China in African mining – present situation and future trends

Cooperation on Sustainable Raw Materials for China and Europe
STRADE-seminar Beijing September 27 2017

Magnus Ericsson/孟瑞松
Luleå University of Technology

Olof Löf
RMG Consulting
AGENDA

- Global background
- Chinese mining investments globally
- Chinese mining investments in Africa
- Chinese companies abroad
- Conclusions
MINING IN THE WORLD

Source: Raw Materials Data
CHINA REMAINS CENTRAL

Source: DAIECON, IMF, WBMS.
AGENDA

- Global background
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CHINESE OVERSEAS MINING INVESTMENTS

Billion USD

Source: NBS
## MAJOR CHINESE OVERSEAS MINING M&A

<table>
<thead>
<tr>
<th>Acquirer</th>
<th>Target</th>
<th>Country</th>
<th>Comm</th>
<th>Seller</th>
<th>Price</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tianqi Lithium</td>
<td>Greenbushes (51%)</td>
<td>Australia</td>
<td>Lithium</td>
<td>Talison</td>
<td>$0.5 bn</td>
<td>Completed May 2014</td>
</tr>
<tr>
<td>Minmetals-led consortium</td>
<td>Las Bambas (100%)</td>
<td>Peru</td>
<td>Copper</td>
<td>Glencore</td>
<td>$7.0 bn</td>
<td>Completed Aug 2014</td>
</tr>
<tr>
<td>Shangdong Iron &amp; Steel</td>
<td>Tonkolili (100%)</td>
<td>Sierra Leone</td>
<td>Iron ore</td>
<td>African Minerals</td>
<td>$170 M</td>
<td>Completed Apr 2015</td>
</tr>
<tr>
<td>Guangdong Rising</td>
<td>2 mines and projects</td>
<td>Laos, PNG</td>
<td>Gold</td>
<td>PanAus</td>
<td>$0.9 bn</td>
<td>Completed Jun 2015</td>
</tr>
<tr>
<td>Zijin Mining</td>
<td>Barrick Porgera (50%)</td>
<td>PNG</td>
<td>Gold</td>
<td>Barrick Gold</td>
<td>$0.3 bn</td>
<td>Completed Aug 2015</td>
</tr>
<tr>
<td>Zijin Mining</td>
<td>Kamoia project (40%)</td>
<td>DR Congo</td>
<td>Copper</td>
<td>Ivanhoe</td>
<td>$0.4 bn</td>
<td>Completed Dec 2015</td>
</tr>
<tr>
<td>Chinese investors</td>
<td>Bystrinsky project (13%)</td>
<td>Russia</td>
<td>Copper</td>
<td>Norilsk Nickel</td>
<td>$100 M</td>
<td>Dec 2015</td>
</tr>
<tr>
<td>Chinalco</td>
<td>Simandou (50%)</td>
<td>Guinea</td>
<td>Iron ore</td>
<td>Rio Tinto</td>
<td>$1.3 bn</td>
<td>Agreed Oct 2016</td>
</tr>
<tr>
<td>China Molybdenum</td>
<td>Niöbio, Fosfatos Brasil (100%)</td>
<td>Brazil</td>
<td>Nb, K2O</td>
<td>Anglo American</td>
<td>$1.5 bn</td>
<td>Completed Oct 2016</td>
</tr>
<tr>
<td>China Molybdenum</td>
<td>Tenke-Fungurume (80%)</td>
<td>DR Congo</td>
<td>Copper, cobalt</td>
<td>Freeport</td>
<td>$3.8 bn</td>
<td>Completed Jan 2017</td>
</tr>
<tr>
<td>Yancoal</td>
<td>Coal &amp; Allied (100%)</td>
<td>Australia</td>
<td>Coal</td>
<td>Rio Tinto</td>
<td>$2.45 bn</td>
<td>Agreed Jan 2017</td>
</tr>
<tr>
<td>Shandong Gold</td>
<td>Veladero (50%)</td>
<td>Argentina</td>
<td>Gold</td>
<td>Barrick</td>
<td>$0.96 bn</td>
<td>Agreed Apr 2017</td>
</tr>
<tr>
<td>Fosun, Hainan Mining</td>
<td>Polyus gold (10%)</td>
<td>Russia</td>
<td>Gold</td>
<td>Polyus</td>
<td>$0.89 bn</td>
<td>Agreed May 2017</td>
</tr>
</tbody>
</table>
SELECTED MAJOR CHINESE MINE DEVELOPMENTS

