

# United Nations Framework Classification for Resources

Ulrich Kral, Soraya Heuss-Aßbichler

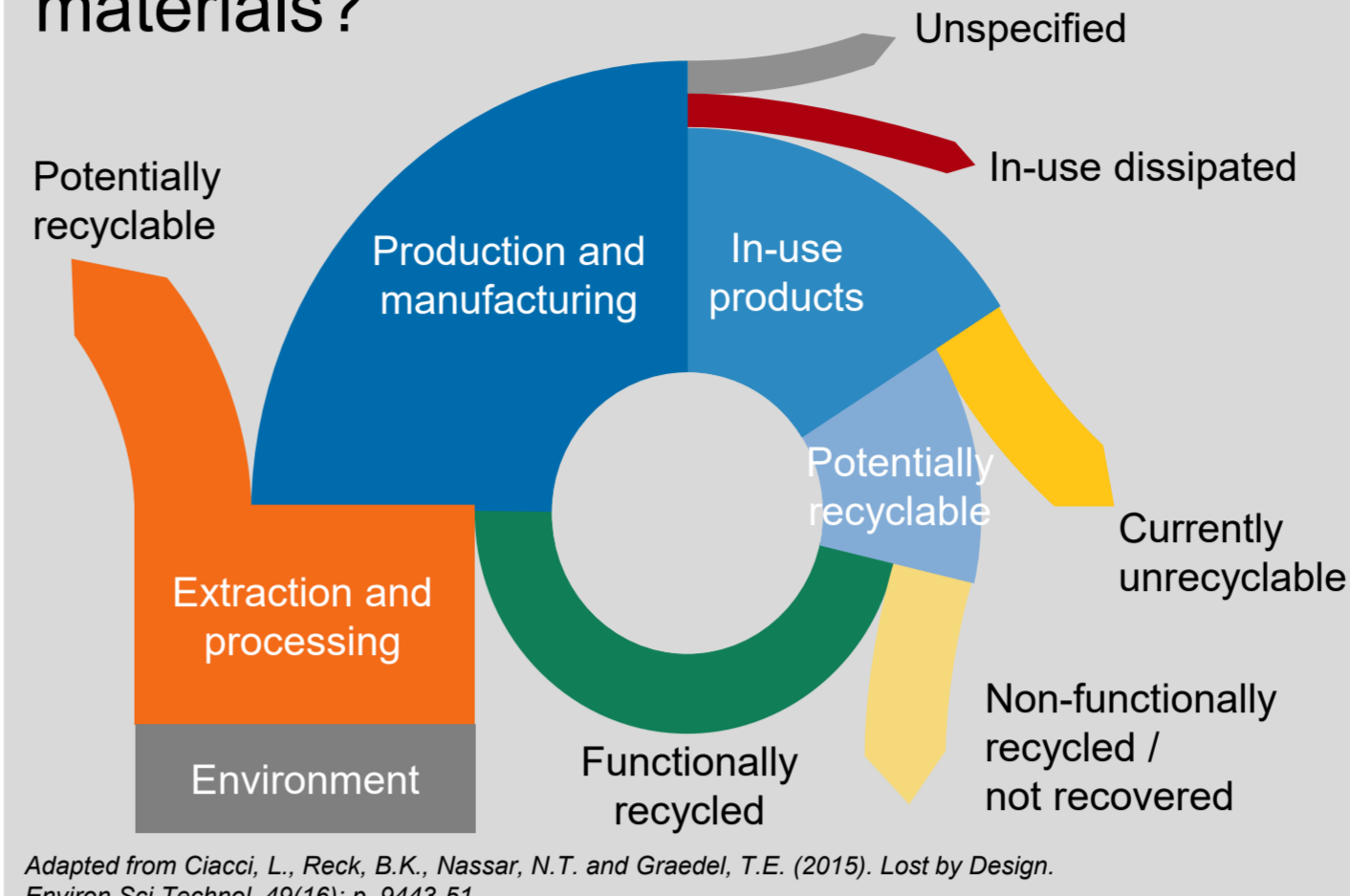
Intro

## Motivation

- Imagine, you are an investor and you want to budget a secondary commodity sector. But what about the risks? How do you balance the benefits and challenges of secondary versus primary raw materials?
- Imagine, you are a government agency and you have to make estimates whether the needs of society for resources can be satisfactorily met in the future. How can this be achieved if the standards for communicating inventory data differ among resource types, companies and countries?
- Imagine that you are in the government and you need to approve new recovery projects in the region. How can you make fact-based decisions? How can you inform worried citizens objectively about the environmental and social consequences and avoid emotional resistance?

