



# ABIDING BY CODES OF ETHICS AND CODES OF CONDUCT – A TIRESOME FORMALITY OR A WIN-WIN FOR PROFESSIONAL INTEGRITY AND PROTECTION OF THE PUBLIC

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## KEY FEATURES OF ETHICAL CODES

### Day to day personal responsibilities



- The need to treat others with respect
- The need for honesty and integrity
- **The need to present professional work and reports without falsification or fabrication of data, misleading statements, or omission of relevant facts**
- The need to acknowledge limitations to knowledge and understanding and not act outside those limitations
- **The need for keeping privileged information confidential except where doing so constitutes a threat to public health, safety or welfare**



Summary, from **American Geosciences Institute Guidelines for Ethical Professional Conduct** endorsed earlier in the week

(<http://www.agiweb.org/workforce/ethics.html>), of key features of ethical codes (and codes of conduct) representing a consensus view of the AGI and its member societies (including GSL in Europe). Codes conforming to these guidelines are already in place (and have been for many years) and are binding on members of professional geoscience organisations (all members of TG-GGP (<http://tg-ggp.org/>) Geological Society of London ([www.geolsoc.org.uk](http://www.geolsoc.org.uk)) for example). These fall into two groups – those on this slide which set out personal responsibilities and those on the next that set out wider obligations.

## KEY FEATURES OF ETHICAL CODES

### As a member of a professional and scientific community



- Promote greater understanding of the geosciences by other professional groups, the general public, news media and policy makers through effective communication and education
- Inform the public about natural resources, hazards, and other geologic phenomena clearly, accurately and responsibly
- **Use their technical knowledge and skills to protect public health, safety and welfare and enhance sustainability of society.**



## KEY FEATURES OF ETHICAL CODES

### Applicability



- Those who obtain professional qualifications (EurGeol, CGeol, PGeo, CPG etc) make a personal and public commitment to the standards set out in the applicable code

**BUT THEY APPLY EQUALLY TO**

- **All members of the geoscience organisation publishing them**



An explicit commitment to abide by a code of ethics/conduct is made by those who obtain professional qualifications, having been judged by their peers to have reached the necessary standards of scientific/technical competence, to demonstrate commitment to CPD (the reflective practitioner) and to understand their limitations and the principles of professionalism.

Seeing that someone has CGeol, EurGeol, PGeo, CPG etc next to their name on a business card is a shorthand for this commitment having been made and having been endorsed by the person's peers – it sets up expectations of the standards of conduct and professionalism that the person holding the qualification(s) aspires to live up to and against which s/he will be judged.

There is nothing in the codes of ethics/conduct that already exist and/or that may be set up in addition following the AGI guidelines that anyone is likely to object to, but how many members of scientific and professional geoscience organisations truly understand that they are bound by such codes – even if they have not gained professional validation?




I have read and understood the Terms and Conditions	
I have read, understood and always adhere to the Code of Ethics that applies to me	

- How many of us can tick the second box?
- Does it matter if we can't?
- Are Codes of Ethics more relevant for some geoscientists than for others?








The top tick box is one that is very familiar to all of us – how many of us tick that box having read and understood the terms and conditions? Not many – certainly not me. Why? I have a basic trust in the provider of the service I am signing up to – that it will be fit for purpose, will work effectively, will not compromise my security, can be deleted or uninstalled if I no longer require it. I have plenty of experience that this is broadly true and reasonable security arrangements to intercept rogue and dangerous programs, trojans and viruses.

What if the second box were to pop up frequently in our daily work – to be ticked before issuing any report, to be included on emails to clients etc? All of us would be happy with all the concepts in the AGI guidelines and the codes that already bind us (in my case, Geological Society, EFG, IOM3 and one or two others), but would we be ticking the box as a formality or as a genuine statement of commitment to practice our profession (in applied or research or educational settings) in accordance with standards of ethics and professionalism established by our peers through consensus?

