



IGF-OECD BEPS in Mining Program

ISSUE 2: Strengthening Government Oversight of Mineral Value

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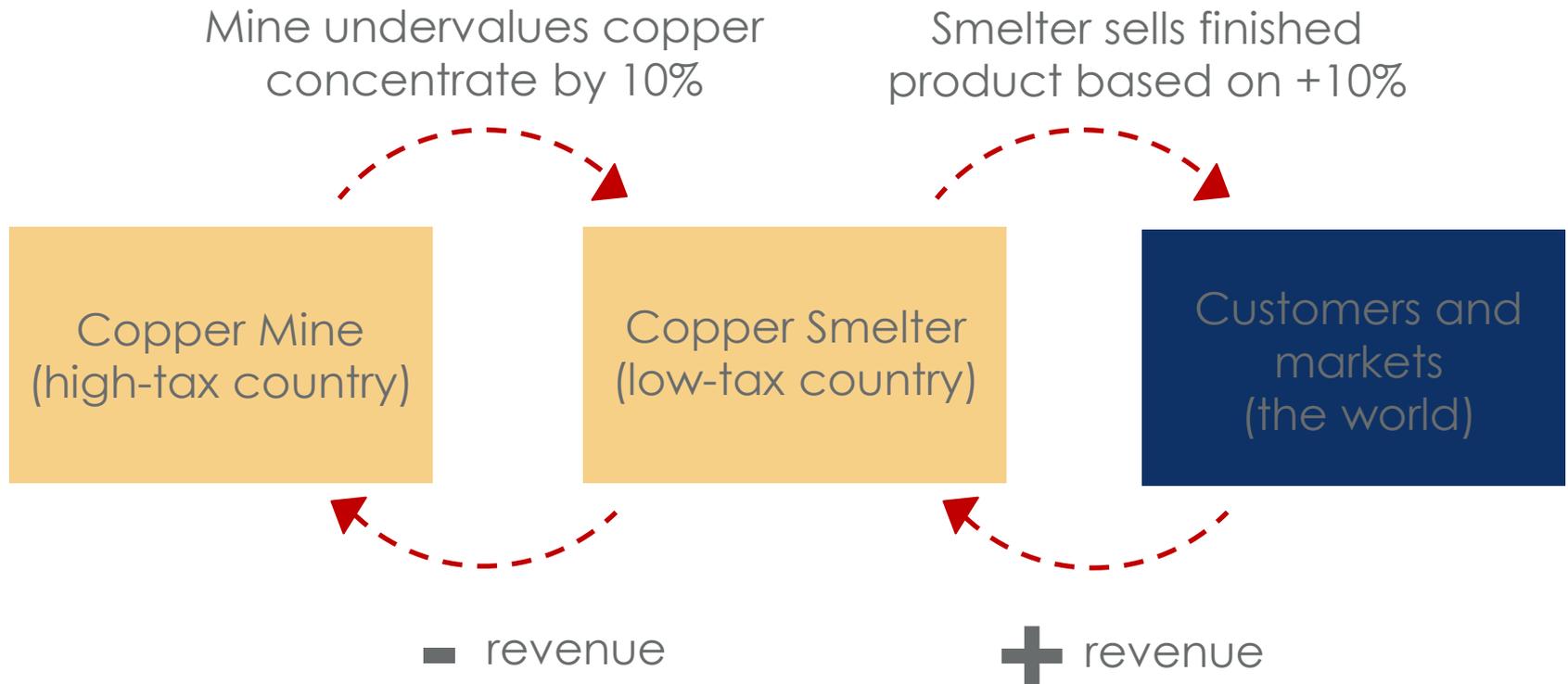




Session Outline

- Introduction;
 - Key elements of mineral valuation;
 - Available policy options;
 - Key technical considerations;
 - Roles and responsibilities under a PPP;
 - Case studies: Guinea and Sierra Leone
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Undervaluation > Underpricing > Less Revenue



The Mineral Valuation Process



Sampling e.g. extracting a representative sample of the ore body;



Sample preparation e.g. crushing and pulverizing the sample for testing;



Analytical testing e.g. fire assay, XRF analysis.



