

# Analytical Fingerprinting (AFP) of Ta (“Coltan“), Sn and W Ore Concentrates

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and Development

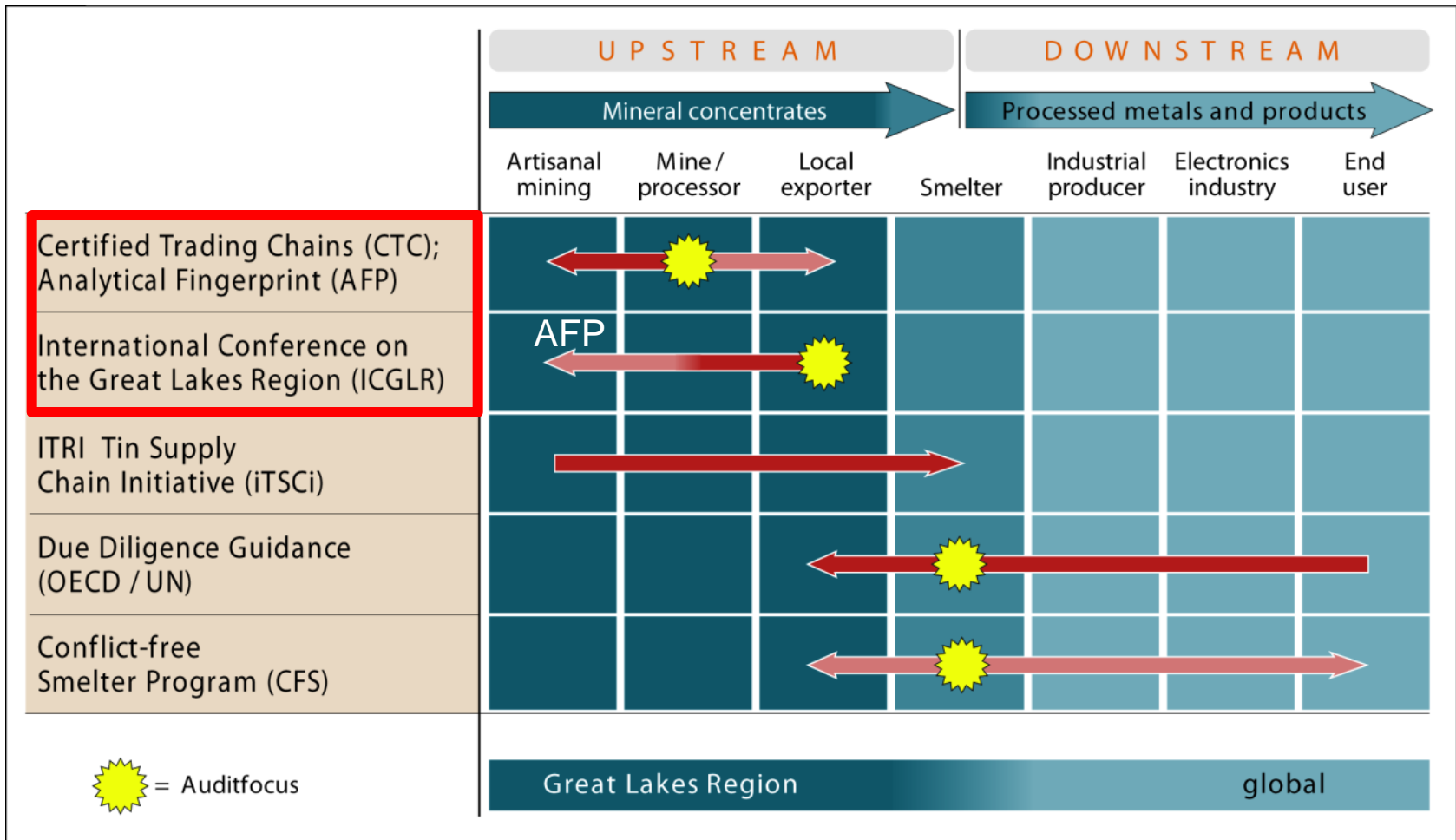


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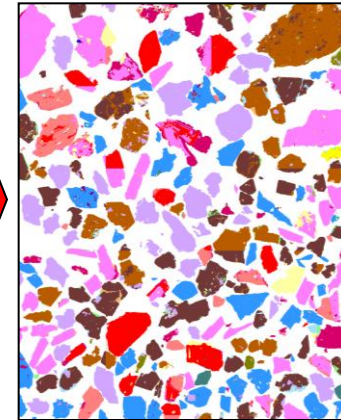
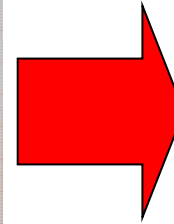
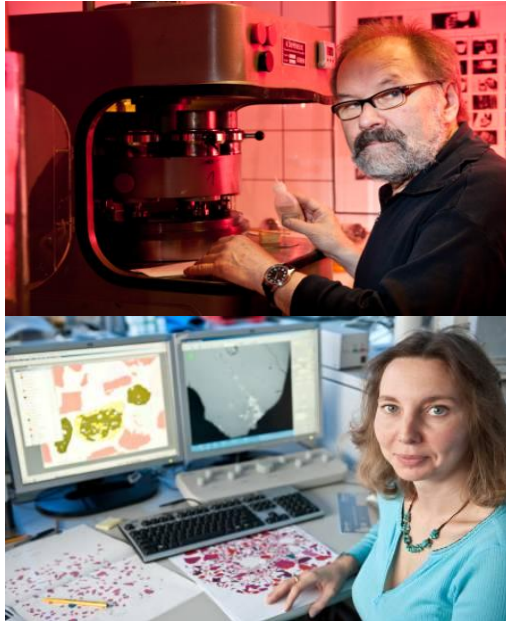
GEOZENTRUM HANNOVER

