



MINISTRY OF ENERGY & MINERAL RESOURCES
INDONESIA

Indonesian Standard on **Coal Resources & Reserves Classification**

Workshop on UNFC Resources Classification
Bangkok, 9-10 February 2012



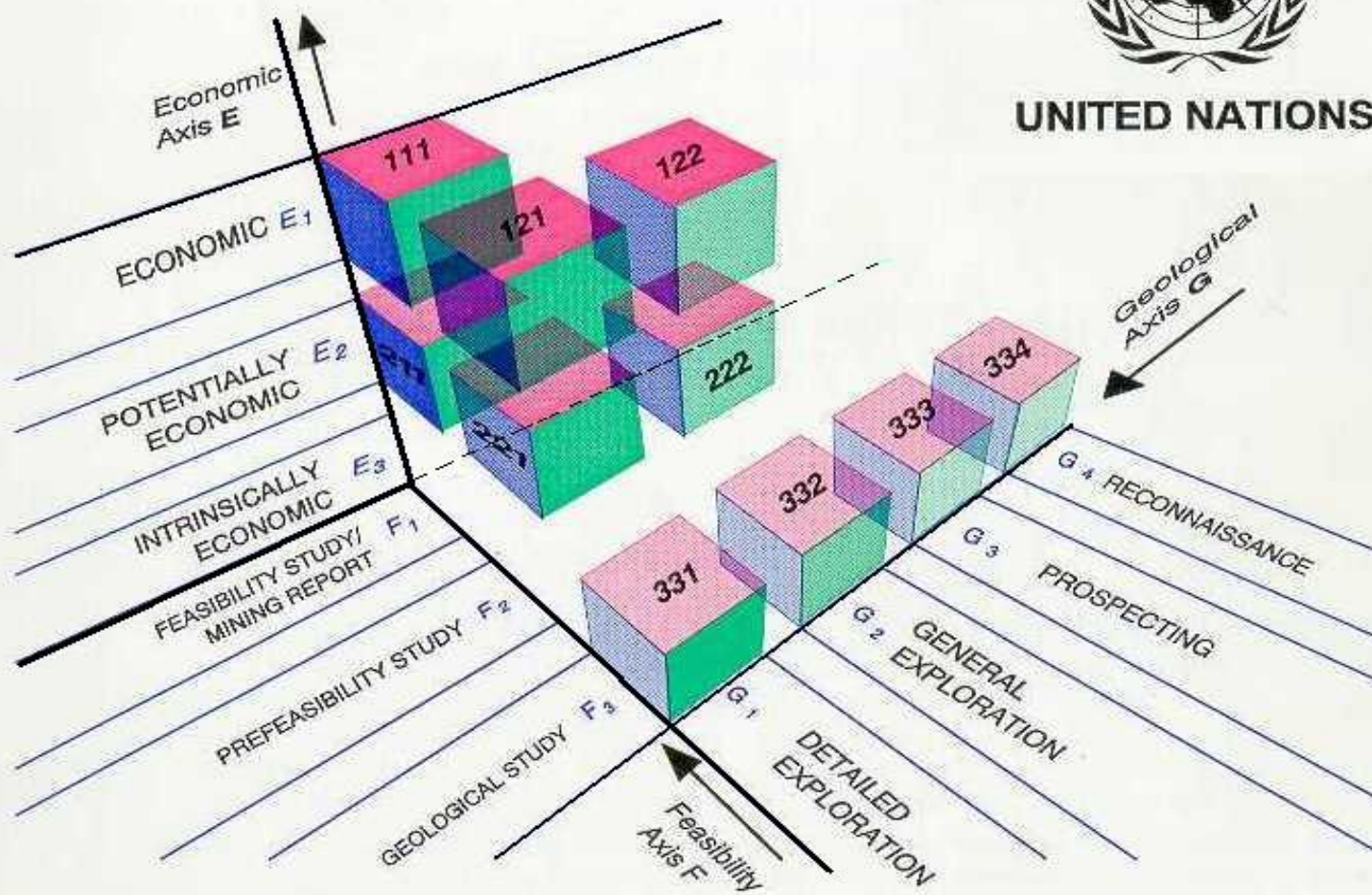
References

- Indonesian Standard on Mineral Resources and Reserves, 1997
- Australasian Code for Reporting of Identified Mineral Resources and Ore Resources, 1996
- Coal Resources Classification System of the US Geological Survey, 1983
- UN International Framework Classification for Reserves/Resources – Solid Fuels and Mineral Commodities, 1996