Policy Options for Gov't Mineral Valuation

| | Pro's | Con's |
|--|--|---|
| 1. Direct measurement of mineral quality | <ul style="list-style-type: none">• Independent analysis of mineral exports. | <ul style="list-style-type: none">• Costly;• Time intensive (2 yrs to set up ISO lab);• Difficult to get accredited;• Duplication. |
| 2. Monitoring companies' own valuation processes | <ul style="list-style-type: none">• Cheaper;• More efficient (less duplication);• Proportionate to risk. | <ul style="list-style-type: none">• Relying on company valuation processes;• Less self sufficient. |



Implementation: Private, Public, or Both?

a) Government Does it All

Key considerations:

- Which gov't authority?
- Is there competence in sampling, and testing, or must this be built?

c) Public Private Partnership

Key considerations:

- Is it a BOT (i.e. Third-party finances/ acquires/ builds testing facility)?
- How should remuneration be structured e.g. company pays fee directly, or government funded?

b) Government Contracts Third-Party

Key considerations:

- Should gov't outsource all aspects of valuation, or only sampling, for example?

d) Shared Regional Testing Facility

Key considerations:

- Which countries? What are their production volumes?
- What funds and staff could gov'ts contribute?



Financing Models

- a) Tax revenue
- b) Charging for services
- c) Donor funds
- d) Direct remuneration by companies to government's chosen third-party service provider
 - with an 'opt out' if companies can demonstrate compliance with sampling and testing standards.