Billion USD

- Toromocho, Chinalco: Operating/Expansion
- Kolwezi Zijin Mining: Completed 2017
- Husab China National Nuclear: Completed 2017
- Bakubung Jinchuan: Complete 2018
- Las Bambas, Minmetals: Operating 2016
- Palabora HBIS Group: New mine level -2030

Source: Various
Chinese mining companies (excl ASM) control mineral output outside China to a value of 11 billion USD 2014. Copper is the dominant metal and Oceania main region.
CHINESE CONTROL OPERATING MINES 2011

Source: Raw Materials Data
CHINESE CONTROL OPERATING MINES 2014

Source: Raw Materials Data
AGENDA

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CHINESE CONTROL OF AFRICAN MINE PRODUCTION 2011

<table>
<thead>
<tr>
<th>Mine</th>
<th>Company</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awaso Bauxite Mine</td>
<td>Bosai Minerals</td>
<td>80%</td>
</tr>
<tr>
<td>Ruashi Copper Mine</td>
<td>Jinchuan Group</td>
<td>75%</td>
</tr>
<tr>
<td>Chambishi Copper Mine, Chibuluma South Copper Mine</td>
<td>CNMC</td>
<td>85%</td>
</tr>
<tr>
<td>Chibuluma South Copper Mine</td>
<td>Jinchuan Group</td>
<td>85%</td>
</tr>
<tr>
<td>Baluba Copper Mine</td>
<td>China nonferrous Metals</td>
<td>85%</td>
</tr>
<tr>
<td>Muliashi Copper Mine</td>
<td>China nonferrous Metals</td>
<td>85%</td>
</tr>
<tr>
<td>Kolwezi Copper Mine, former Zimasco Chrome Mines</td>
<td>China Railway,SINOHYDRO</td>
<td>48%</td>
</tr>
<tr>
<td>Dilokong Chrome Mine</td>
<td>Sinosteel</td>
<td>86%</td>
</tr>
<tr>
<td>Vergenoeg Fluorspar Mine</td>
<td>Jinchuan Group</td>
<td>70%</td>
</tr>
</tbody>
</table>

Source: Raw Materials Data
CHINESE CONTROL OF AFRICAN MINE PRODUCTION 2014

1. Tonkolili Iron Ore Mine*  
   Company: Shandong Iron and Steel  
   Control: 100%

2. Bong Iron Ore Mine*  
   Company: Wugang, China Union  
   Control: 100%

3. Awaso Bauxite Mine  
   Company: Bosai Minerals  
   Control: 80%

4. Zara Gold Mine*  
   Company: China SFECO Group  
   Control: 60%

5. Bembele Manganese Mine*  
   Company: CITIC HK  
   Control: 51%

6. Kinsevere Copper/Cobalt Mine*  
   Company: China Minmetals  
   Control: 95%

7. Ruashi Copper Mine  
   Company: Jinchuan Group  
   Control: 75%

8. Chambishi Copper Mine  
   Company: China Nonferrous Metals  
   Control: 85%

9. Chibuluma South Copper Mine  
   Company: Jinchuan Group  
   Control: 85%

10. Baluba Copper/Cobalt Mine  
    Company: China Nonferrous Metals  
    Control: 85%

11. Muliashi Copper Mine  
    Company: China Nonferrous Metals  
    Control: 85%

12. former Zimasco Chrome Mines  
    Company: Sinosteel  
    Control: 86%

13. Husab Uranium Mine*  
    Company: China National Nuclear  
    Control: 90%

14. Dilokong Chrome Mine  
    Company: Sinosteel  
    Control: 60%

15. Vergenoeg Fluorspar Mine  
    Company: Jinchuan Group  
    Control: 70%

16. Palabora UG Copper Mine*  
    Company: Hebei Steel  
    Control: 75%

17. Petrex Gold Mines*  
    Company: Baiyin NMG, CADFund  
    Control: 90%

18. Tenke Fungurume Copper Mine*  
    Company: China Molybdenum Co  
    Control: 80%

19. Langer Heinrich Uranium Mine*  
    Company: China National Nuclear  
    Control: 20%

20. Kolwezi Copper Mine  
    Company: China Railway, SINOHYDRO  
    Control: 48%

21. Modder East Gold Mine*  
    Company: Baiyin NMG, CADFund  
    Control: 90%

Note: * = new mine compared to 2011

Source: Raw Materials Data
CHINESE CONTROL
AFRICAN MINE PROJECTS 2014

Source: Raw Materials Data
Copper production in Africa 2014, total 2069 kt

- Australian companies: 61%
- Canadian companies: 24%
- Chinese companies: 13%
- Other: 2%

