




SAMCODES
THE SOUTH AFRICAN MINERAL REPORTING CODES



SAMREC
THE SOUTH AFRICAN CODE FOR THE REPORTING OF
EXPLORATION RESULTS, MINERAL RESOURCES AND MINERAL RESERVES



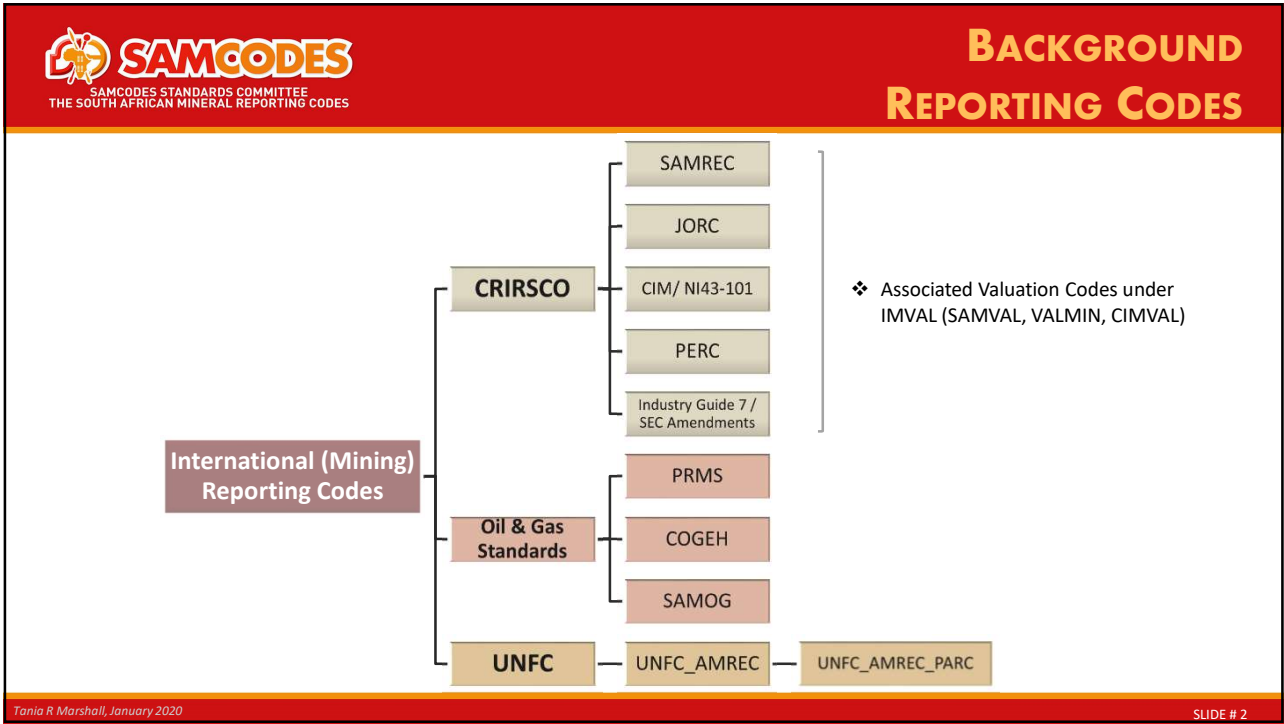
SAMVAL
THE SOUTH AFRICAN CODE FOR THE REPORTING OF
MINERAL ASSET VALUATIONS




SAMOG
THE SOUTH AFRICAN CODE FOR THE REPORTING OF
OIL AND GAS RESOURCES

Dr Tania R Marshall
(Chair of the SAMCODES Standards Committee)
MIASA Workshop, Stellenbosch, January 2020

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CRIRSCO
BACKGROUND

❑ CRIRSCO is the umbrella for National Reporting Organisations (NROs) developing mineral reporting codes and guidelines

▪ CRIRSCO currently has 14 member nations each with their own national reporting code based on a common template