# The views of a prominent academic geoscientist



***"It is unambiguously a good thing, in my view, for practitioners of geoscience to be certified according to rigorous professional standards".***

*"Then why have I, along with many others in the academic community, resisted applying for [a professional title] despite having spent 40 years since graduation employed as a geologist and almost as long [as a Member]?"*

*"It's not that I am too lazy, or haven't the time."*



The quotes on this and the following slides are from a 'Soapbox' article in the house magazine of the scientific and professional geoscience society that I belong to. It started well, and I was delighted, as a former Professional Secretary of that institution and as a past President of the European Federation of Geologists, to see such a fulsome endorsement from a well respected academic geoscientist of the work of these organisations to establish and endorse such standards in the UK, Europe and internationally. And then I read on....



*"The body of scientists is a community based on shared principles, ..... held together over the centuries through adherence to ideas about freedom and scholarship, through being persuaded by nothing other than the discovery of what might be called 'fact'."*

*"Scientists ... dissent rather than club together, since this is a signal of freedom to think independently rather than being browbeaten by dogma."*

*"True, scientists do not always live up to these ideals of scholarship and behaviour, but when they fail, it is generally recognized as bad and involves reputational damage."*

***"The academic scientist and the professional are members of different social worlds."***

I found this truly shocking at many levels – the distinction between ‘practitioner’ and ‘scientist’, with the implication that the former needs rules and codes to keep them ‘honest’ whilst the latter group can be trusted to regulate themselves – not even as a group, based on a set of mutual expectations of conduct and behaviour but individually with the incentive of not losing their reputations!










- Do the statements of this eminent geoscientist in the UK represent a widely held view amongst academic geoscientists generally?
- If yes, does it matter?
- Does it follow that codes of ethics do not apply to academic geoscientists?
- Does it follow that academic geoscience has no impact on society, and particularly public safety?

I think it likely that these statements do represent a widely held view and express both the tribalism that exists within geoscience and the unhelpful dislocation between the applied and academic/research communities which are, in fact, inter-dependent and can both benefit from a better understanding of each other:

- We need a wider interpretation of professional geoscientists encompassing both
  - applied/industry practitioners AND
  - Educators and researchers
- Tribalism is unhelpful.....
- Whilst preserving our identities and specialisms, we could usefully see ourselves as part of a system – and become expert at managing the interfaces

I do not blame nor criticise this academic geoscientist for expressing these views – yes, I was shocked, and yes I felt a measure of responsibility having been in senior roles in the Geological Society and the EFG aimed towards fixing the dislocation of the community and promoting professionalism for all geoscience practitioners – educators, researchers, applied practitioners. However, the article is honest, thought provoking, transparent and well written and provides a welcome focus for working hard on persuading the academic community that professionalism (starting with codes of ethics but more widely too) is for them as much as for those of us in applied fields.

- Without understanding the skills and expertise needed by “industry”, how can

educators prepare students for the work-place?

- Without understanding societal needs, how can researchers design research which is truly relevant to those needs?
- Without access to high quality graduates and excellent underpinning research, how can geoscientists in “industry” deliver their expertise effectively?

# Propositions to help us move away from tribalism....



- Without understanding the skills and expertise needed by “industry”, how can educators prepare students for the work-place?
- Without understanding societal needs, how can researchers design research which is truly relevant to those needs?
- Without access to high quality graduates and excellent underpinning research, how can geoscientists in “industry” deliver their expertise effectively?



