

Layers of Possibilities



Mineral Resources and Reserves of the KGHM Group

26 June 2015

Meeting Agenda

11:00 – 11:10	KGHM's mineral resources and reserves – the need for a common vocabulary <i>Herbert Wirth, President of the Management Board of KGHM</i>
11:10 – 11:20	Classification of KGHM's mineral resources and reserves – conversion methodology <i>Prof. Adam Piestrzyński (AGH, Kraków)</i>
11:20 – 11:40	Mineral Resources and Reserves of KGHM <i>Maciej Koński, Director, KGHM Business Development Center</i>
11:40 – 12:10	Significance of Mineral Resources and Reserves in determining company value <i>McKinsey</i>
12:10 – 12:20	Q&A
12:20 – 13:00	Lunch
13:00	Conclusion of meeting



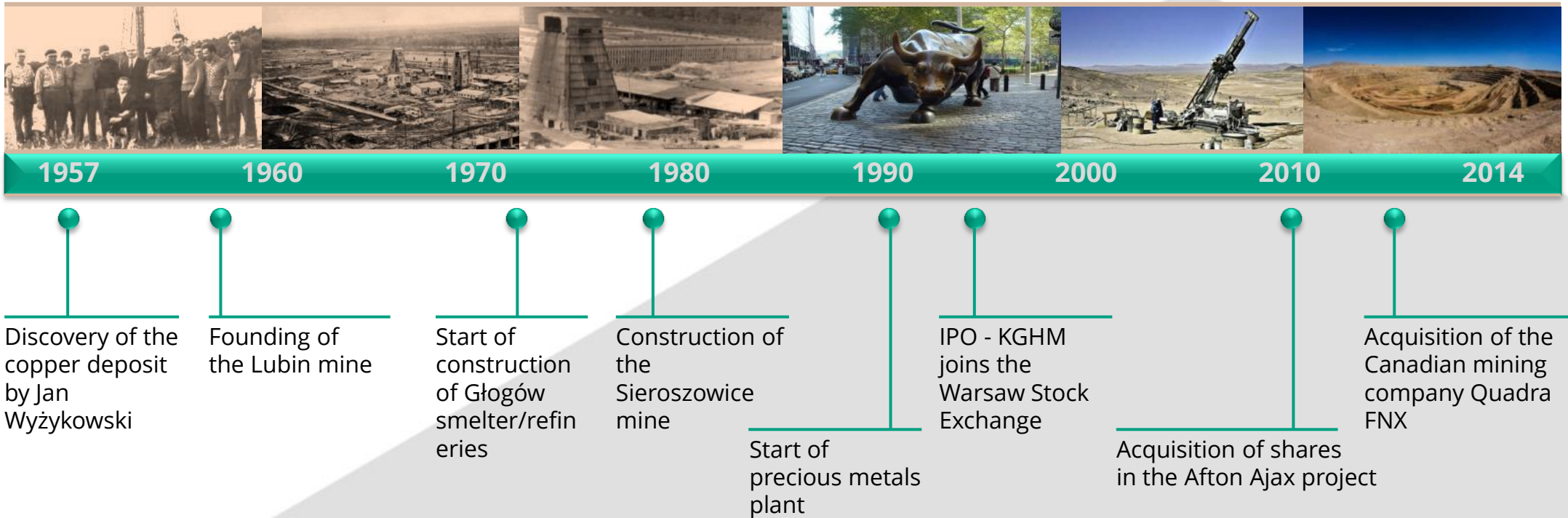
KGHM's mineral resources and reserves – the need for a common vocabulary

Herbert Wirth

KGHM's operations are based on a 60-year mining tradition

Discovery of the copper deposit brought about a fundamental change in the region's economy thanks to the growth of KGHM Polska Miedź S.A.