UNITED NATIONS INTERNATIONAL FRAMEWORK CLASSIFICATION FOR RESERVES/RESOURCES - Solid Fuels and Mineral Commodities -



UNITED NATIONS



Criteria and classification of Mineral Resources and Reserves

Adopted from United Nations International Framework Classifications for Reserves/Resources:
Solid Fuels and Mineral Commodities, 1996

Exploration stage Feasibility	DETAILED EXPLORATION	GENERAL EXPLORATION	PROSPECTING	RECONNAISSANCE	
FEASIBILITY STUDY AND / OR MINING REPORT	1. Proved Mineral Reserve (111)				
	2. Feasibility Mineral Resources (211)				
PRE FEASIBILITY STUDY	1. Probable Mineral Reserve (121) + (122)				
	2. Pre Feasibility Mineral Resource (221) + (222)				
GEOLOGICAL STUDY	1-2. Measured Mineral Resource (331)	1-2. Indicated Mineral Resource (332)	1-2. Inferred Mineral Resource (333)	? Reconnaissance mineral resource (334)	



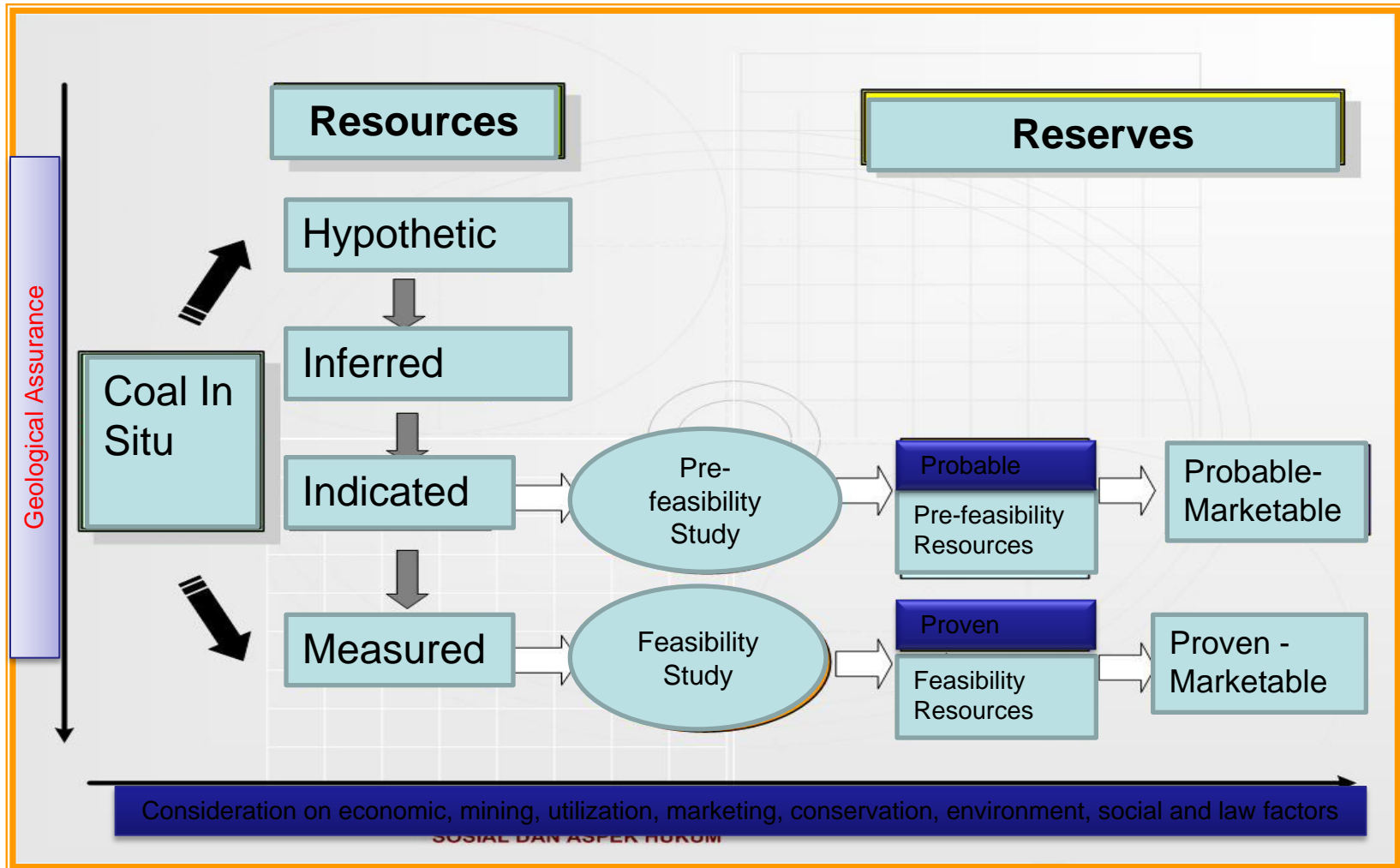
High

Low

Geological Assurance

Economic category : 1 = economic 1-2 = economic to potentially economic
2 = potentially economic ? = undefined

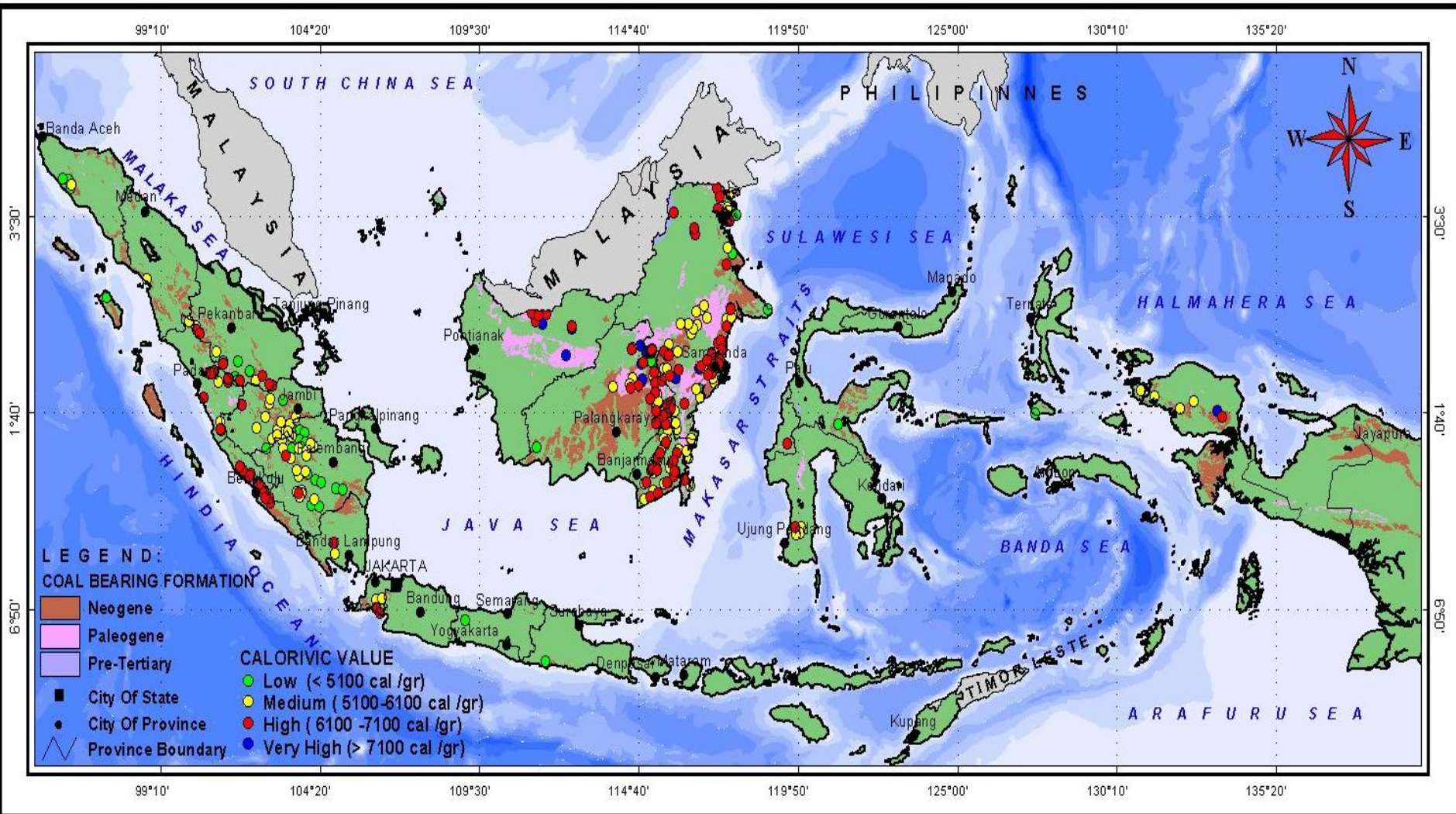
CLASSIFICATION ON COAL RESOURCES AND RESERVES IN INDONESIA, 1998



Consideration:

- Coal resources and reserves classification is depend on geological assurance and feasibility study. Therefore consideration should be made on **geological** and **economical** aspects.
- Geological aspect is based on tectonic and sedimentary parameter
- Economical aspect is based on coal type and thickness

Coal Distribution



Geological Conditions category based on tectonic and sedimentary aspects

Kondisi Geologi (Geological Condition) Parameters	Sederhana (Simple)	Menengah (Moderate)	Rumit (Complex)
I. Sedimentary Aspects 1. Thickness Variation 2. Continuity 3. Splitting	Little Variation (Senakin, Kalsel; Tanjung Enim, Sumsel) Thousands Metre (Bangko Selatan, Sumsel; Satui, Senakin, Kalsel) Almost no splitting (Muara Tiga Besar, Sumsel; Petangis, Kaltim)	Vary (Banjarsari, Sumsel) Hundreds Metre (Cerenti, Riau; Sangatta, Kaltim; Rantau, Kalsel) some splitting (Gunung Batu Besar, Kalsel)	Well Variation (Batulicin, Kalsel) Tens Metre (Bojongmanik, Jabar; Bengkulu) Many splitting (Sangatta, Kaltim)
II. Tectonic Aspects 1. Fault 2. Fold 3. Intrusion 4. Dipping	Almost No Faulting (Bangko Selatan) Almost no Folding (Bangko Selatan) No Influence (Senakin Barat, Kalsel) Gently (Cerenti, Riau)	Moderately (senakin, Fm Tanjung, Kalsel) Moderately Folded (Loa Janan-Loa Kulu, Kaltim) Moderately influenced (Suban, Bukit Kendi, Air Laya, Sumsel) Moderately	Well Developed (Ambakiang, Fm Warukin, Kalsel; Bengkulu) well Folded (Tutupan, Kalsel) well influenced (Bukit Bunian Utara, Sumsel) Steeply (Upau, Tutupan, Kalsel, Bengkulu)
III. Quality Variation	Little Variation (Bangko Barat, Sumsel; Senakin, Satui, Kalsel)	Vary (Air Laya, Sumsel; Meulaboh, Aceh)	Well Variation (Air Kotok, Bengkulu)

Distance information of measurement point based on geological condition

Kondisi Geologi (Geological Condition)	Kriteria (Parameters)	Sumber Daya (Resources)			
		Hipotetik (Hypothetic)	Terkira (Inferred)	Terunjuk (Indicated)	Terukur (Measured)
Sederhana (simple)	Jarak titik Informasi (M) Distance information of measurement point (m)	Tidak Terbatas (No Limitation)	$1000 < X = 1500$	$500 < X = 1000$	$X = 500$
Menengah (Moderate)	Jarak titik Informasi (M) Distance information of measurement point (m)	Tidak Terbatas (No Limitation)	$500 < X = 1000$	$250 < X = 500$	$X = 250$
Rumit (Complex)	Jarak titik Informasi (M) Distance information of measurement point (m)	Tidak Terbatas (No Limitation)	$200 < X = 400$	$100 < X = 200$	$X = 100$

Economical aspect consideration

Thickness (meter)	Coal Type	
	Brown Coal	Hard Coal
Minimum coal seam	1.00	0.40
Dirt band	0.30	0.30

Facts

- Coal resources / reserves reports using Indonesian National Standard is not bankable:
 - Listing on stock exchange
 - Loan proposal
- Since it is only Guidance, not regulation, it is not compulsory for applying the standard to every coal companies.