## Question

Where are recovery potentials for materials?



## Goal

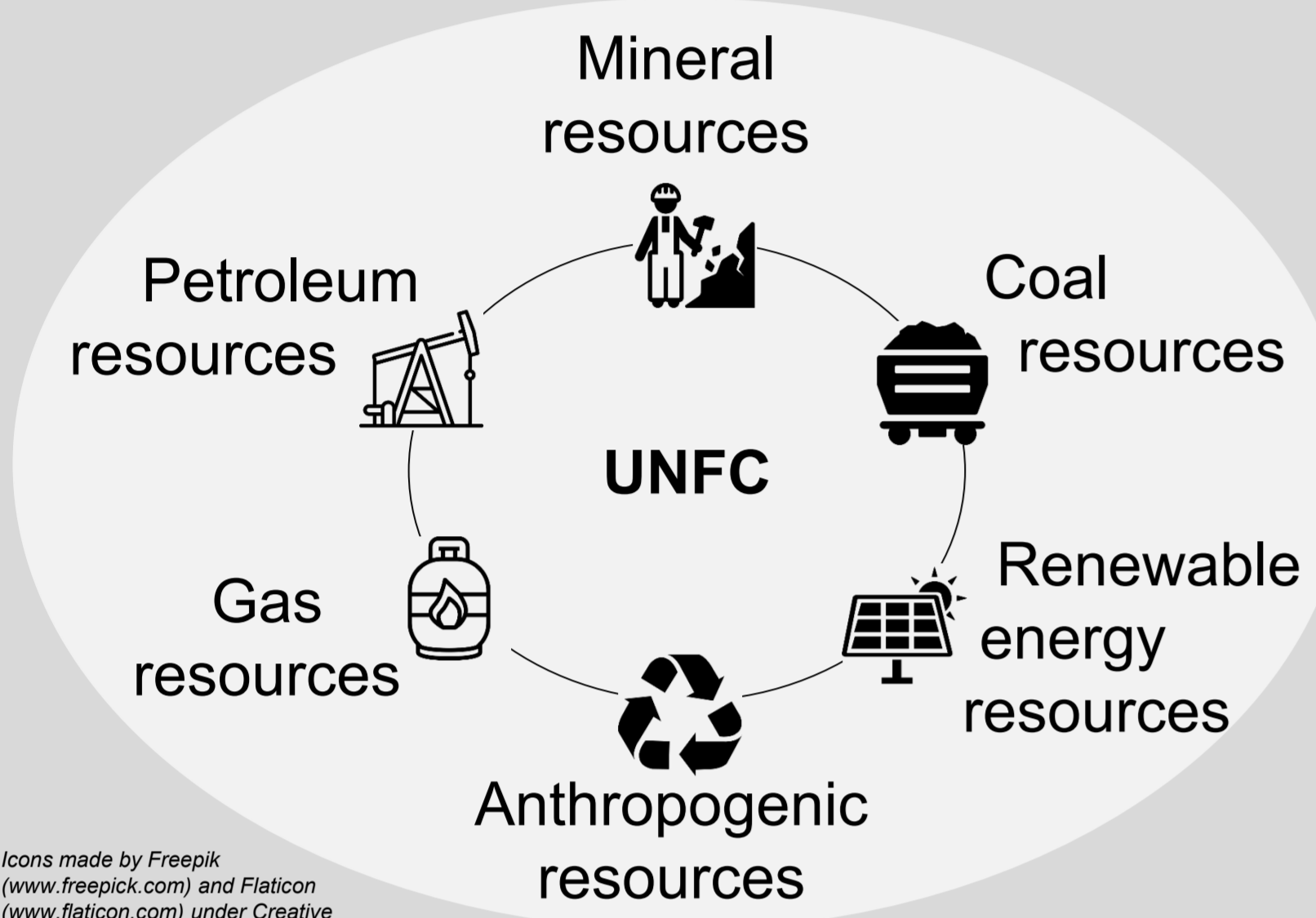
Comparable estimates on the recovery potential of materials with respect to upcoming and future recovery projects.

