STATE OF THE COBALT MARKET IN 2020

Cobalt demand was robust despite COVID-19 with annual growth of 5%

Consumption of cobalt by application

- **57% Batteries for electric vehicles, tablets and smartphones**
- **13% Nickel-based alloys**
- **8% Tool materials**

↑ 5% increase
- Sales of new electric vehicles increased 42% compared to 2019 (mostly in Europe).
- Demand in lithium-ion batteries rose by 10% year-on-year.
- Sales of new energy vehicles to increase 30% year-on-year to 2025.

↓ 12% drop
- Shutdown in aerospace.
- Slow recovery might have longer term impact on cobalt demand.

↓ 12% drop
- Drop-off in global industrial production.

Global supply

- 66% DRC
- 5% Australia
- 4% Russia
- 4% The Philippines
- 3% Papua New Guinea
- 3% Canada
- 3% Cuba
- 3% Zambia
- 9% others

ASM – Artisanal & small-scale mining was an important source of cobalt supply in 2020.

135 KT market size

>US$4B industry

ASM – 9% of DRC mine production in 2020, ≈100k people involved.

Asia is the largest cobalt-consuming region

- 32% China
- 23% Europe
- 18% Japan, South Korea
- 18% North America

Cobalt production trends

- **Cobalt mining**
  - 6% drop to 145 KT
  - COVID-19-related production suspensions in Canada, Morocco, Madagascar, South Africa.
  - The world’s biggest mine was put on care and maintenance in late 2019.

- **Refined production**
  - 5% drop to 132 KT
  - Reduced availability of feedstocks.
  - COVID-19-related shutdowns.
  - Weaker industrial demand due to the pandemic.

- **Cobalt recycling**
  - 10.6 KT
  - 65% battery recycling
  - 24% tungsten carbide recycling
  - 11% recycling of alloy scraps & catalysts