As a result of M&A activities, capped by the acquisition of Quadra FNX, KGHM became one of the world's global copper producers



KGHM intends to continue its global expansion

International expansion enables the company to grow in value based on know-how and skills

Development and implementation of new technologies positions KGHM as a global leader setting new trends in the industry



2015
Development of Sierra Gorda phase II and processing of oxide ore

2025
Commencement of Victoria and Afton Ajax mine operations

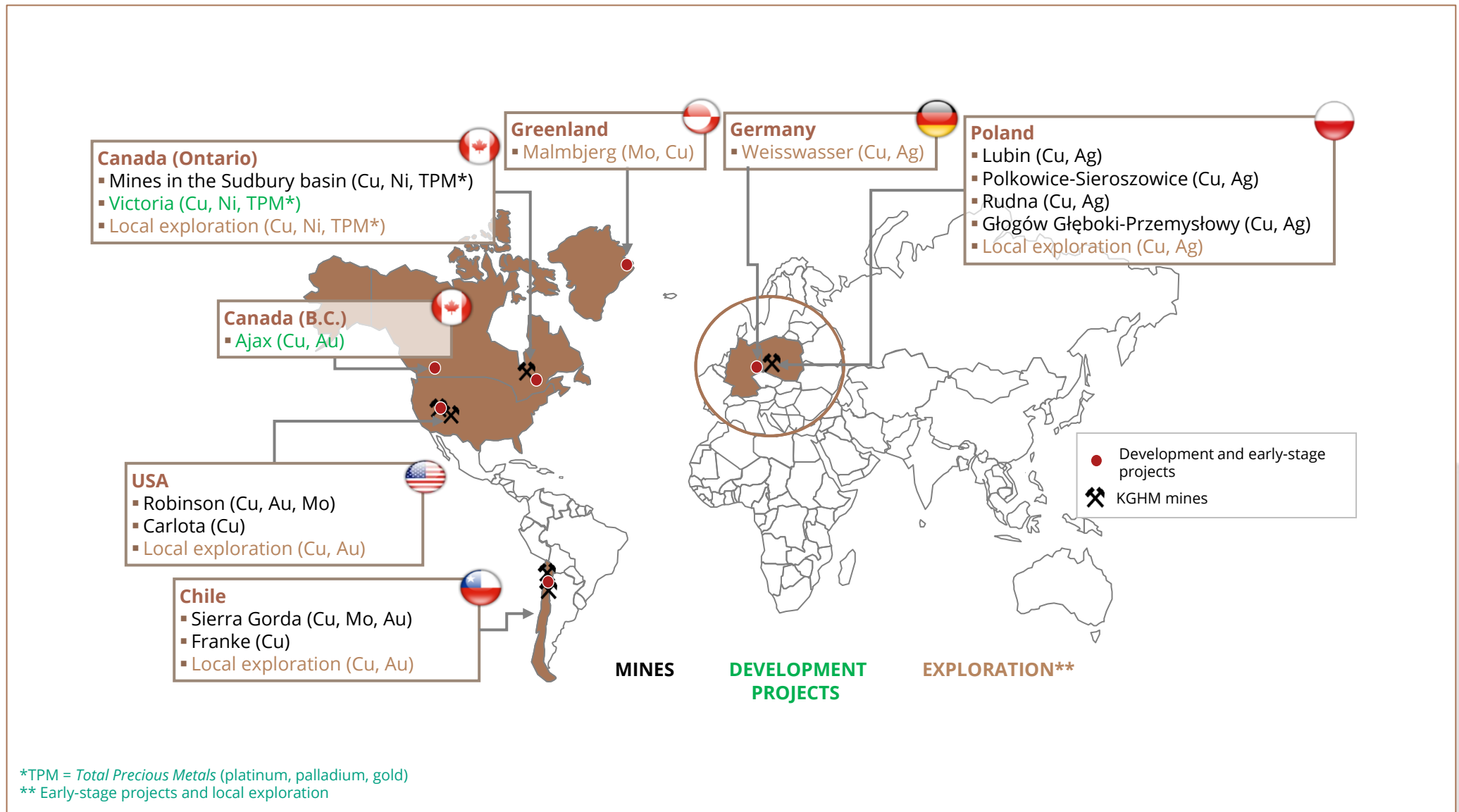
2025
Integrated mine monitoring system

2035
Longwall mining system

2045
Intelligent mines based on neural networks

100 years of continuous growth by KGHM

NI 43-101 and the Polish classification system



Authors of the report



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Grzegorz Lipień
Head of
Exploration Unit