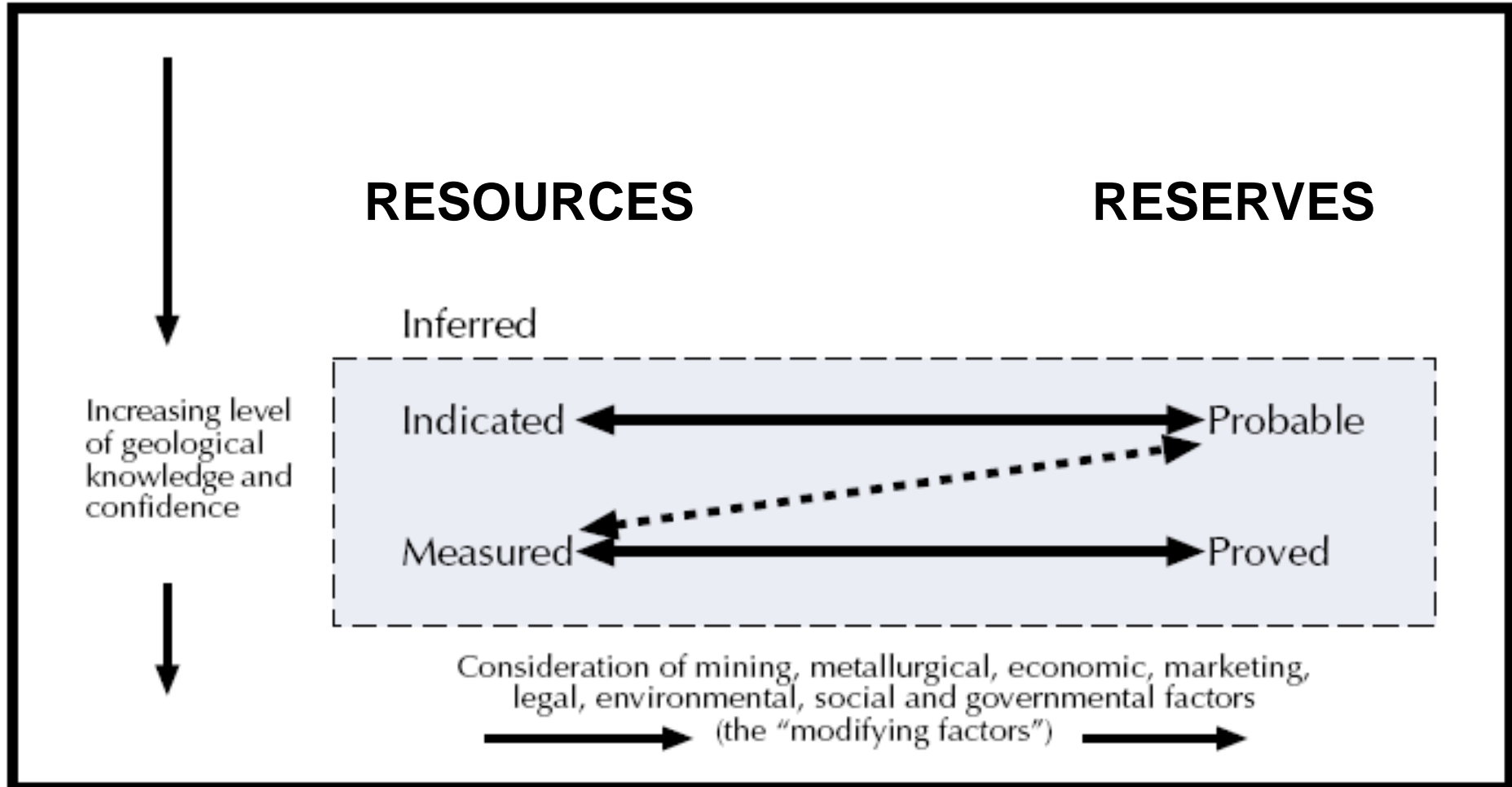
Facts (cont'd)

- Some big coal companies using JORC to have bankable documents
- However, it has been proved that there is only slightly different numbers on resources/reserves estimation based on National Standard compared to JORC

Update on the Standard

- Review has been carried out from mid 2008 up to 2011 involving government, coal companies and universities.
- The reviewed classification is more closely to JORC. However, geological and economical aspects is still be considered.
- Currently the draft is still processing to be published by 'Badan Standardisasi Nasional'

Updated Standard (*draft*)



COMPETENT PERSON

- Resources/reserves assessment using JORC mostly have been done by AusIMM Competent Person
- Indonesian Geologist Association and Mining Engineer Association start to manage 'Indonesian Competent Person' for mineral assessment (incl coal) in 2011
- The associations are also announcing Indonesian CP to financial sector



Thank you