## Achieving by

- harmonizing national and commodity-specific classifications
- classifying resources that are not covered by existing classifications

Tool

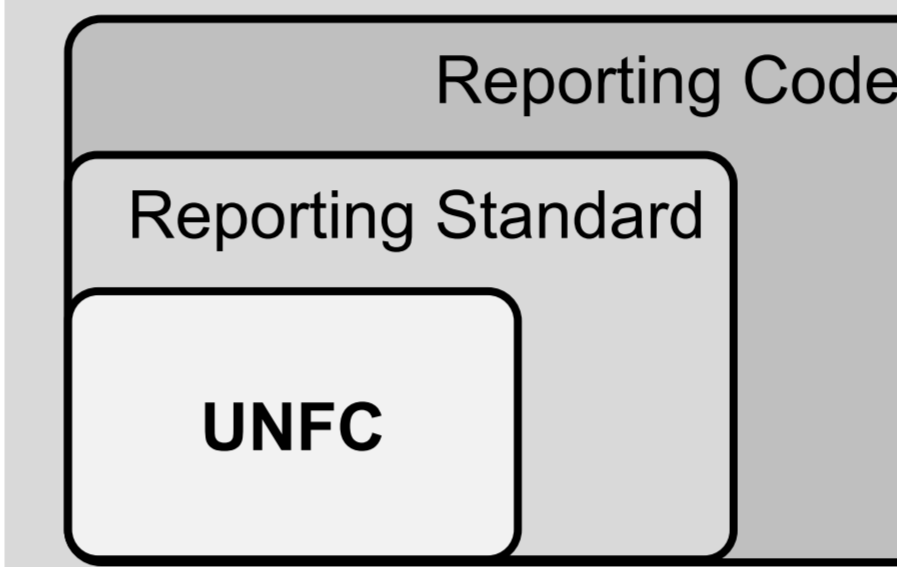
## United Nation Framework Classification for Resources (UNFC) to classify energy and material resources



The UNFC is a principle-based system in which quantities, associated with a potential or known resource source, are classified.