This slide not in live presentation but added in to reinforce the points underlying the previous slide

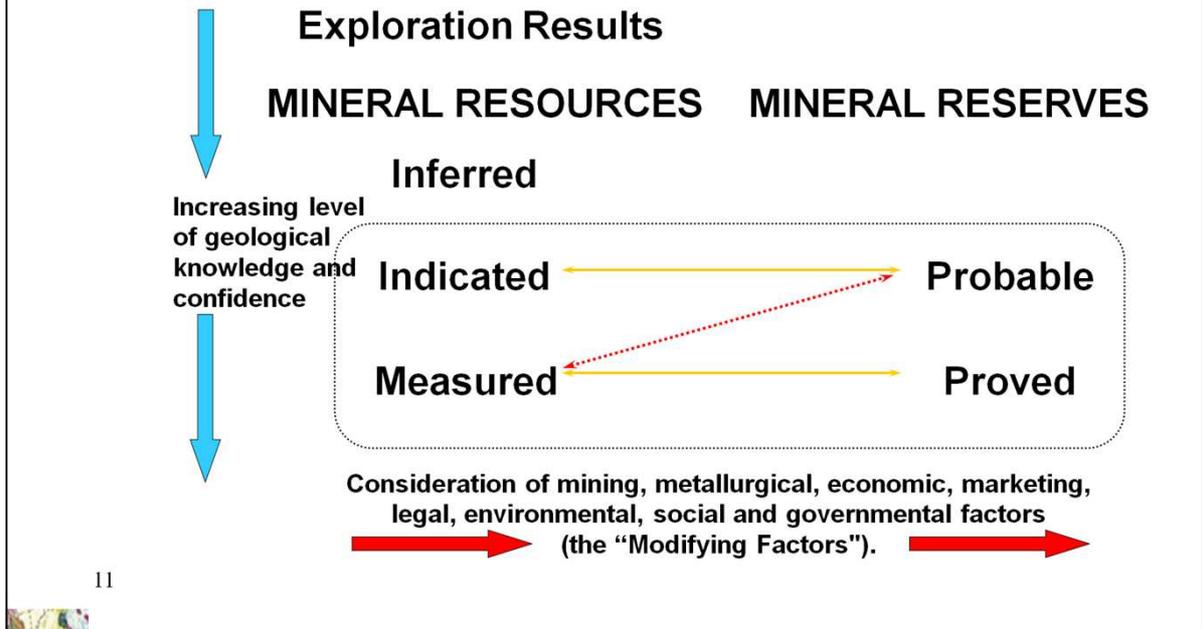


*"It is unambiguously a good thing, in my view, for practitioners of geoscience to be certified according to rigorous professional standards".*

- What should we expect from practitioners of academic geoscience?
  - Competent teaching and training of the academic and non-academic geoscience workforce.
  - Publication of research science that is reliable.
  - Provision of expert scientific advice and information to the public and governments expressed truthfully, transparently, and acknowledging uncertainty.
  - Accountability in the proper use of research funding and responsible influence over how it should be allocated.
  - .....

Returning to the first of the statements in the article: “It is unambiguously a good thing, in my view, for practitioners of geoscience to be certified according to rigorous professional standards”, and taking on the proposition (also articulated by Nic Bilham in his presentation) that all those who work in the geosciences are ‘professionals’, including academics, let’s look at what we might expect from practitioners of academic geoscience.