- Armed conflicts in the eastern provinces of the Democratic Republic of the Congo (DRC) – term „blood Coltan“ coined
- UN Panel of Experts proposed 2005 that traceability systems should be developed for important natural resources of the DRC
- 2010 Dodd-Frank Act (Section 1502) imposes a ban on minerals from the Central African Region
  - Implementing regulations are still unclear
- In future mineral certification mechanisms are requested to exclude minerals from conflict regions from the world market

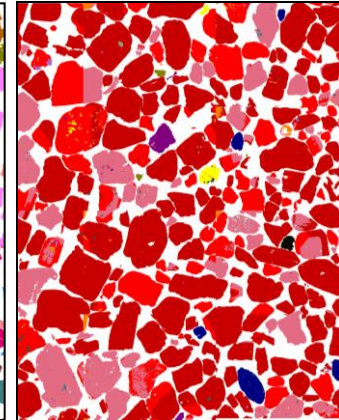
# Supply Chain Due Diligence



# Analytical Fingerprint (AFP)



Bijyojo, Rwanda



Pangi, DR Congo

- Development of an AFP method for tantalum („coltan“), tin and tungsten ores
- Frequent inquiries of mineral producing and processing companies world-wide
- Application of AFP as an independent tool to assess the origin of mineral concentrates
- Optional tool in order to strengthen ICGLR oversight on the regional certification mechanism (RINR)