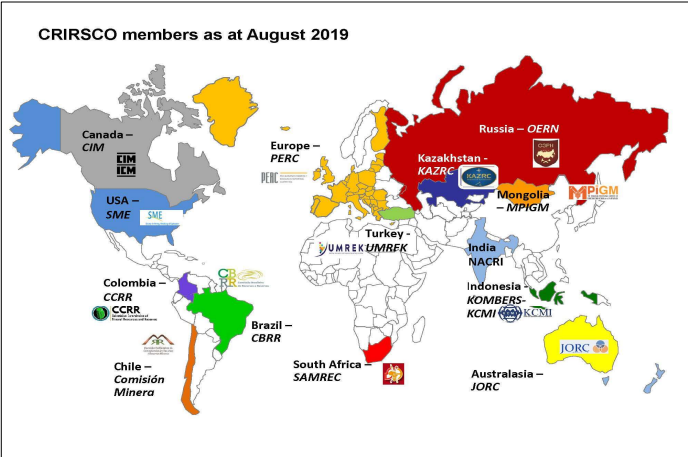
• NROs may include specific local requirements, based on governmental or stock exchange issues

▪ Has been *THE international standard in public reporting* of Exploration Results, Mineral Resource/Reserves effectively since 1994

• Accepted/required by all major international Stock Exchanges

• *+80% of listed companies worldwide report according to a CRIRSCO compliant code*

CRIRSCO members as at August 2019




China, Mocambique, Argentina, Bolivia, Philippines
in the pipeline for 2020/2021

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CRIRSCO
BACKGROUND

❑ Objective is to standardize terminology and definitions internationally for PUBLIC REPORTS, providing a reporting “template” with 15 standard definitions

▪ Public Reports, Competent Person

▪ Modifying Factors

▪ Exploration Target, Exploration Results

▪ Mineral Resource

- Inferred Resource
- Indicated Resource
- Measured Resource

▪ Mineral Reserve

- Probable Reserve
- Proved Reserve

▪ Scoping Study, Pre-Feasibility Study, Feasibility study

Exploration Results

MINERAL RESOURCES

Inferred

Indicated

Measured

MINERAL RESERVES

Probable

Proved

Increasing level of geological knowledge and confidence

Consideration of mining, processing, metallurgical, economic, marketing, legal, environmental, infrastructure, social, and governmental factors (the “Modifying Factors”).

❑ Understood by both technical and non-technical professionals

▪ Accountants, investors, investment advisors, legal practitioners, regulators, etc


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T R Marshall (Chair of the SSC)

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BACKGROUND
PRMS

Production

Reserves

Contingent Resources

Prospective Resources

Discovered PIP

Commercial

Not yet commercial

Undiscovered PIP

Low 1P

High 1P

Proven P1

Probable P2

Possible P3

Low 2P

High 2P

C1

C2

C3

Low 3P

High 3P

P10

P50

P90

On Production

Approved for Development

Justified for Development

Development Pending

Development on Hold

Development not Clarified

Development not viable

Prospect

Lead

Play

Decreasing Commercial Uncertainty

Increasing Project Maturity

Least Uncertain

Technical Uncertainty

Most Uncertain

Classification

Categorization

■ **Petroleum Resources Management System**

PRMS is a framework for classifying and categorizing estimates of all petroleum reserves and resources.

PRMS was not written as public disclosure rules.

Subject to jurisdictional listing regulations

■ **Canadian Oil & Gas Evaluation Handbook (COGEH)**

In 2013, about 35% of the worlds public listed oil and gas companies and 19% of globally listed oil field services companies were listed on the TSX/TSXV, more than anywhere else

COGEH is the TSX/TSXV regulatory requirement for Oil & Gas reporting

NI 51-101 (Standards of disclosure for Oil and Gas Activities)

Detailed Guidelines for Estimation and Classification of Oil and Gas Resources and Reserves.