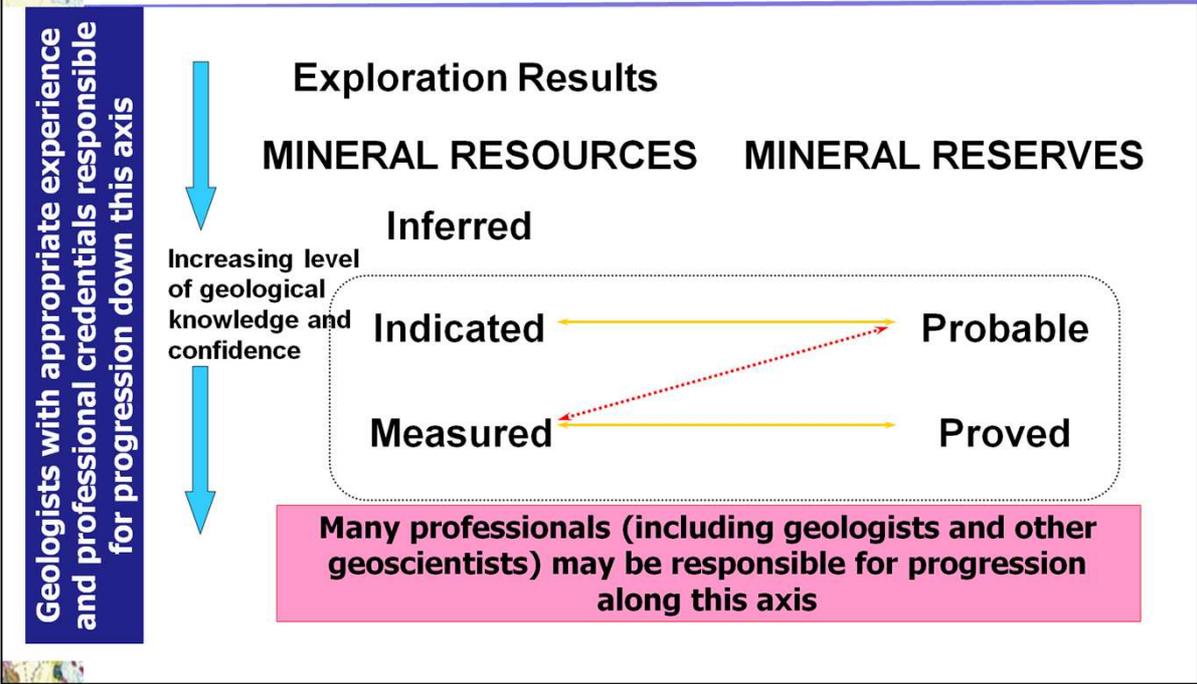
# Classification of resources and reserves CRIRSCO template



Example of a framework, underpinned by law and regulation, that imposes on geoscientists and others duties, responsibilities, and standards of behaviour that are rooted in adherence to codes of ethics and the concept of living up to, and being judged by, norms of professionalism established by our peer group. The purpose of setting these reporting standards and the precise vocabulary and definitions within them is to provide protection to the public – in this case investors in mining and exploration and who are entitled to receive relevant, transparent, accurate and material information about the operations and prospective operations they are investing in.

This is a classification framework established by CRIRSCO (<http://www.criresco.com/welcome.asp>) for the reporting of solid mineral exploration results, resources and reserves. This standard setting organisation is a voluntary, peer to peer based organisation bringing together national solid minerals reporting organisations in a range of countries. CRIRSCO and the NROs (PERC is the European member – [www.PERCstandard.eu](http://www.PERCstandard.eu)) are run by volunteers from national and international professional geoscience organisations and organisations representing mining engineers (and in some countries mineral valuers).

# Classification of resources and reserves and the professionals involved



Here you see the professional responsibilities for the classification and for progression from one class to another. The words ‘indicated resource’, ‘proved reserves’ etc have very precise definitions which are set out in, and common to, all the codes and standards in the CRIRSCO family. Note that it is the responsibility of geoscientists to increase the level of geological knowledge and confidence, however progression from resources (deposits having “reasonable prospects for eventual economic recovery”) to reserves (deposits where economic recovery is demonstrated to be feasible) is the responsibility of an inter-disciplinary team – including geologists and other geoscientists. The professional skill necessary to work in interdisciplinary environments, avoiding each professional or group of professionals working independently of each other in ‘silos’ without permeable boundaries and ensuring feedback and iteration through project management is key to success.



**WHO IS COMPETENT TO  
DECIDE AND REPORT?  
HOW DO WE KNOW WE CAN  
TRUST THEM?**

**COMPETENT PERSON  
CONCEPT**



Underlying the CRIRSCO family of codes and standards is the Competent person concept.

