



## Geoconservation versus legislation and resources policy: New achievements, new questions—Comment on Cairncross (Resources Policy, 2011) The National Heritage Resource Act (1999): Can legislation protect South Africa's rare geoheritage resources?

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### ARTICLE INFO

#### Article history:

Received 22 August 2011

Received in revised form

10 December 2011

Accepted 10 December 2011

Available online 4 January 2012

#### Keywords:

Geoconservation

Legislation

Geological heritage

Mineral resources

Museum

### ABSTRACT

In his recent article, Cairncross identified problems with legislation relevant to the conservation of national geological heritage. This permits us to pose some more general questions, which are not addressed in the noted contribution. The example given by Cairncross indicates some pitfalls linked with the “all-inclusive” nature of legislation in which geological heritage is mixed with cultural heritage. Are such laws really helpful? Even if they are inevitable, they should be prepared with great caution. Moreover, it appears sensible to discuss whether particular geological objects or geodiversity as a whole should be legally conserved. Cairncross also proposes the interesting idea of a special fund/agency for purchasing rare mineral specimens for museums. This raises a set of questions about selection criteria for minerals to be purchased, types of market to be dealt with, number of fund/agency staff, necessary financial resources, and the administration of such purchasing schemes. Broad multi-stakeholder debates are necessary in order to establish the proposed fund/agency and to facilitate its efficient work.

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### Introduction

Geoconservation, or the conservation of geological heritage, is aimed at the efficient management of the geological environment for the purposes of science, education, and tourism. The whole approach and its particular methods create new challenges for mineral resources policy. The rapid growth of geoconservation and geotourism in the past two decades (Wimbledon et al., 1995; Wimbledon, 1996; Barettono et al., 1999, 2000; Gray, 2004, 2008; Prosser et al., 2006; Dowling and Newsome, 2010; Prosser et al., 2011) has complicated our judgements about how law responds to geological phenomena. The new article by Cairncross (2011), which is addressed below, is a significant achievement toward understanding the mismatch between the real needs of geoconservation and law-/policy-making. Cairncross provided an in-depth analysis of the pitfalls of geoconservation-related legislation, taking mineral collecting (in a broad sense) in South Africa as an example. The problems that he realized identified are not unexpected (e.g., Ruban and Kuo, 2010).

Like other thoughtful and innovative articles that represent significant achievements and extend our vision, the article by Cairncross (2011) stimulates the reader to think more about the subject its author addresses. The true importance of this article goes far beyond just mineral collecting and the South African legislation. I do not have any principle disagreement with Cairncross's considerations, and, therefore, this comment will not be critical. But it appears very important to me to pose some conceptual and practical questions in order to develop Cairncross's ideas. These questions arise when the case examined by Cairncross (2011) is projected onto international *in situ* and *ex situ* geoconservation practice.

### Conceptual questions

Cairncross (2011) argued that excessive legislation and restrictions are dangerous for the exploitation of *ex situ* geological heritage resources and, in particular, mineral collecting. But his considerations are also relevant for discussions of whether “all-inclusive” law is *in fact* helpful.

The National Heritage Resources Act (Act No. 25 of 1999, see on-line [www.polity.org.za/article/national-heritage-resources-act-no-25-of-1999-1999-01-01](http://www.polity.org.za/article/national-heritage-resources-act-no-25-of-1999-1999-01-01)) used in South Africa seems to be a

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kind of “all-inclusive” law, because it is not focused specifically on geological heritage, but addresses all cultural heritage, as Cairncross (2011) explained. In other countries, geoconservation practice is also based (at least partly) on laws that are not aimed at only geological objects. This occurs, for instance, in the USA, where the Antiquities Act (1906; see on-line <http://www.nps.gov/history/local-law/anti1906.htm>) is used to designate protected natural monuments with spectacular (unique, rare, etc.) geological features. In the United Kingdom, with its famous geoconservation traditions (see the review in Prosser et al. (2006)), the National Parks and Access to the Countryside Act (1949; see on-line <http://www.legislation.gov.uk/ukpga/Geo6/12-13-14/97>) and the Wildlife and Countryside Act (1981; see on-line <http://www.legislation.gov.uk/ukpga/1981/69>) are used for similar purposes. In contrast, Russia has a strikingly different experience. In addition to other laws, the Federal Government edited the Government Act No. 900 (“On specially protected geologic objects with scientific, cultural, esthetic, medical, and other importance”) in 2001. This law permits the designation of specifically geological heritage sites, which are distinguished from other natural heritage sites. However, Russian geoheritage sites are also conserved within other protected areas like nature monuments, nature reserves, or national parks (Morozov et al., 2005).

The analysis presented by Cairncross (2011) demonstrates that the National Heritage Resources Act of South Africa fails in establishing an efficient policy for *ex situ* geological heritage because of these main reasons:

- the cultural significance of geological specimens is unclear;
- rarity of geological specimens has a very subjective meaning; and
- basic geological terms (e.g., the term “mineral”) are defined differently than in other legal acts.