Single grain analysis



Chemical composition  
Formation age



World-wide „Coltan“ Database  
Statistical methods

# Methods of the AFP for Ta ore („coltan“)

# Parameters

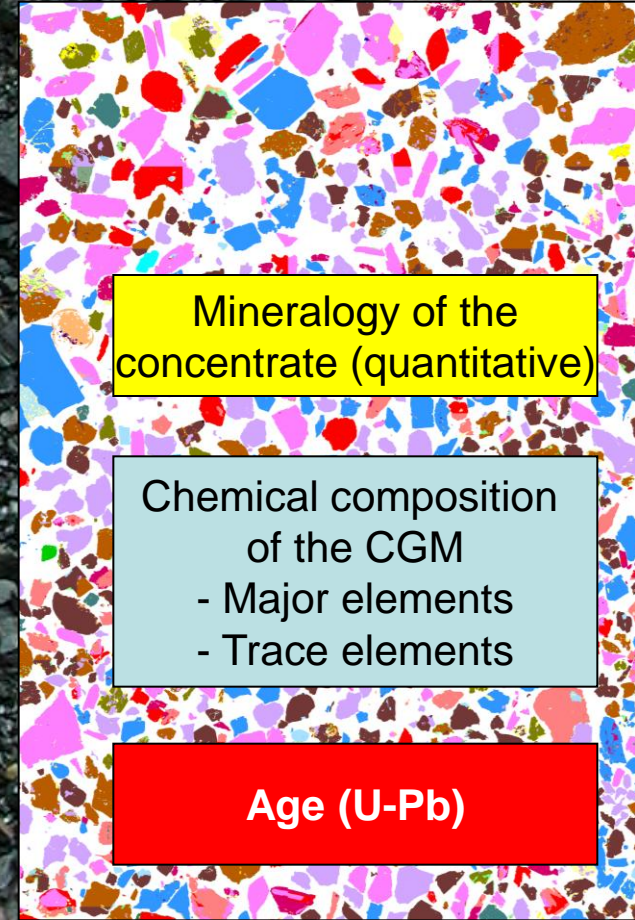


Concentrate

Polished section

Mineral Liberation Analysis

Laser ablation-ICP-MS

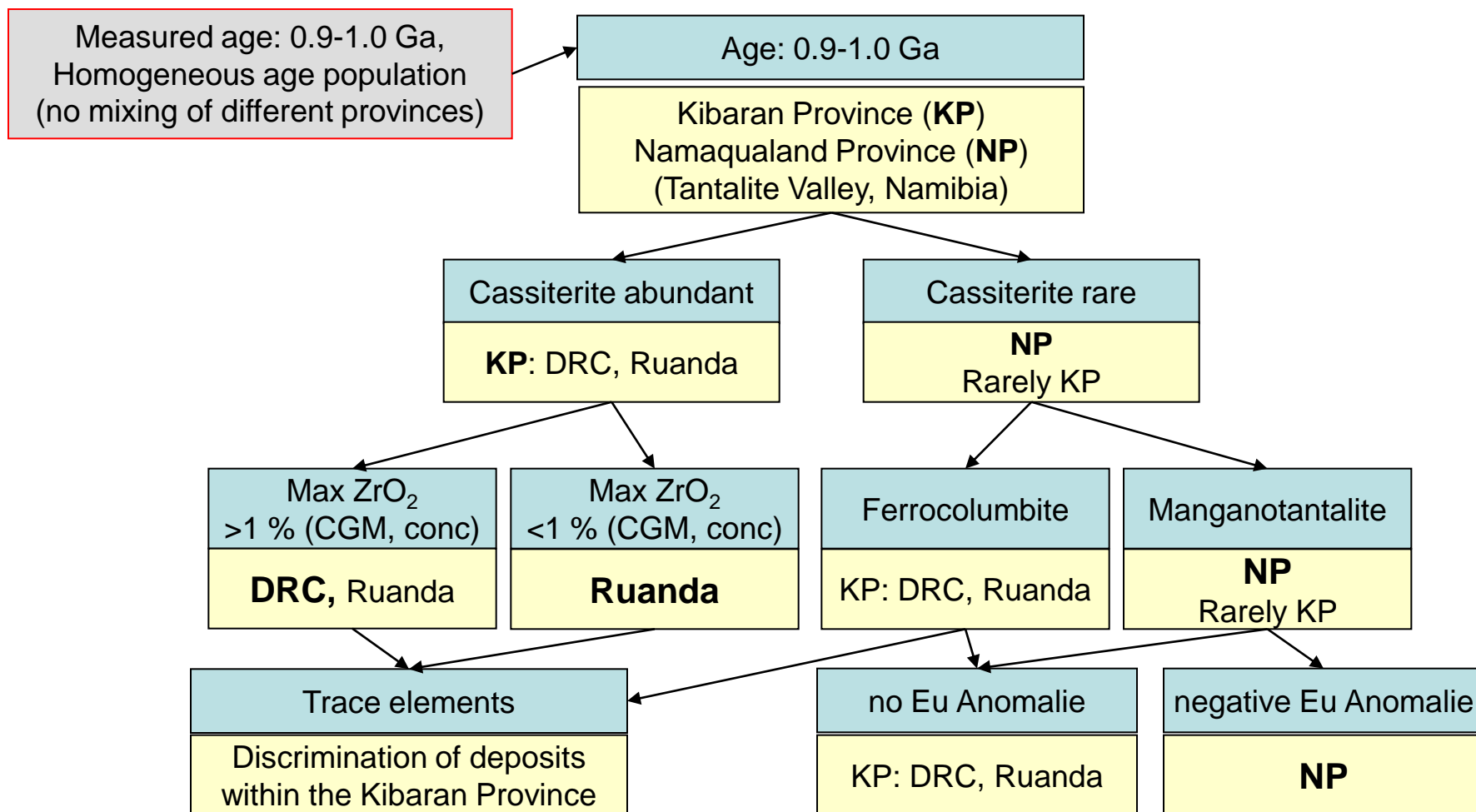


Mineralogy of the concentrate (quantitative)

Chemical composition of the CGM  
- Major elements  
- Trace elements

Age (U-Pb)

# Example of a Flow Chart for Tantalum Ore Concentrates from Africa



# ICGLR



Independent  
Mineral Chain  
Auditor

RINR Certification Unit

*decides*

**Yes / No**  
**Conflict / non-conflict**  
**Legal / illegal**

Recommendation

*informs*

AFP Database

*evaluates*

Compositional data

*submits*

Central laboratory

*analyzes*

Polished sections

Local sample  
preparation & storage  
laboratories

*Collect and stores samples*  
*Prepare polished sections*

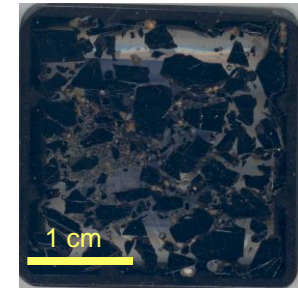
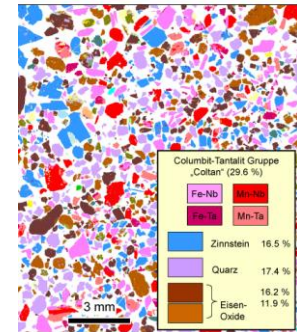
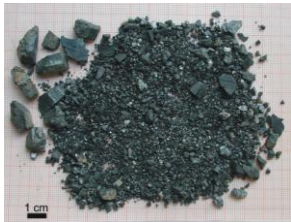
Samples Samples

Mines

Traders

Centres de Négoce

Comptoirs



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# Summary

- **The credibility of the ICGLR regional certification mechanism will hinge on the efficient implementation of robust control measures to ban illegitimate actors from the mineral supply chains.**
- **The AFP represents an optional tool to verify the origin of minerals without relying on any artificially added traceability information.**
- **In order to strengthen ICGLR oversight on the regional certification mechanism, the individual AFP modules (sampling, preparation, analysis, data evaluation/management) are progressively installed in the Great Lakes region.**