Opinion of independent expert

- Prof. Piestrzyński is certified by the **European Federation of Geologists**
- He is a **Qualified Person** as defined under CIM standards



Prof. dr hab. inż.
Adam Piestrzyński



Classification of KGHM's mineral resources and reserves – conversion methodology

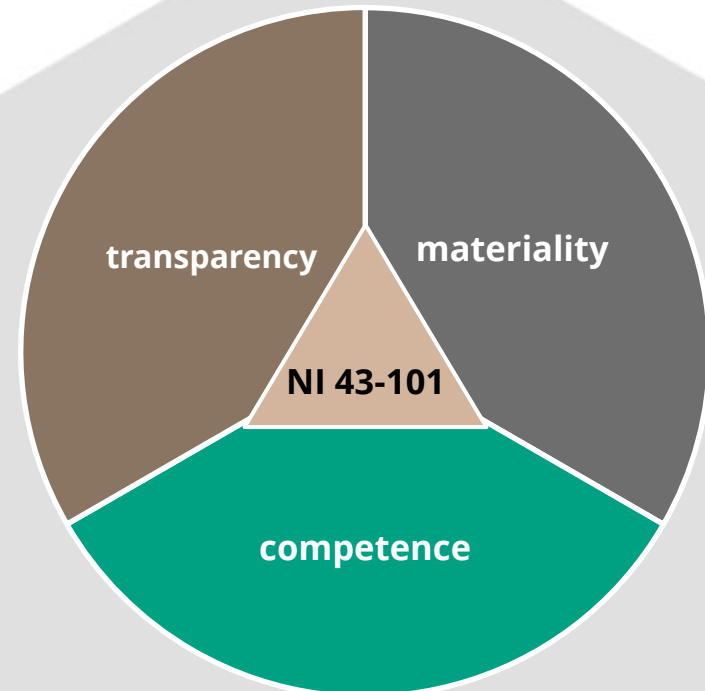
Adam Piestrzyński (AGH, Kraków)

The conversion of resources and reserves is aimed at:

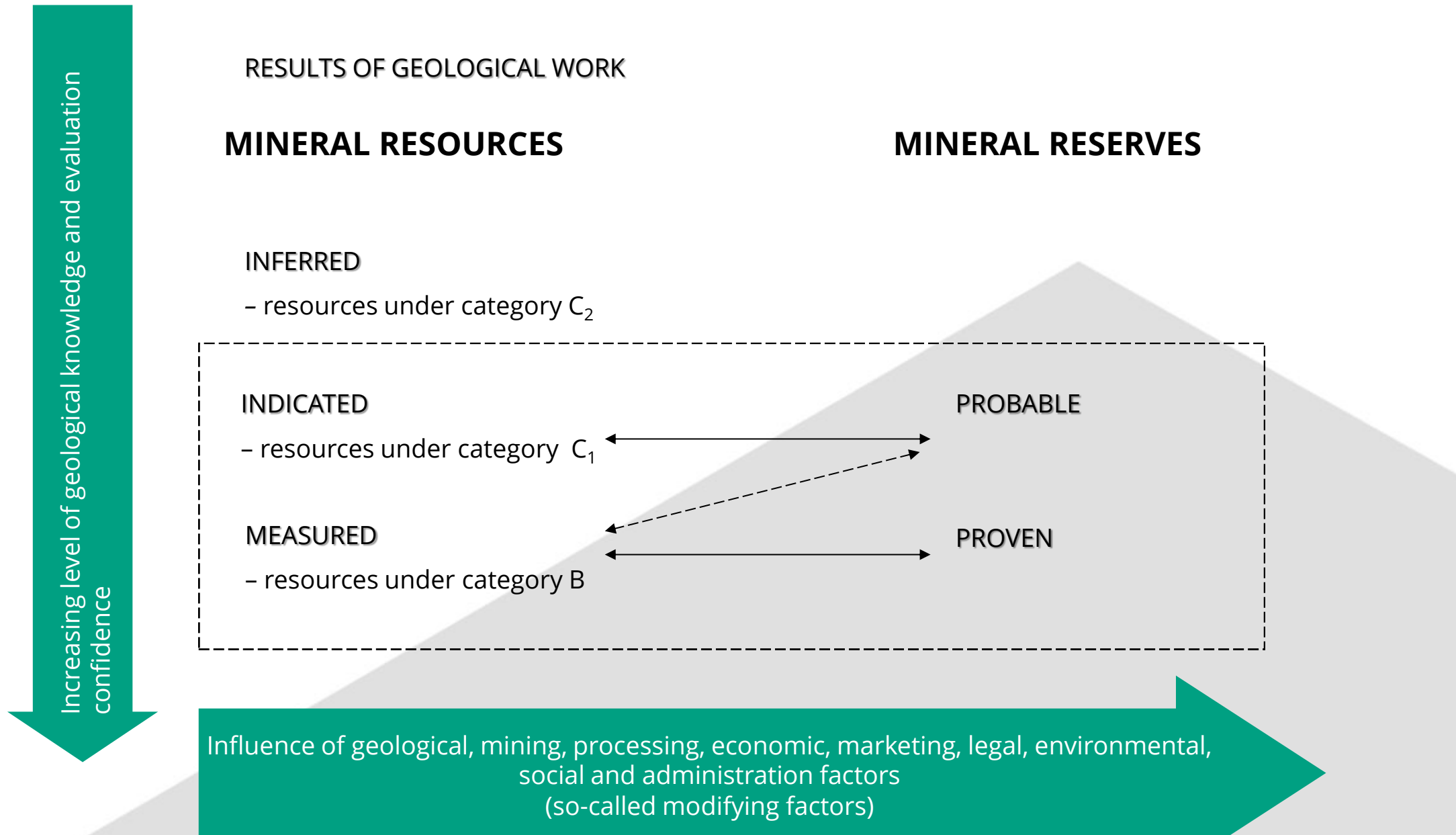
- Synchronising methodology and terminology used in classifying resources and reserves at the exploration stage
- Identifying resources and reserves in accordance with defined standards
- Preparing technical and economic studies