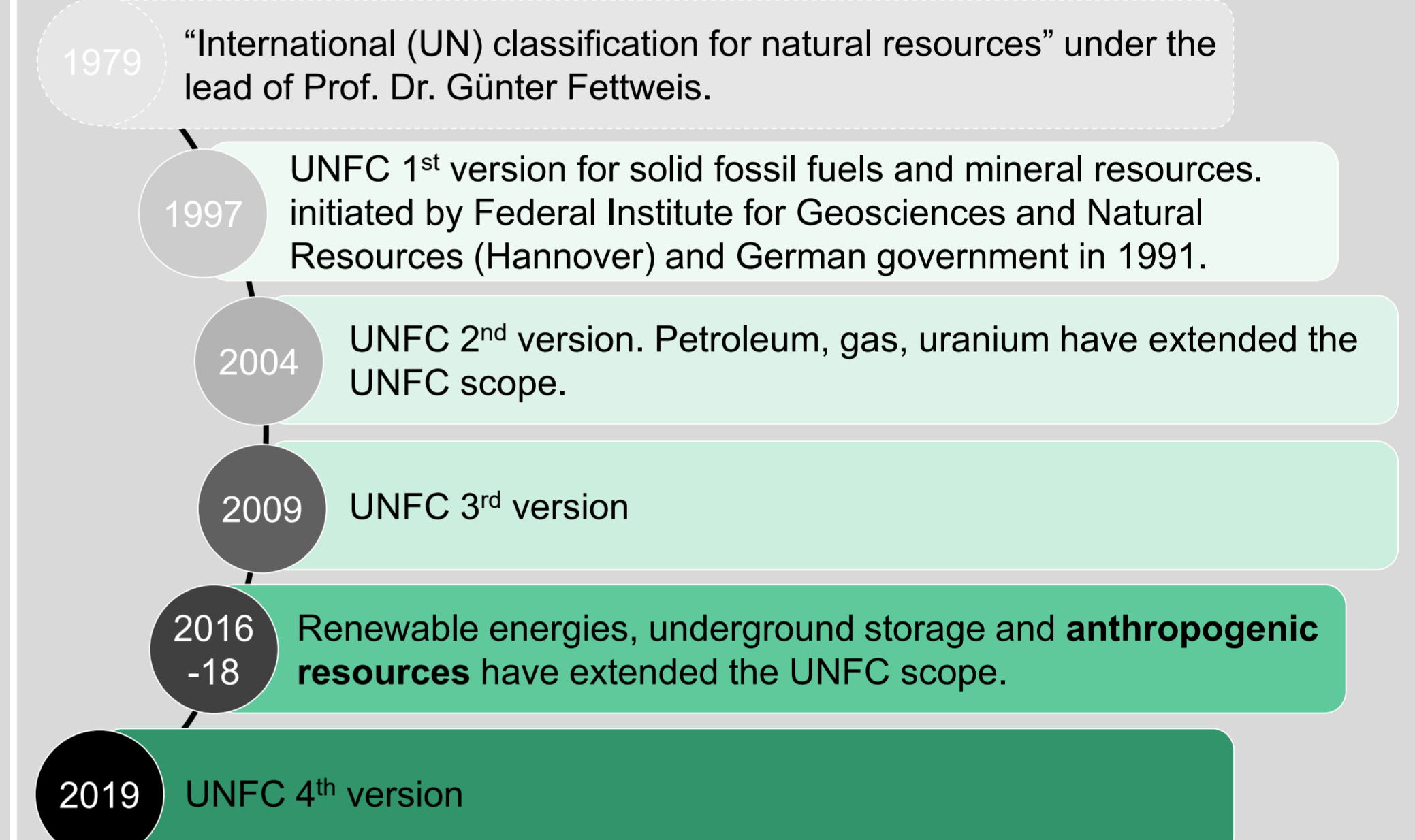
The classification uses standard categories and provides a common terminology and guiding principles.

## Integrating UNFC



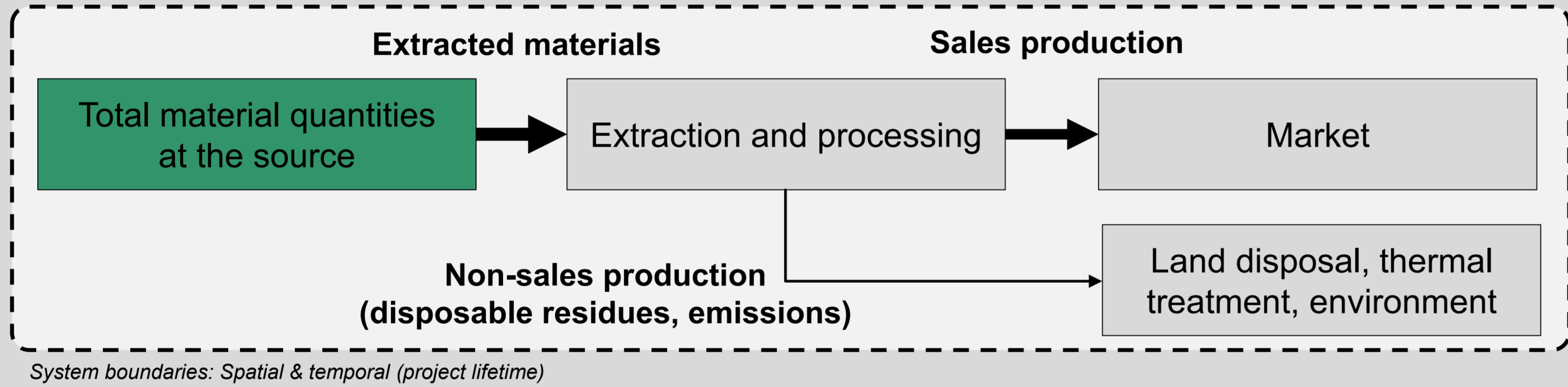
The UNFC is a classification that can be integrated into a reporting standard (if reporting has to fulfil requirements) and a reporting code (if reporting is regulated by law).