■ **SAMOG**

Regulatory requirement for JSE

Classification based on PRMS


Reporting requirements/formats based on NI51-101

Specific application to unconventional deposits as well as gaseous hydrocarbons

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BACKGROUND
APPLICATION

Supported/driven by Stock Exchange requirements and Listing Rules
(for Primary Listings)

Stock/Securities Exchange	Reporting Code for CPR
Australian Stock Exchange (ASX)	JORC
Johannesburg Stock Exchange (JSE)	SAMCODES (SAMREC/SAMOG)
Toronto Stock Exchange (TSX/TSXV)	CIM (NI43-101) / COGEH (NI51-101)
US Stock Exchanges	SME/Industry Guide 7/SK1300/PRMS
London Stock Exchange (LSE) Alternative Investment Market (AIM)	Any nominated CRIRSCO Code/PRMS
Hong Kong Exchange	Any nominated CRIRSCO Code
Frankfort Stock Exchange	Any nominated CRIRSCO Code


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T R Marshall (Chair of the SSC)

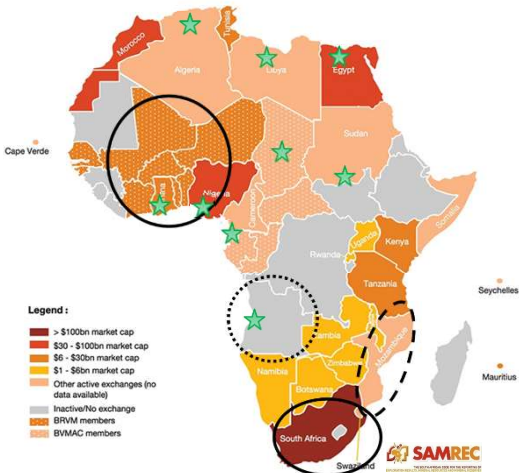
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BACKGROUND APPLICATION

Overview of African stock exchanges at 29 December 2017




Source: World Federation of Exchanges, Bloomberg, stock exchanges

- JSE (all South African Exchanges) require compliance with SAMCODES
 - Mocambique is developing their own CRIRSCO-based code
- BRVM/BVMAC Exchanges report in accordance with CIM Standards
- Oil producing countries – international/local operating companies classify according to PRMS
 - Report according to applicable Stock Exchange regulations
- No other Stock Exchange in Africa has any specified mineral reporting requirements.
 - Many mineral company listings are Secondary Listings
 - Exchanges don't see the value of reporting codes
 - Don't see that the reporting codes are relevant to Africa

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BACKGROUND UNFC

- United Nations Framework Classification (UNFC)**
 - Developed by the UNECE in 1997 to provide countries, companies, financial institutions and other stakeholders a futuristic tool for sustainable development of energy and mineral resource endowments.
 - Not a Public Reporting Standard
 - No requirement/definition of Competent Person
 - No requirement for economic viability/commerciality
 - An important tool for global corporate and governmental communication
 - Provides a mechanism for companies/governments to use a standardised internal classification for global mineral inventories
 - Voluntary system
 - Very complex classification system
 - Does not use Mineral Resource/Reserve classification
 - 42 EFC classification categories and sub-classes

FIGURE 1
UNFC Categories and Examples of Classes

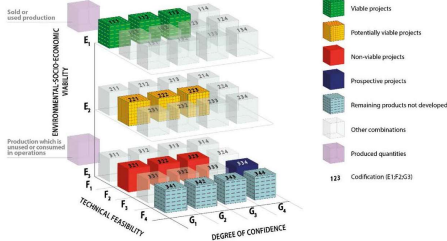



FIGURE 2
Abbreviated Version of UNFC, showing Primary Classes

Total Products	Produced	Sold or used production			
		Class	Production which is unused or consumed in operations ¹		
			E	F	G ²
The project's environmental-socio-economic viability and/or technical feasibility has yet to be confirmed	The project's environmental-socio-economic viability and technical feasibility has been confirmed	Viable Projects ³	1	1	1, 2, 3
	The project's environmental-socio-economic viability and/or technical feasibility has yet to be confirmed	Potentially Viable Projects ⁴	2 ⁵	2	1, 2, 3
	Remaining products not developed from identified projects ⁶	Non-Viable Projects ⁷	3	2	1, 2, 3
	There is insufficient information on the source to assess the project's environmental-socio-economic viability and technical feasibility	Prospective Projects	3	3	4
	Remaining products not developed from prospective projects ⁸		3	4	4

S Henley, 2013 (CRIRSCO & UNFC)