## Competent person in the CRIRSCO codes and standards



- Professional member at an approved minimum level (e.g. CGeol, EurGeol, MIMMM, CEng, PGeo) of an approved institution with **an enforceable code of ethics**, a **disciplinary procedure** allowing suspension or expulsion and **a CPD scheme**

### AND

- Minimum of **five years' up to date experience**, at an appropriate level of seniority, which is **relevant** to the type of deposit under consideration and to the activity which that person is undertaking



Note that it is not sufficient to be a member of a professional geoscience organisation at the appropriate level – that is the minimum entry requirement for working as a Competent Person in this arena of professional geoscience practice. The second part is what differentiates a person who has cleared a particular hurdle and made commitments to CPD and codes of ethics from a genuine expert with expertise and experience not only in the technical and scientific areas of activity but also in the reporting of these in according to the standards set out in the CRIRSCO codes and standards and enshrined in National laws and regulations relevant to the public reporting of solid mineral assets. ESMA in Europe.



Working within such a framework helps to ensure that all the professionals involved live up to ethical and professional expectations enshrined in the codes of ethics/codes of conduct established by consensus amongst peers and constantly monitored, developed and kept under review by the National Reporting Organisations and CRIRSCO itself. PERC is leading the way in the development and promotion of training for established Competent Persons and aspiring Competent persons to provide support for practitioners to truly live up to the standards expected.

A set of codes and standards might be extremely helpful in academia to promote a ‘competent person’ concept for teaching, research, and public communication of geoscience expertise, advice and opinion? Or in relation to natural hazards – common and expected standards for the reporting of risk to the public and decision makers and for the way results, assumptions and models are reported in academic papers perhaps?

The AGI initiative that has resulted in the guidelines for ethical codes and similar initiatives to develop codes of ethics tailored to the academic and research communities are a great start on this to bring to the academic and research communities the opportunities and challenges of professionalism. But remember my tick box – just signing up to ‘motherhood and apple pie’, is not really enough.

Guidance and training are also key – exciting work relating to excellence in

geoscience teaching at universities headed by Sharon Mosher (smosher@jsg.utexas.edu) at University of Texas under the umbrella of the National Science Foundation (NSF) in the USA: <http://www.jsg.utexas.edu/events/future-of-geoscience-undergraduate-education/>, summarised below:

Geoscience research and undergraduate education have and are undergoing a transformation – it is time for us as a geoscience community to take a critical look at what we want our students to know and be able to do when they graduate and how best to accomplish this important task. The 2014 NSF-sponsored *Summit on the Future of Undergraduate Geoscience Education* (see below) made major progress towards developing a collective community vision for undergraduate geoscience education ([Summary Report](#)). *Please help us continue this process by providing your views through an online [Survey](#) and by participating in a Town Meeting or Hall this fall.* Your perspective is important so that we can further refine, evaluate and assess ongoing efforts to implement this developing vision.










# Why is acceptance of the 'competent person concept' an ethical issue in mining?

The following photos and caption just give a flavour of what can go wrong in mining due to failures in 'competence' – generally not a calculation that is incorrect – more often a failure to check, a failure to attend to iteration and the gaps between disciplines through poor project management that keeps professional disciplines in silos and fails to join them up. All but the last relate to public safety – the last relates to a famous fraud – nobody died (except the perpetrator of the fraud who fell from an aircraft – jumped??).