## The UNFC history

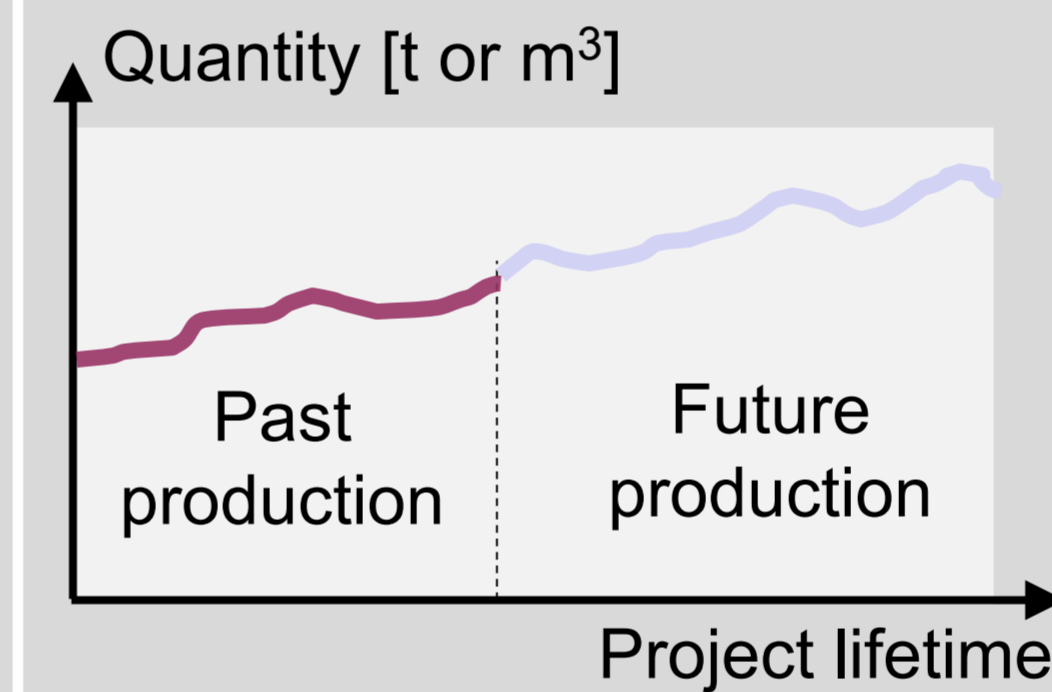


Methodology

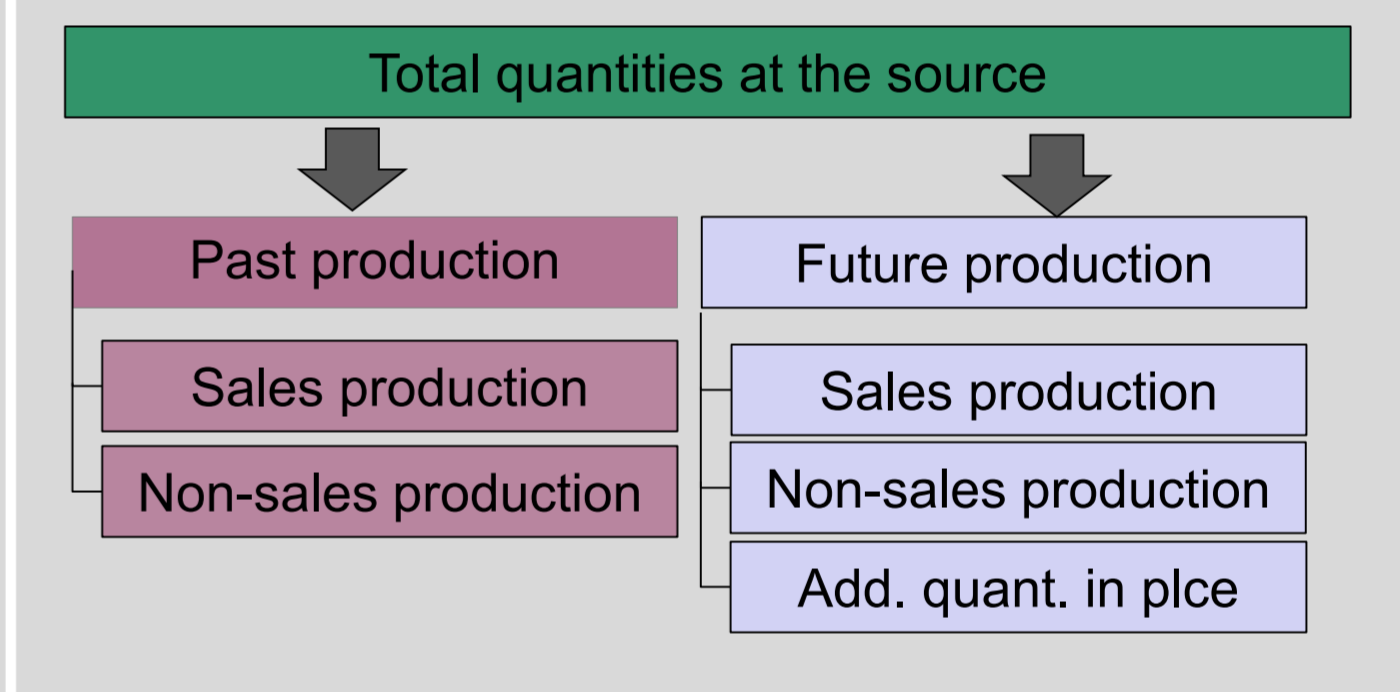
## Defining the recovery project



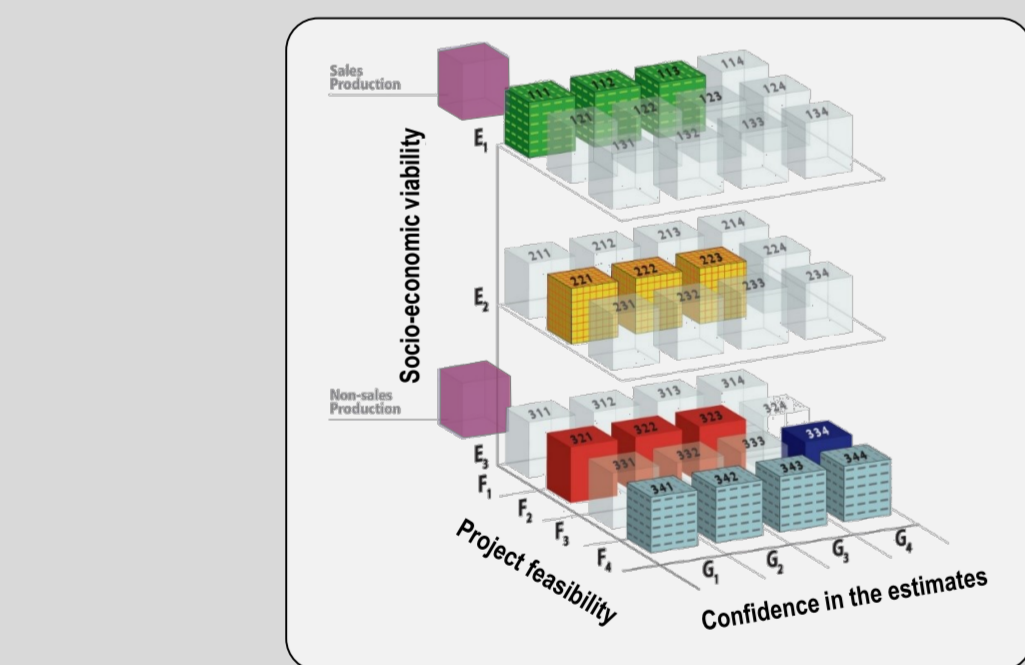
## Estimating production quantities



## Considering the mass balance



## Allocating the material quantities at the source to the "categories" on the E-, F- and G-Axis



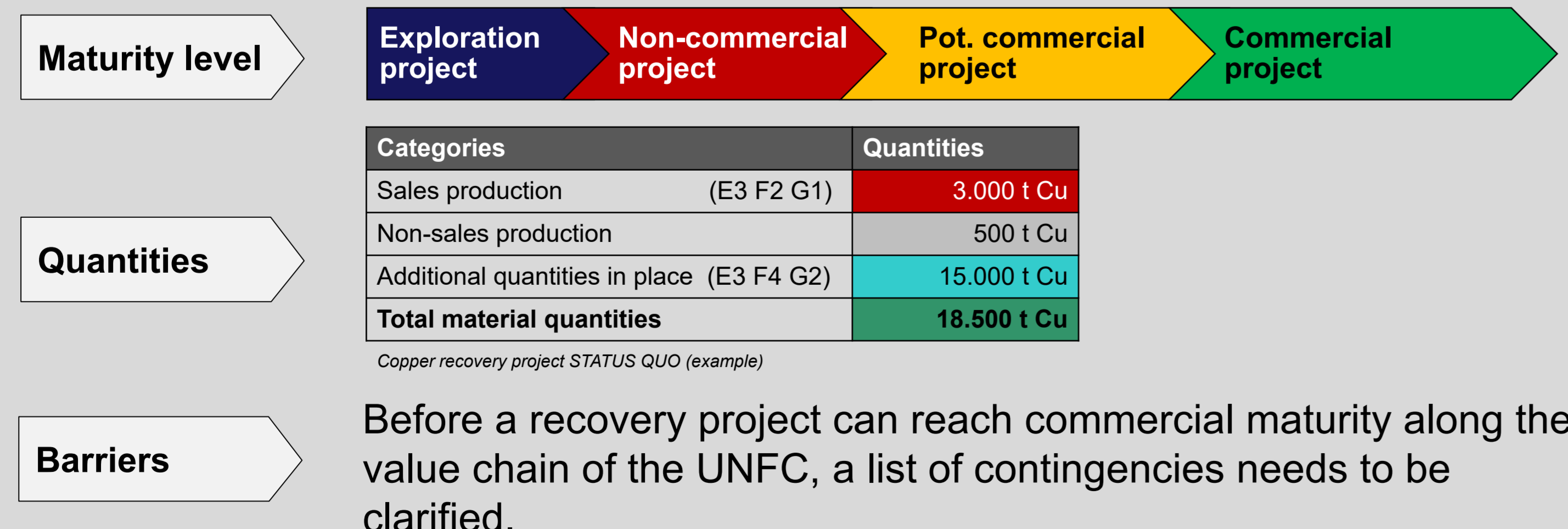
		E-Axis Socio-economic viability						
		E3		E2		E1		
F-Axis: Field project status & feasibility	Feasibility of production by a defined project has been confirmed.	F1	G1	G2	G1	G2	G1	G2
	Feasibility of production by a defined project is subject to further evaluation.	F2	G1	G2	G1	G2	G1	G2
	Feasibility of production by a defined development project cannot be evaluated due to limited technical data.	F3	G1	G2	G1	G2	G1	G2
	No development project has been identified.	F4	G1	G2	G1	G2	G1	G2