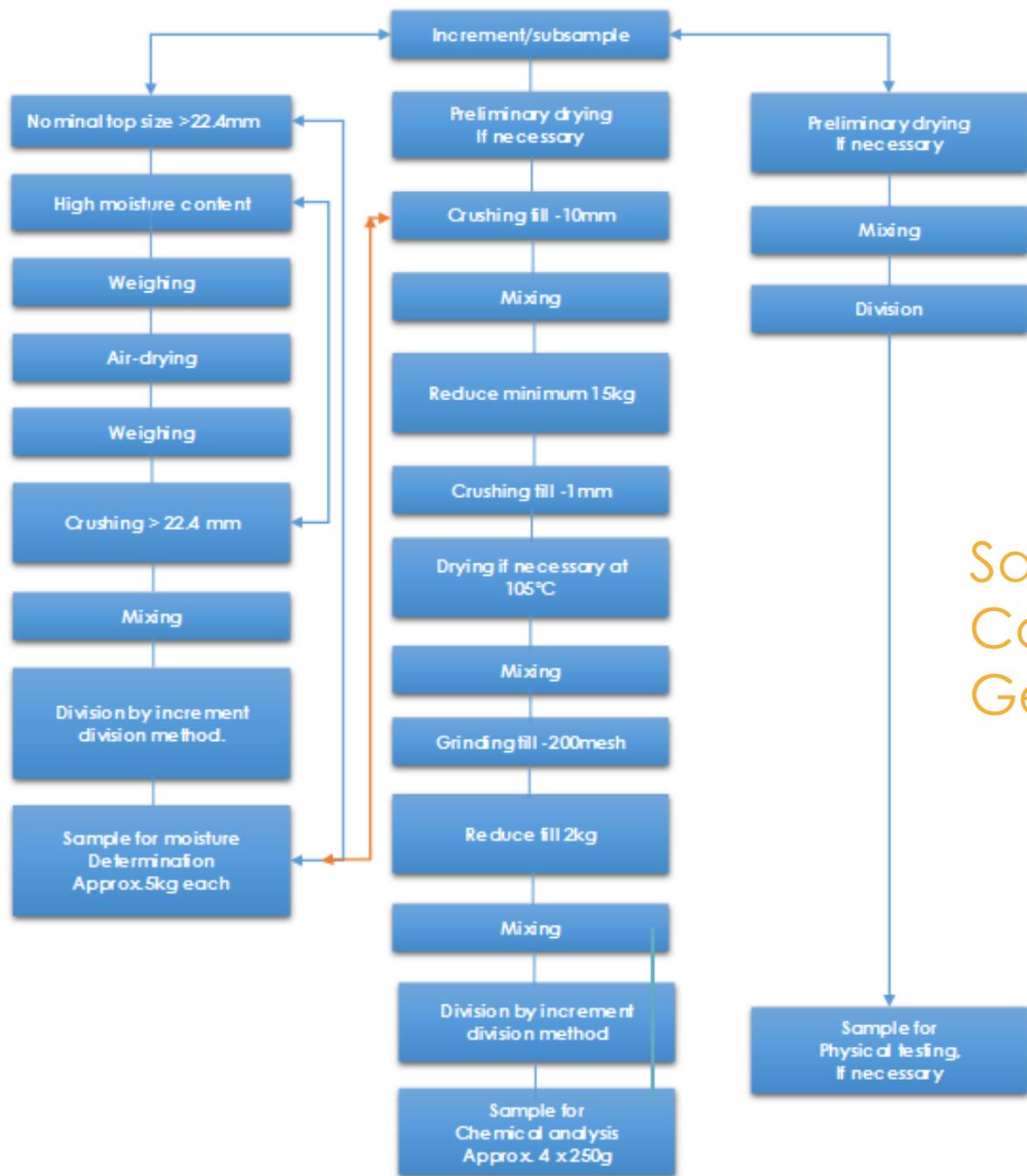


Checklist for Determining Policy Approach

- 1 What is the quantity of minerals produced and exported?
- 2 What are government's existing controls on mineral quality and quantity?
- 3 What production and export information does government receive?
- 4 What valuation controls do mining companies have in place?
- 5 What is the basis for calculating royalties and taxes?
- 6 What is the available government budget for mineral valuation activities?

Quality determination: technical considerations

- **Quantity determination: the relatively “easy” bit.**
 - Scales and/or draft surveys.
 - Special cases.
- **Sampling: the key issue. Minerals present particular characteristics.**
 - Particles size heterogeneity.
 - Potentially large gross samples mass.
 - Quality variation among particles sizes.
 - Moisture.
 - Relative complexity of samples preparation.
 - Samples preparation and moisture testing on the spot.
 - Samples chain of custody integrity.
- **Testing: a different set of challenges.**
 - Management and staff qualifications.
 - CAPEX & maintenance.
 - Management systems.
 - Accreditation.
 - Unlike sampling: can be performed at remote locations.



Sampling is
Complex to
Get Right!



Roles and Responsibilities Under a PPP

| Activity | Service Provider | Gov't Authority |
|--|------------------|-----------------|
| Definition of the needs | | X |
| Specifications and preselection of suitable equipment and main operational characteristics | X | |
| Validation of the technical and operational choices | | X |
| financing | X | |
| Sourcing of equipment | X | |
| Power source / backup power source | X | |
| Civil works general specifications | X | |
| Civil works general specifications validation | | X |
| Operations (sampling, sample prep, management, testing) | X | |
| Maintenance and consumables | X | |
| HSE | X | |
| Reporting | X | X |
| Training | X | |
| Performance evaluation | | X |
| Reports utilisation | | X |

Case studies: Guinea and Sierra Leone

Baseline Assessment

| Key Features | Guinea | Sierra Leone |
|---------------------|---|---|
| Main exports | Bauxite, gold | Iron ore, bauxite, rutile |
| Export volumes | Bauxite: 24 million (mn) tons; Gold: 416 271 oz | Iron ore: 5.1 mn tons; Bauxite: 1.4 mn tons; Rutile: 0.15 mn tons |
| Government controls | <ul style="list-style-type: none"> - No verification of quantity; - No laboratory; - Some training on quantity assessment. | <ul style="list-style-type: none"> - Draft surveyors; - A small laboratory – lacks equipment, has not been operational. |
| Company controls | All 3 bauxite producers either have their own internal valuation teams, or outsource. | All 3 companies either have their own lab on-site, or contract a third party. |
| Sales | 100% of bauxite sold to related party refineries in Europe and China, Russia | Majority of iron ore and rutile sold to independent customers; 90% of bauxite sold to parent company; |



Case studies: Guinea and Sierra Leone

Policy Options

| Guinea | Sierra Leone |
|--|---|
| <ul style="list-style-type: none">▪ Government could initiate a PPP (“BOT” form) - initially to address sampling, sample preparation, moisture testing, sample chain of custody integrity;▪ A PPP could include on-site training of government officials. Ultimately these activities would be transferred to government;▪ Government could conduct a feasibility study for a similar PPP scheme for a local laboratory. | <ul style="list-style-type: none">▪ Laboratory under development;▪ Government could invest in building expertise to audit companies’ sampling processes;▪ Third party training may be a good option for building audit expertise, alternatively these activities could be outsourced;▪ Testing at national laboratory where required, or send sample abroad. |