Taken together, these reasons imply that the South African law does not treat geologically specific features properly. In other words, it does not address the real needs of geoconservation, because it has far broader aims and tasks, namely the protection of all cultural heritages. This is an example of where a law seems to be deficient because of its “all-inclusive” nature, i.e., it mixes different types of national heritages. This example demonstrates that further discussions are necessary in order to conclude whether special geoconservation-related laws, as opposed to some “all-inclusive” laws, should be preferred. But the same example shows that even if a positive answer is in the end given to this conceptual question, the “all-inclusive” laws should be prepared with a great caution and with the participation of experts in geoconservation.

One may suggest that the National Resources Act of South Africa fails to deal with geological heritage objects simply because of the unclear definition of terms and/or poor advising by specialists in geoconservation. Whether or not it is “all-inclusive”, an act that is likely to be a success if it is (1) clear about where it is prescriptive and where there is scope for interpretation, (2) drafted with input from appropriate specialists, (3) clear in its definitions, (4) consistent and compatible with other existing legislation, and (5) resourced in terms of its implementation. In fact, this is so. But the more “all-inclusive” that laws are, the more difficult it is both to provide clear definitions of terms used, as well as to involve specialists from all fields of knowledge considered by these laws. Therefore, it is its “all-inclusive” nature that complicates the preparation of really useful legislation.

Nonetheless, “all-inclusive” acts also may be helpful for geoconservation. For instance, if these acts treat geological heritage in the same terms as cultural heritage or biodiversity, they promote an increase in public concern about unique

geological objects. “All-inclusive” legislation also permits the use of available mechanisms of legal regulation for use (protection, conservation, trade, public access, etc.) for these objects, while also allowing for the development of joint action frameworks with regard to the national or regional heritage as a whole. Finally, modern geoconservation tends to establish close links with biological conservation, as the concept of geodiversity is co-developing with the concept of biodiversity (Gray, 2004, 2008; Reynard et al., 2009; Ruban, 2010). The logical conclusion, therefore, would be to aim country-scale legislation at all natural resources with no legal separation of geological and biological heritage. Thus, I would even say that “all-inclusive” laws are inevitable. However, at all stages of their development, possible pitfalls linked with their “all-inclusive” nature should be well understood and avoided. For instance, it is possible to draft an act at a general level, but specify that the detailed interpretation of the act can be decided by another body in consultation with the appropriate stakeholders. Further, it may be sensible to refer to the conservation of ‘rare’ fossils and then to state that a panel of experts from certain museums or geological bodies will be asked to determine what is meant by ‘rare’ as part of the operational guidance necessary to implement the act. An act must, however, be clear as to what it is prescribing and where it is leaving the interpretation of the act to others.

And there is yet another conceptual question. Cairncross (2011) discussed pitfalls in the legal conservation of particular geological specimens. But geological heritage also constitutes geodiversity. Despite differences in the definition of this category (Gray, 2004, 2008; Reynard et al., 2009; Ruban, 2010), there is an agreement that geodiversity is something more than a simple sum of unique objects. Similarly, biodiversity is not just a quantity of plants and animals. If so, *is it possible that laws aimed at geodiversity as a whole would be more efficient than laws aimed at particular types of geological features*, whether portable (like fossils and minerals) or not (volcanoes, stratigraphic sections, etc.)? Answering this question requires a broad discussion.

## Practical questions

Concerning the pitfalls of the available legislation with regard to rare mineral specimens, Cairncross proposed to “establish a fund/agency to purchase such specimens if and when they appear on the market and then donate these to the South Africa’s national geological museums” (Cairncross, 2011, p. 211). This is a fascinating idea, which deserves close attention. I have five simple practical questions on this matter: *what, where, who, how much, and how?*

The first question is about what mineral specimens to purchase. Rarity has a very subjective meaning as Cairncross (2011) demonstrates successfully. Given this, it will not be so simple to decide which specimen deserves to be purchased and which does not. This problem may be solved if the fund/agency has clear guidelines for its actions. But more important is to fulfill the needs of the museums. Some of them may have similar rare specimens, whereas others may be interested in only specific minerals. Some museums are full research institutions, whereas others are aimed at only exhibitions for a broad public. In other words, the fund/agency will need to establish a well-developed cooperation with all museums in the country. This is, probably, not so difficult as it appears.

Perhaps the second question (i.e., “where?”) is the most difficult to answer. The market is not a simple thing. It may be legal or illegal; it may be local, national, or international; it may be off-line or on-line. Where should mineral specimens be purchased? For example, would the fund permit buying illegally? And what about in cases in which there is a risk of damaging or loosing of a really unique mineral? Additionally, the development

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