		G-Axis Confidence in the estimates	
G1	Quantities associated with, or can be produced from, a known resource source that can be estimated with a high level of confidence.		
G2	Quantities associated with, or can be produced from, a known resource source that can be estimated with a moderate level of confidence.		
G3	Quantities associated with, or can be produced from, a known resource source that can be estimated with a low level of confidence.		
G4	Estimated quantities associated with, or recoverable from, a potential resource source, based primarily on indirect evidence.		

Draft UNFC 4th version adapted from UNECE (2013). United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources 2009 Incorporating Specifications for its Application. UNECE Energy Series No. 42. United Nations Economic Commission for Europe (UNECE), Geneva. Retrieved from: [https://www.unece.org/filedhr/dam/energy/see/pdf/UNFCplusUNFC2009\\_Spec\\_ES42.pdf](https://www.unece.org/filedhr/dam/energy/see/pdf/UNFCplusUNFC2009_Spec_ES42.pdf)

Results

## Positioning the recovery project along the UNFC value chain



Conclusions

## The UNFC benefits to the recovery project development

- The investor and the project developer get an overview of the estimated production volumes and the maturity of the recovery projects. They get a list of contingencies that need to be resolved to advance the recovery projects. This enables risk assessment of the project development and future investments.
- At the national level, the government gets an overview of the recovery potential of resources. Thus, the national framework for the development of future recovery projects can be defined.
- The government and citizens can ensure that the social and environmental impacts during a project development are considered..