Bioprospecting and Governance Regimes in Polar Regions: A Comparative Analysis of Existing Law and Policy Regimes and Options for the Future

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Abstract

Bioprospecting is rapidly emerging as a significant issue in Antarctic diplomacy, international law and policy. The response of the international community to this issue has significant implications for the future of scientific research in Antarctica. This paper outlines a two year research project examining international law and policy issues associated with the question of bioprospecting in Antarctica being undertaken by the author at the United Nations University-Institute of Advanced Studies. The project involves a comparative study of law and policy regimes in relation to bioprospecting in both the Arctic and Antarctic regions. This paper covers the following aspects of this project: (1) the significance of the emerging debate in relation to regulation of bioprospecting for Antarctic science; (2) a brief overview of the debate to date; (3) the rationale for a comparative analysis of both the Antarctic and the Arctic; (4) the key objectives and expected outcomes of this research.

1. Introduction

Despite being an isolated and extreme environment Antarctica has over time become the focus of a range of commercial activities. Activities such as whaling, sealing, fishing, mining and tourism have at one time or another been either actual or proposed commercial activities in Antarctica and the Southern Ocean. All of these commercial activities are now either regulated, restricted or prohibited outright under international law, including under the suite of international treaties known collectively as the Antarctic Treaty System.

Bioprospecting or the search of the biodiversity of Antractica for genetic or biochemical resources for commercial purposes is the latest commercial activity to raise challenges for environmental governance in Antarctica. Bioprospecting is rapidly emerging as a major issue for nations that are party to the Antarctic Treaty System and for the international community more broadly.

2. The significance of the debate for Antarctic Science

Scientific interest in and research in relation to the Antarctic can be traced back at least to the middle ages if not before (Budd 2001). More recently the success of international cooperation in the International Geophysical Year (1957-58) and beyond laid the foundations for the emergence of the novel international legal regime that applies to all human activities in Antarctica.

The importance of scientific research in Antarctica is explicitly recognised by the 1959 Antarctic Treaty which provides for freedom of scientific research in Antarctica. Under the Antarctic Treaty and subsequent legal instruments scientific research in Antarctica is acknowledged as of universal benefit to humanity. In that regard the Antarctic Treaty goes on to provide for the promotion of science in Antarctica through international co-operation and the free exchange of information regarding plans for scientific research in Antarctica, exchange of personnel and the free and open dissemination of the results of observations and research in Antarctica.

In addition under the Antarctic Treaty Antarctica may only be used for peaceful purposes and is effectively free from military activities. Nuclear weapons testing in Antarctica is also effectively outlawed under international law. One of the most common causes of international disputes, claims to territory have also been effectively shelved for over 60 years by an innovative mechanism

introduced by Article IV of the Antarctic Treaty which effectively freezes all claims and potential claims to Antarctic territory.

Over the past half century or more the whole governance mechanism for the Antarctic has been built on the "implicit assumption…that somehow Antarctic science was a thing apart, a means of benignly meeting national interests in real-estate, sovereignty, resource potential. It was international, generally sharable and collaborative" (Hemmings and Rogan-Finnemore 2005). But changing patterns of scientific research in Antarctica fundamentally challenge this assumption.

The new era of "genome enabled" biology in Antarctica offers new possibilities across a wide range of disciplines including systematics, microbiology, ecology, evolutionary biology, physiology, biochemistry and molecular biology (U.S. National Research Council 2003). But with these new opportunities come new challenges for the management of scientific research in Antarctica. The increasing commercialization of Antarctic research and in particular the emerging interest of the biotechnology industry in Antarctica's possibilities potentially challenges a major assumption upon which international governance in Antarctica is built.

3. The debate to date

The core concerns associated with the commercialization of Antarctic science centre on the potential environmental impact of bioprospecting, how to regulate access and benefit sharing in relation to genetic resources, and the possible impact of such regulation on freedom of scientific research (Jabour-Green and Nicol 2003). A related issue is what impact bioprospecting has on territorial claims to Antarctica and in particular the ability of States claiming territory in Antarctica to regulate bioprospecting in marine areas immediately adjacent to such claimed areas (Rogan-Finnemore 2005).

To date the most detailed examination of the issue occurred at a workshop hosted in New Zealand in April 2003, the outcome of which was a detailed publication which introduces various aspects of the debate including the reasons for scientific and commercial interest in Antarctica's biodiversity, as well as discussion of some of the commercial, environmental, ethical and legal questions posed by the issue (Hemmings and Rogan-Finnemore 2005; see also similar discussion in Jabour-Green, J., and Haward, M 2001). In addition the question of bioprospecting in Antarctica has been examined at some length in Academic literature across a number of disciplines including law (for example see Francioni and Scovazzi 2006), science policy (for example U.S. National Research Council 2003) and economics (Herber 2006). Of course the biotechnology potential of Antarctic biodiversity has been understood by the scientific community for a considerable period before its emergence on the policy agenda. (For an overview of this potential see for example Cavicchioli et. al 2002).