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BACKGROUND UNFC

❑ In 1999 a combined working group mapped CRIRSCO resource categories to corresponding UNFC categories

- Provides a method for governments and NGOs to incorporate published industry data (using the CRIRSCO classification) into databases, mineral inventories, etc.
- Issues with public reporting of non-commercially viable projects

Exploration Results

MINERAL RESOURCES

Inferred

Indicated

Measured

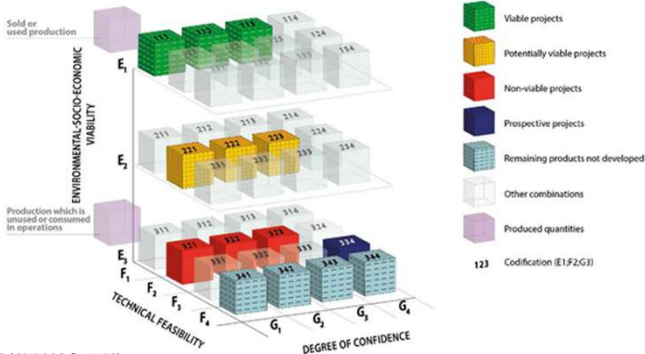
MINERAL RESERVES

Probable

Proved

Increasing level of geological knowledge and confidence

Application of mining, processing, metallurgical, economic, marketing, legal, environmental, infrastructure, social, and governmental factors (the "Modifying Factors").




S Henley, 2013 (CRIRSCO & UNFC)

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BACKGROUND UNFC

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- Issues with public reporting of non-commercially viable projects

❑ 2009 a bridging document to PRMS was developed

	F1.1	F1.2	F1.3	F2.1	F2.2	F2.3	F3.1	F3.2	F3.3	F4
E1.1	1	2	3	4						
E1.2	1	2	3							
E2			4	4	5					
E3.1	12	12	12	12	12	12				
E3.2			6	6	6		8	9	10	
E3.3			7	7	7	7				11

P Dekker, 2019

Discovered	Reserves	On Production	1
		Approved for Development	2
		Justified for Development	3
	Contingent Resources	Development Pending	4
Development Unclassified or On Hold		On Hold	5
		Unclassified	6
Development Not Viable		7	
Unrecoverable		11	
Undiscovered	Prospective Resources	Prospect	8
		Lead	9
		Play	10
	Unrecoverable		11
Special Cases	Defined but not classified in PRMS	12	
	Less Common Mappings		

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**UNFC
AMREC**

AFRICAN MINERAL AND ENERGY RESOURCES CLASSIFICATION AND MANAGEMENT SYSTEM (AMREC)

Management framework to integrate policy, implementation, financial capital, business process and human capability

- Goal of “transparent, equitable and optimal exploitation of [Africa’s] mineral resources to underpin broad-based sustainable growth and socio-economic development”.
- Under the auspices of the AU, AMDC, UNECE and UNECA
- Inspired by the African Mining Vision (AMV)
- Classifications based on UNFC (not CRIRSCO definitions)
 - Solid Minerals, Oil & Gas, Renewable Energy

Purpose:

- Resource policy and strategy formulation (Ministries)
- Government resource management (Geological Surveys, Ministries)
- Capital allocation (Companies)
- Capacity building (all the above)

Africa Mining Vision, Agenda 2063 and Global Agenda 2030

AMREC

PARC

Principles
Generic Specifications
Policy/legislation (Environmental and Social Guidelines)
Compliance/Personnel Guidelines
Best Practices
Partnerships


Reporting/Specifications
Exploration/Resource and Reserve Definitions
Specific Project Guidance
Compliance/Personnel requirements

Hari Tulsidas, Cairo 2017

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UNFC_AMREC vs CRIRSCO

NOT A QUESTION OF COMPETITION OR CHOICE




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Total resource management Vs Public reporting

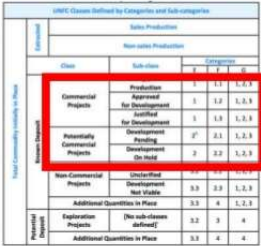
What is the difference?

ENERGY

Total resources



Public reporting



UNFC_AMREC

- Resource management system for governments (countries/state departments) and corporations to **manage total resource inventories**.