Basic principles of national codes for defining resources and reserves

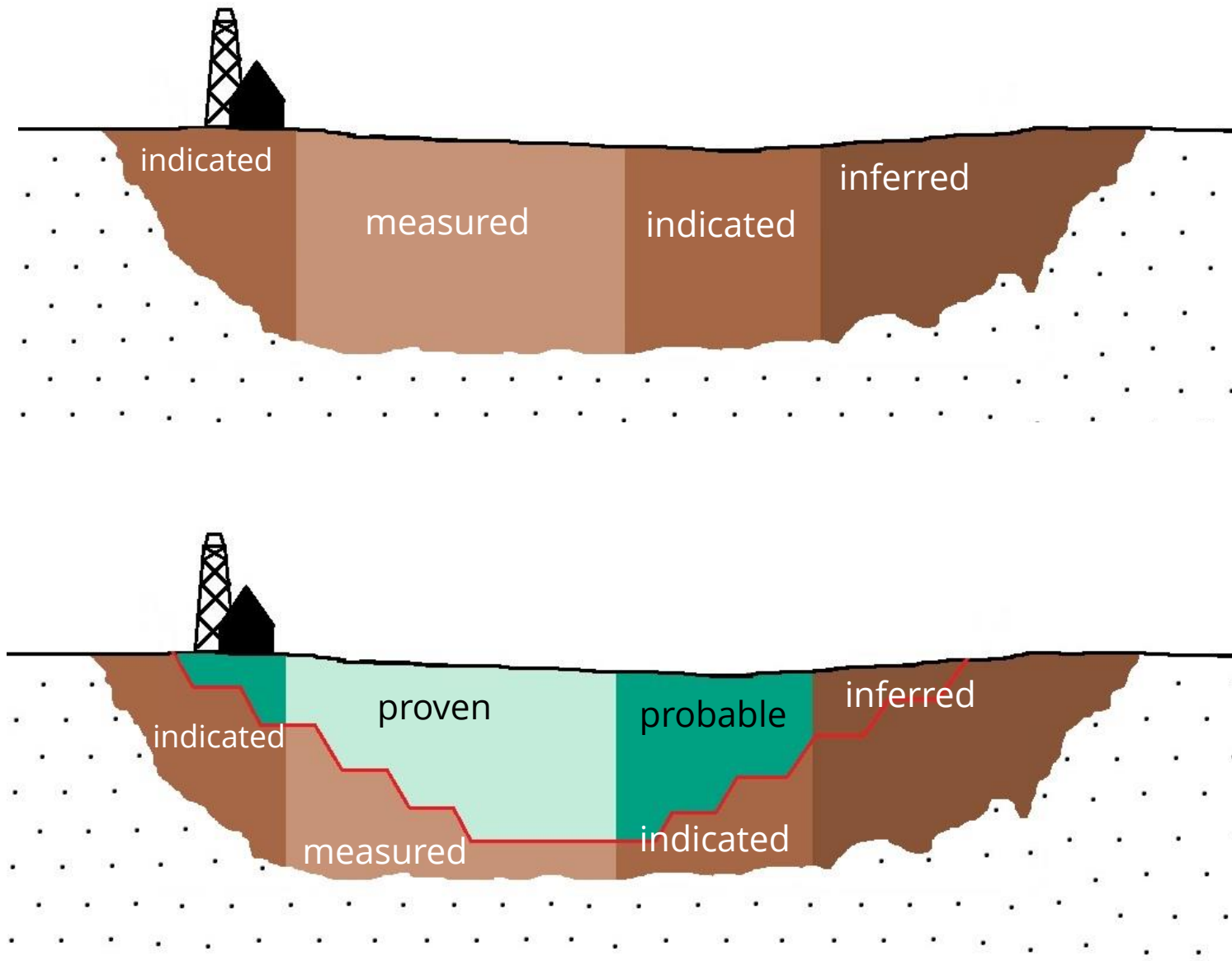
- **Transparency**
- **Materiality**
- **Competence**