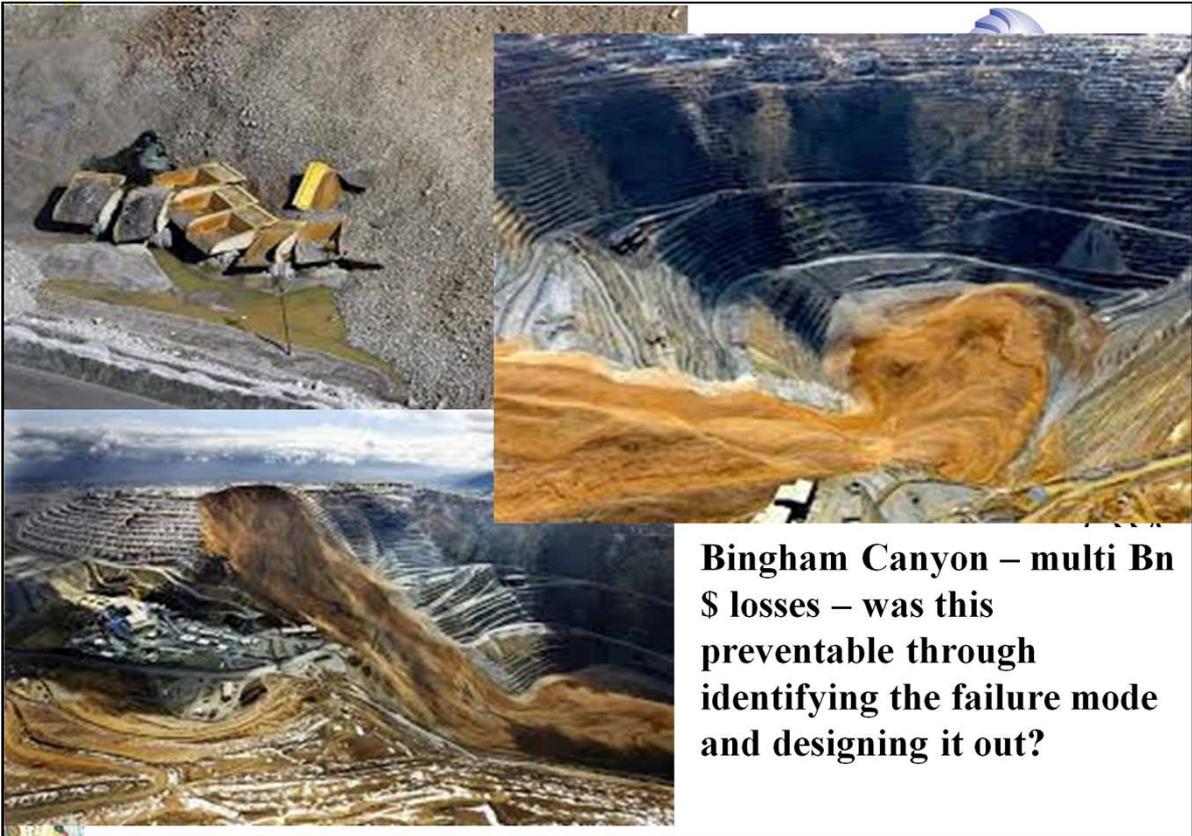


October 1966 –  
Aberfan tip 7  
failed leading  
to 144 deaths,  
mostly children

**A key moment in history. The birth of British safety legislation relating to mine waste safety and important in the early years of geotechnics and professionalism in geoscience. **Technical failure.** **Institutional failure to act on warning signs on grounds of cost.****

**Operational design failure,  
training/management failure –  
death. Failure of competence....**





**Bingham Canyon – multi Bn \$ losses – was this preventable through identifying the failure mode and designing it out?**



**Hungary – a failure of design, or supervision or regulation – or all?**



## Aspects of public protection through competence of geoscience professionals - mining



- Money – other people's
- Public safety
- Environmental protection
- Resources for now and the future
- Workforce safety and livelihoods
- Local and national economies





- Isn't the same list relevant to:
  - Publication of research papers on which others may rely to make policy or commercial decisions?
  - Participation in government to formulate policy and regulation?
  - Teaching in schools and universities?
  - Preparing students for academic and non academic careers?
  - Providing reliable, truthful and understandable public comments and expert testimony on geoscience?
  - Making proper use of public money for research and influencing its allocation?



**THANK YOU FOR YOUR ATTENTION**



**To request slides or find out more:  
about geoscience professionalism:**

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