More recently a number of detailed studies of the issue have been carried out by the United Nations University-Institute of Advanced Studies. These studies have assisted policy makers active in Antarctic affairs by consolidating much of the existing literature into a number of easily accessible reports. In addition to examining the key issues in this debate, these reports have also provided policy makers with useful framework information on the nature of the biotechnology industry and the extent of its interest in Antarctica's genetic resources. (see for example Lohan and Johnston 2005)

Within diplomatic and policy circles the question of bioprospecting in Antarctica has been formally considered at meetings associated with the Antarctic Treaty Systems since 1999 (Hemmings and Rogan-Finnemore 2005). Despite being an issue of interest to several nations to date no formal steps have been adopted within the Antarctic Treaty System to regulate bioprospecting in Antarctica. In fact the only formal recognition of the issue to date was the adoption of Resolution 7 of the 28th Antarctic Treaty Consultative Meeting in Stockholm in 2005. A detailed examination of Resolution 7 is not possible in a short paper such as this but in summary Resolution 7 vaguely alluded to the fact that the principles of freedom of scientific research and co-operative management of Antarctica by the international community

may potentially conflict with the commercialization of science in Antarctica. Resolution 7 then went on to recommend to governments that they draw to the attention of their national Antarctic programmes and other research institutes engaged in bioprospecting the provisions of Article III of the Antractic Treaty. Resolution 7 also recommends governments continue to keep the issue under review and exchange information and views on the issue on an ongoing basis.

4. Why a comparative analysis?

In large part the reluctance of the international community to address the issue to date is due to the fact that there is still relatively little information available on the existing scale and potential of bioprospecting in Antarctica. Simply put policy makers need more detailed information on the issue before they move to regulate this new commercial activity in Antarctica. Indeed no firm consensus has emerged yet that regulation is in fact required.

A number of States active in Antarctica are also states with considerable interest in Polar affairs in the Northern Hemisphere. Canada, the USA, Norway, Russia, Denmark, Sweden, and Finland as well as being active in Antarctica are also Arctic States. A number of the Arctic States have regularly suggested that the Antarctic Treaty System could benefit from consideration of the experience of Arctic States and peoples in dealing with issues relating to environmental governance. This research aims to test this hypothesis with a particular focus on the emerging issue of bioprospecting in Polar Regions.

While both Polar Regions share many similarities, there are also many significant differences. Large high seas areas in both regions present major challenges for the sustainable management of Polar ecosystems and resources. On the other hand there are significant differences between both regions. The contested territorial claims to coastal jurisdiction in the Antarctic can be contrasted with the largely settled territorial boundaries in the Arctic (although some disputes do remain). Similarly the longstanding close kinship to land and sea of indigenous inhabitants in many Arctic nations means legal regimes dealing with bioprospecting must recognise the rights and interests of indigenous communities, a challenge not confronted in Antarctica due to the absence of any permanent human population.

In spite of the differences between Antarctica and the Arctic, and because of their similarities, the Arctic experience is arguably directly relevant to the emerging debate on bioprospecting in Antarctica. Understanding the nature and extent of commercial interest in the genetic resources of the Arctic should help us to understand whether commercial interest in Antarctic genetic resources is more than just a momentary diversion from the "pure science" [sic] upon which the framework of Antarctic governance is built. Secondly, the way in which Arctic legal and policy systems have dealt with the bioprospecting question within their respective jurisdictions might also provide some guidance on what issues the Antarctic regime will need to tackle and the possible challenges ahead. Finally and perhaps indirectly, examination of the Arctic experience for Antarctic purposes could also highlight areas of reform needed in Arctic jurisdictions.

5. Key objectives and expected outcomes of this research

The key objective of this research is to test the hypothesis of the relevance of the Arctic experience to the debate on bioprospecting in Antarctica. It aims to make a timely contribution to debate on a major emerging issue for Antarctica in the International Polar Year 2007-2008. In summary the research seeks to address the following questions:

(1) What is the nature and extent of bioprospecting in the Arctic?

(2) To what extent is it possible to distinguish between scientific research and bioprospecting in the Arctic and Antarctica?

(3) How have Arctic legal systems both domestically and internationally responded to the issues associated with bioprospecting including
   (i) environmental impact;
   (ii) access and benefit sharing;
   (iii) the impact of regulation on scientific research.

(4) What implications does bioprospecting hold for territorial claims (especially those associated with marine jurisdiction) in the Arctic and the Antarctic?
(5) What difficulties have been experienced in regulating bioprospecting in the Arctic? How have these been overcome?
(6) What is the nature and extent of bioprospecting in the Antarctic?
(7) To what extent are there similarities and or differences between bioprospecting in the Arctic and bioprospecting in the Antarctic?
(8) Based on the Arctic experience, what options are available for regulating bioprospecting in the Antarctic?

As part of this process the writer seeks the views of scientists active in Antarctic research as to the relevance of the Arctic experience and bioprospecting in Antarctica more generally. Participants in this symposium who might be interested in sharing their views on this issue are encouraged to approach the author directly at this symposium or via email at the address noted above.

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