Conversion of resources and reserves - methodology



Conversion of resources and reserves - methodology



MINERAL RESOURCES

- Resources (in the general sense) which could be mined in the future

MINERAL RESERVES

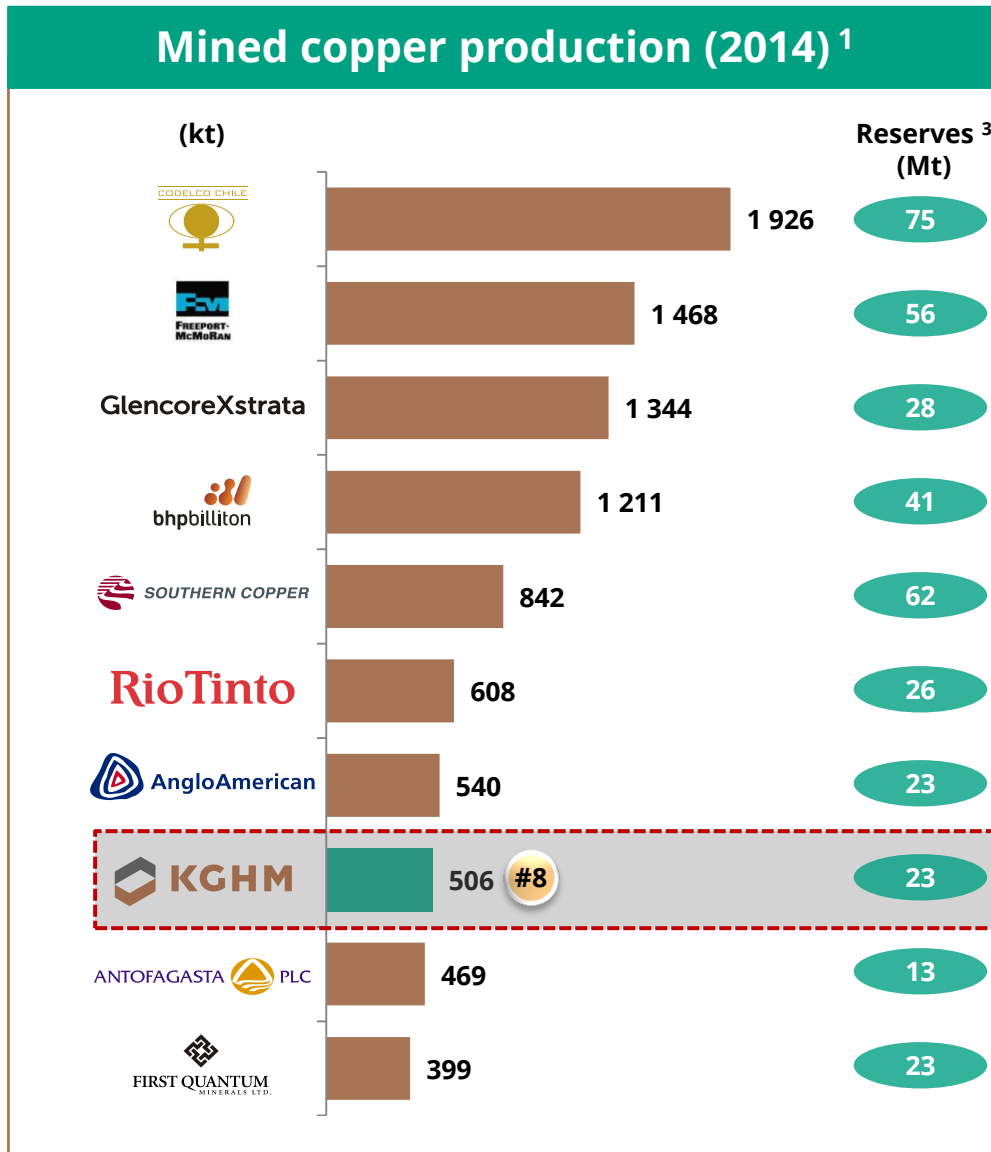
- Resources (in the general sense) which are slated for mining



Mineral Resources and Reserves of KGHM

Maciej Koński

KGHM is a leading producer of copper with resources sufficient for another 40 years of production






1 Wood Mackenzie, 2014

2 World Silver Survey 2015, The Silver Institute

3 Wood Mackenzie (2013); KGHM

Mine assets of KGHM in Poland





		Mineral reserves		Mineral resources <i>(measured and indicated)</i>	
Lubin mine		Cu [mn t]	3.2	Cu [mn t]	5.0
		Ag [kt]	13.6	Ag [kt]	20.8
Polkowice – Sieroszowice mine*		Cu [mn t]	7.9	Cu [mn t]	12.5
		Ag [kt]	19.4	Ag [kt]	31.2
Rudna mine*		Cu [mn t]	6.4	Cu [mn t]	10.3
		Ag [kt]	19.4	Ag [kt]	31.1

* The resources of the Deep Głogów project are included on a 50/50 basis to the resources of the Polkowice–Sieroszowice and Rudna mines shown above.



Mine assets of KGHM in South America

		Mineral reserves		Mineral resources <i>(measured and indicated)</i>	
Sierra Gorda* (55% share)		Cu [mn t]	3.2	Cu [mn t]	3.5
		Au [t]	49.9	Au [t]	54.1
		Mo [kt]	178.9	Mo [kt]	187.9
Franke		Cu [kt]	163.5	Cu [kt]	218.9

Mine assets of KGHM in North America



Robinson



Mineral reserves

Cu
[kt]

489.3

Au
[t]

18

Mineral resources

(measured and indicated)

Cu
[mn t]

1.6

Au
[t]

63.8

Carlota



Cu
[kt]