Gold production in Africa 2014, total 610 ton

- Australian companies: 78%
- Canadian companies: 17%
- Chinese companies: 1%
- Other: 4%

Source: Raw Materials Data
CHINESE CONTROL OF FUTURE AFRICAN COPPER MINING

China to control ~ 30-35% of copper production in Africa 2018

- China 2014: 68%
- Tenke Fungurume: 13%
- Kolwezi: 12%
- Kamoa: 5%
- Other: 2%

Source: Raw Materials Data
## Chinese Control of African Mining 2014

Total value 100 billion USD

<table>
<thead>
<tr>
<th>Company</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese companies</td>
<td>2.4%</td>
</tr>
<tr>
<td>Glencore</td>
<td>12.6%</td>
</tr>
<tr>
<td>Exxaro</td>
<td>6.1%</td>
</tr>
<tr>
<td>Sibanye Gold</td>
<td>4.1%</td>
</tr>
<tr>
<td>Impala Platinum</td>
<td>3.7%</td>
</tr>
<tr>
<td>Randgold</td>
<td>2.5%</td>
</tr>
<tr>
<td>Harmony</td>
<td>2.1%</td>
</tr>
<tr>
<td>Harmony</td>
<td>2.0%</td>
</tr>
<tr>
<td>NEWRC</td>
<td>2.1%</td>
</tr>
<tr>
<td>Kinross</td>
<td>3.7%</td>
</tr>
<tr>
<td>Other</td>
<td>48.9%</td>
</tr>
<tr>
<td>Anglo American</td>
<td></td>
</tr>
<tr>
<td>AngloGold Ashanti</td>
<td></td>
</tr>
<tr>
<td>OCP</td>
<td></td>
</tr>
<tr>
<td>First Quantum</td>
<td></td>
</tr>
<tr>
<td>African Rainbow</td>
<td></td>
</tr>
<tr>
<td>Barrick</td>
<td></td>
</tr>
<tr>
<td>Gold Fields</td>
<td></td>
</tr>
<tr>
<td>Vedanta</td>
<td></td>
</tr>
<tr>
<td>SeverStal</td>
<td></td>
</tr>
<tr>
<td>Freeport-McMoRan</td>
<td></td>
</tr>
<tr>
<td>Artisinal Gold</td>
<td></td>
</tr>
</tbody>
</table>

Source: Raw Materials Data
CHINESE CONTROL OF AFRICAN MINING 2

Source: Raw Materials Data
AGENDA

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## MAJOR CHINESE COMPANIES (OVERSEAS)

China Minmetals (MMG) in expansion. Las Bambas opened 2016.

<table>
<thead>
<tr>
<th>Company</th>
<th>Expansion Phase</th>
<th>Operations/Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zijin</td>
<td>Expansion</td>
<td>Acquired 47% in Porgera PNG, 51% in Kolwezi DRC (in production July 2017), 40% Kamoa DRC. Rio blanco Peru development.</td>
</tr>
<tr>
<td>Chinalco</td>
<td></td>
<td>World leading aluminium producer. 10% owner of Rio Tinto. Expansion in base metals. Toromocho mine in Peru, developing Simandou iron ore mine in Guinea.</td>
</tr>
<tr>
<td>HBIS Group Co. Ltd. (formerly Hebei Iron &amp; Steel Group)</td>
<td></td>
<td>China's second largest iron and steel producer and third largest in the world. Developing Palabora copper mine.</td>
</tr>
<tr>
<td>Bayin</td>
<td></td>
<td>Owner of Gold One, largest shareholder (20%) in Sibanye.</td>
</tr>
<tr>
<td>China molybdenum</td>
<td></td>
<td>Take over of Tenke Fungurume in DRC and Nióbio, Fosfatos Brazil.</td>
</tr>
</tbody>
</table>

Source: Various
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● Global background
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MYTHS AND FACTS

• China is still a minor player in global mining outside of China.
• China has NOT taken control of Africa’s mineral resources.
• China is increasing its presence in Africa, BUT from a low level.
• China is in control of 2.4% of Africa’s mining output 2014. One company: Anglo American is in control of 12.6%.
• Copper is the single most important commodity for China.
• Chinese investors range from small-scale operators to large state-owned companies. They behave differently. It is not possible to treat them all as one.
• Chinese investments into Africa create competition and give African governments an alternative to traditional investors and the possibility to chose.
Thank you for your attention!

Magnus Ericsson
E-mail: magnus@gladtjarnen.se    Phone: +46-70-558 0065