cube

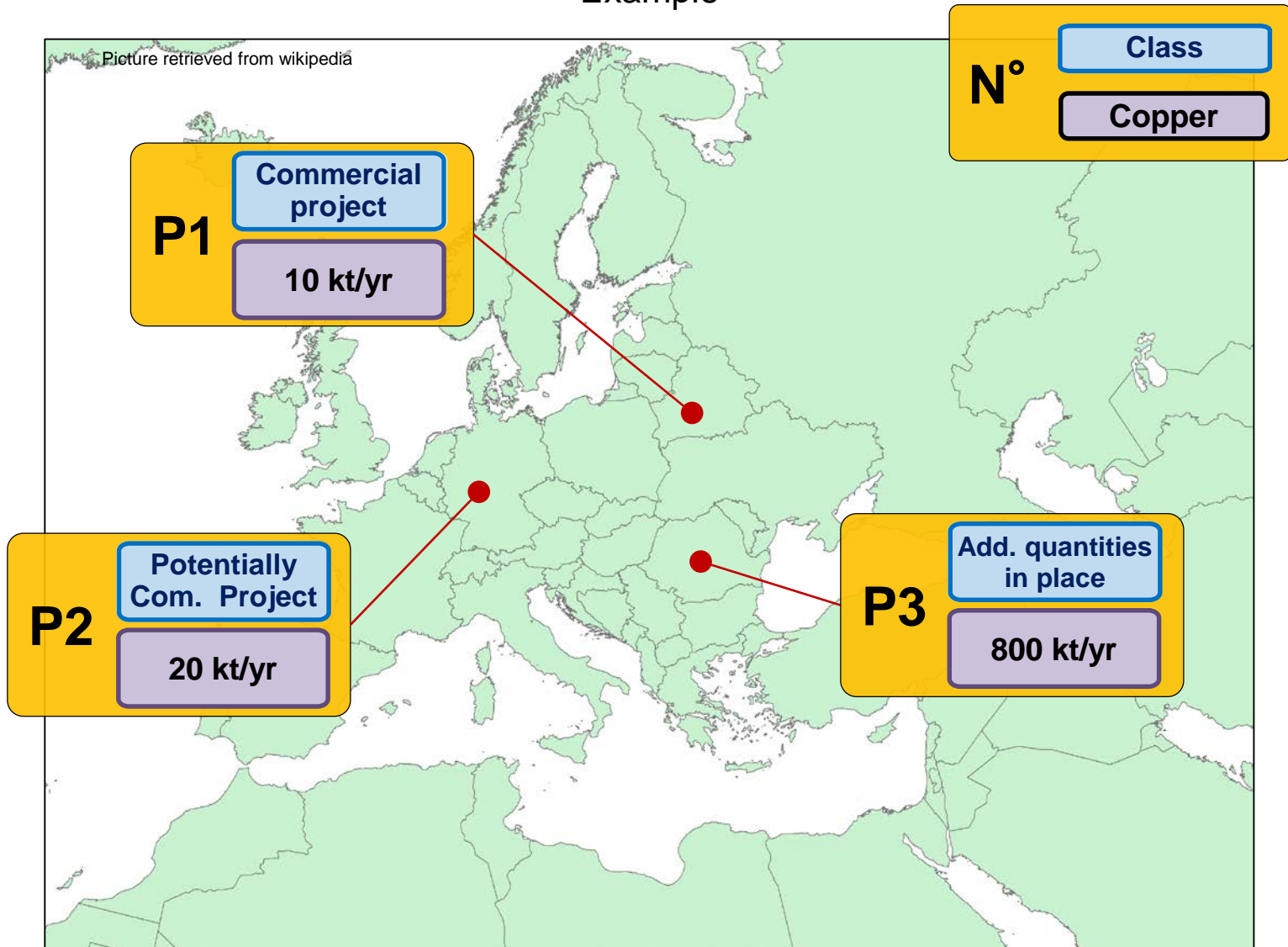


# Classes



# Project portfolio

Example





# UNFC Applications

- **Portfolio management of recovery projects**
- **National resource planning**
- **Policy formulation**
- **Capital acquisition & investment decisions**

# Take home messages

## 1. Why to classify material quantities?

### **Managing and reporting of anthropogenic resources**

- Enabling transparent communication in public-private partnerships, and to the financial sector
- Policy formulation

## 2. How to classify material quantities?

With the **UN Framework for Resources (UNFC)**



in cooperation with



MINING the  
EUROPEAN  
ANTHROSPHERE

The COST logo features a stylized circular icon to the left of the word "cost" in a lowercase, sans-serif font. Below "cost", the words "EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY" are written in a smaller, uppercase font.



# Thank you for listening

**Ulrich Kral**

*Chair of EGRC Anthropogenic Resource Working Group  
Chair of COST Action MINEA*

Technische Universität Wien  
Research Center for Waste and Resource Management  
Karlsplatz 13/226, A-1040 Vienna, Austria

ulrich.kral@tuwien.ac.at  
iwr.tuwien.ac.at/en/  
phone +43 1 58801 226 55

**UNECE Expert Group on Resource Classification**

<https://www.unece.org/energy/se/reserves.html>

**COST Action MINEA**

[www.minea-network.eu](http://www.minea-network.eu)

[http://www.cost.eu/COST\\_Actions/ca/CA15115](http://www.cost.eu/COST_Actions/ca/CA15115)