CRIRSCO

- Internationally accepted standard of **Public Reporting for investment purposes**
 - Stock Exchanges
 - Private investment
 - Corporate reporting to the State (production reconciliation and royalty payments)

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Harsi Tulsidas, Cairo 2017

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UNFC
AMREC

AFRICAN MINERAL AND ENERGY RESOURCES CLASSIFICATION AND MANAGEMENT SYSTEM (AMREC)

❑ Important tool for global corporate and governmental communication to provides a mechanism for companies/governments to use a standardised internal classification for total mineral and energy resource inventory planning; to support good governance, timely and proactive decision making in resource development

▪ Specifically applicable to government inventories, especially if a unified information system for mineral data is to be pursued through the AMD forum.

▪ Geological Surveys

▪ National statistics archives (Stats SA)





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UNFC
PARC

PAN-AFRICAN RESOURCE REPORTING CODE FOR PUBLIC DISCLOSURE (PARC)

❑ Objectives:

To increase access to global finance (through private/public investment) through an internationally compatible public reporting code.

To allow more (African) geoscientists/engineers to qualify as Competent Persons.

To increase the visibility of African issues.

▪ Combines public reporting procedures for solid minerals, petroleum and renewable energy investments into a single classification scheme

▪ Classifications based on UNFC categories

• Does not use “Mineral Resource/Reserve” terminology

CRIRSCO members as at August 2019



Africa Mining Vision, Agenda 2063 and Global Agenda 2030



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UNFC
PARC

Objectives:

To increase access to finance (through private/public investment) through an internationally compatible public reporting code.

To increase the visibility of African issues.

To allow more (African) geoscientists and/or engineers to qualify as Competent Persons.



Instead of creating/marketing a new public reporting system, choose compatibility with existing, established, internationally accepted system

Bring PARC in line with the CRIRSCO template, using CRIRSCO (Resource/Reserve) definitions, instead of UNFC classifications.

CRIRSCO allows for locally specific content

Keep all the AMV, AMDC and UNECA content to enhance applicability to African issues and challenges

Individual countries could also add local specific requirements

Competent Person Registration

List all the local/regional bodies that would want to apply for RPO status as professional bodies and work at increasing capacity, skills level (including CPD), code of ethics, complaints/disciplinary procedures

Members could qualify as Competent Persons and

Obtain international reciprocity with all applicable Stock Exchange jurisdictions.

Individual countries could join CRIRSCO, if they wish (not required)

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UNFC_AMREC vs CRIRSCO
NOT A QUESTION OF COMPETITION OR CHOICE

Total resource management Vs Public reporting

What is the difference?

ENERGY

Total resources



Public reporting



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UNECE

Hari Tulsidas, Cairo 2017

UNFC_AMREC

Resource management system for governments (countries/state departments) and corporations to manage total resource inventories.

Bridging documents to CRIRSCO/PRMS

CRIRSCO

Internationally accepted standard of Public Reporting for investment purposes

Stock Exchanges / Private investment

Corporate reporting to the State (production reconciliation and royalty payments)

PARC should be amended in line with CRIRSCO template

Accepted by 90% of the listed mining community

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COMPETENT PERSON REGISTRATION & EXPERIENCE

☐Registration with Recognised Professional Organisation (RPO)

- A self-regulatory organisation covering professionals in the mining and/or exploration industries;
 - Admit members primarily based on their academic qualifications and experience
 - Not purely a learned/scientific society (could be a Learned Society with a Professional Membership Category);
- Require compliance with the professional standards of competence and ethics established by the organisation (inclusive of CPD programme); and
- Be able to discipline members and have the power to suspend or expel a member (Code of Ethics/Conduct; C&D procedures)

☐All RPOs must apply with each NRO/Stock Exchange for recognition

☐Experience

- Minimum of *X years* relevant experience in the:
 - Style of mineralisation;
 - Type of deposit under consideration; and
 - Activity which that person is undertaking.
- Various jurisdictions define different lengths of experience required

☐*Notwithstanding, individual Stock Exchanges (NROs) reserve the right to include additional criteria*



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