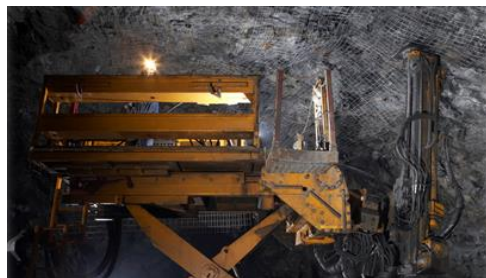
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Cu
[kt]

21.9



**Mines in the
Sudbury Basin**



Cu
[kt]

38.5

Au
[kg]

0.5

Ni
[kt]

7.2

Pt
[t]

1.1

Pd
[t]

2.4

Cu
[kt]

118.5

Au
[kg]

0.9

Ni
[kt]

161.8

Pt
[t]

2.1

Pd
[t]

2.9



KGHM's development projects

Mineral reserves

Mineral resources

measured and indicated

inferred

Ajax
(80% stake)



Cu [mn t]	1.1
Au [t]	68.4

Cu [mn t]	1.3	0.2
Au [t]	79.4	10.1

Victoria

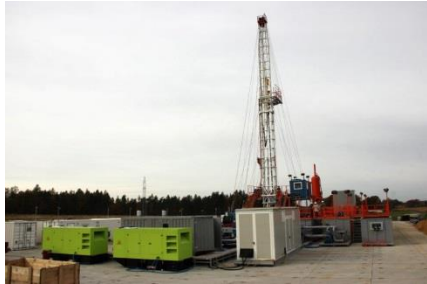


Cu [kt]	6.8	345.9
Au [t]	0.1	12.7
Ni [kt]	5.9	360.5
Pt [t]	0.2	40.3
Pd [t]	0.7	58.2

Early-stage projects



Exploration in Poland



Malmbjerg



Mineral resources

	<i>measured and indicated</i>	<i>inferred</i>
Cu [mn t]	9.6	7.9
Ag [kt]	28.8	29.5
Mo [kt]	317.3	23.0

Cu
[mn t]

9.6

7.9

Ag
[kt]

28.8

29.5

Mo
[kt]

317.3

23.0

Exploration potential

Resource base development

Greenfield

Brownfield

In-mine and Near mine

Acquiring stakes
in new mining projects



Basic criteria for evaluating exploration projects

Metal resources	at least 1.5 million tonnes of copper equivalent
Annual production	at least 50 thousand tonnes of copper (preferably 100 thousand tonnes)
Mine life	at least 10 years (preferably over 15 years)
Cost	low: below the 75th percentile on the cost curve (preferably below the 50th percentile)

Additional criteria for evaluating exploration projects

Location	mining-friendly jurisdiction
Development stage	minimum pre-feasibility study
Partner	preferably with a sector partner

Other mineral resources

ROCK SALT DEPOSIT

(BĄDZÓW, SIEROSZOWICE, RUDNA, DEEP
GŁOGÓW, RADWANICE – GAWORZYCE,
RETKÓW, GŁOGÓW, ZATOKA PUCKA)



POTASSIUM - MAGNEZIUM SALT DEPOSIT

(MIEROSZYNO, CHŁAPOWO, ZDRADA)



BACKFILL SANDS DEPOSIT

(OBORA)



	Recognition category				estimated
	B	C ₁	C ₂	D	
Balance resources (kt)	288 736	3 450 502	-	549 274	-
Non-balance resources (kt)	-	1 230 269	-	295 226	-
Estimated resources (kt)	-	-	-	7 564 467	50 203 354

455 670 thousand tonnes of balance resources under category C₂ with average K₂O content of 9.20%

5 430 thousand tonnes of non-balance resources under category C₂ with average K₂O content of 11.09%

29 026 thousand tonnes of balance resources under category B

KGHM resources and reserves summarised

PROVEN & PROBABLE

22.7

[million tonnes Cu]

MEASURED & INDICATED*

44.4

[million tonnes Cu]

INFERRED

8.7

[million tonnes Cu]