



Reflections on Bioprospecting in Polar Regions

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What is Bioprospecting?

- **There is no agreed definition**

- United Nations Secretary General wrote:

"It is difficult to differentiate scientific research from commercial activities involving genetic resources, commonly referred to as bioprospecting. In most cases, genetic resources are collected and analysed as part of scientific research projects, in the context of partnerships between scientific institutions and industry. It is only at a later stage that the knowledge, information and useful materials extracted from such resources enter a commercial phase. The difference between scientific research and bioprospecting therefore seems to lie in the use of knowledge and results of such activities, rather than in the practical nature of the activities themselves.^[1]

^[1] A/60/63/Add.1, para 202, 15 July 2005

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- United Nations Secretary General later wrote:

“...While there is no universally agreed definition of bioprospecting, the term is generally understood, among researchers, as the search for biological compounds of actual or potential value to various applications, in particular commercial applications. This involves a series of value-adding processes, usually spanning several years, from biological inventories requiring accurate taxonomic identification of specimens, to the isolation and characterization of valuable active compounds. As a mere prospecting activity, bioprospecting is only the first step towards possible future exploitation and stops once the desired compound or specific property has been isolated and characterized....”^[1]

^[1] A/62/66, para 150, 12 March 2007

General Assembly Discussion



- Though not all States have been in full agreement with the understandings as expressed in Secretary General's Reports, I propose that we consider bioprospecting to be the search for and collection of genetic materials and their study with the goal of commercialization of those genetic materials. As suggested by the Secretary-General, the difference between scientific research and bioprospecting may hinge on intent, that is whether the study is promote human knowledge of itself or whether the intent is to seek to derive commercial profit from that knowledge.

Arctic/Antarctic



- Commonalities: extreme cold, parallel natural light cycles.
- Differences: Arctic centered on an ocean surrounded by landmasses; Antarctica is a continent surrounded by ocean.
- Arctic territories are subject to national sovereignty; in Antarctica seven countries have put forward claims, but those claims are not recognized by others.
- The Arctic long settled by indigenous peoples with rights to resources and extensive cultural knowledge of those resources. No permanent human settlements in Antarctica.
- Because of differences in circumstances, the Arctic and Antarctica will be considered separately.

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Arctic, UNCLOS, CBD



- 4 of 5 Arctic coastal states are parties to UNCLOS, CBD.
- UNCLOS provides framework for all human activities in the world's oceans, and thus the Arctic Ocean, to include bioprospecting. Much of the Arctic Ocean is subject to national jurisdiction. States under Article 76 of UNCLOS may present data with respect of extended continental shelves. Once this process completed and the limits to the shelf established by Arctic coastal states on the basis of recommendations of the Commission on the Limits of the Continental Shelf, these boundaries will be known.^[1]
- CBD applies within national jurisdiction and for processes and activities outside of nat. jurisdiction.
- ^[1] There may remain some uncertainty with respect of disputed maritime boundaries, of which there are several in the Arctic. Also sovereignty over Hans Island is currently disputed.

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UNCLOS: Beyond National Jurisdiction



- Distinction as to whether bioprospecting is in the water column (the high seas) or on the ocean floor or seabed (the Area) because UNCLOS makes a distinction in the management of these zones.
- At UN apparent that states have differing views on the legal regime that governs genetic resources in these zones.
- Some are of the view that marine genetic resources in areas beyond national jurisdiction are the common heritage of mankind and should be managed for the benefit of all.
- Others are of the view that the collection and use of these resources is a high seas freedom.
- Some make a distinction between resources in the water column, whose collection they see as a high seas freedom, and resources on or below the seabed, which they see as belonging to the Area and subject to collective management and benefit through the International Seabed Authority or another body.

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Antarctica



- Antarctic Treaty of 1959 and Protocol on Environmental Protection of 1991 govern actions in the Antarctic Treaty Area (south of 60°S) for states that are party to them and their ships and nationals.
- Article VI of the Antarctic Treaty provides that nothing in the Treaty shall prejudice or in any way affect the rights of any state with regard to the high seas in the area. Thus, for states not party to the Antarctic Treaty UNCLOS rights and obligations apply.
- The issue of bioprospecting is more complicated in Antarctica because of the claimant issue.

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Antarctic Treaty



- Under Article VII of Antarctic Treaty all parties to provide advance notification of all expeditions (ships or nationals), and organized in or proceeding from their territory.
- From this flows obligation to conduct an environmental impact assessment procedure in advance of any proposed activity in Antarctica.
- Thus, all expeditions to Antarctica from Treaty parties are subject to advance notification and EIA procedure.
- Article III of Antarctic Treaty provides that "to the greatest extent feasible and practicable" "information regarding plans for scientific programs in Antarctica shall be exchanged to permit maximum economy of and efficiency of operations" and that "scientific observations and results from Antarctica shall be exchanged and made freely available".
- Parties adopted Resolution 7 at ATCM 28 in 2005 recognizing link between scientific research, bioprospecting and the obligation in Article III that scientific observations and results from Antarctica to be exchanged and made freely available.

Convention on Biological Diversity



- For seven claimant states, with respect of their vessels and nationals in areas that they claim both UNCLOS and the Convention on Biological Diversity apply.
- Thus, claimants may be of the view that they should be able to benefit from genetic resources in areas subject to their claims.

CCAMLR



- If bioprospecting includes harvesting of fin fish, molluscs, crustaceans and all other species of living organisms, including birds, then CCAMLR may apply and any CCAMLR party would have to notify the CCAMLR Commission and seek a conservation measure before allowing such harvesting to go forward.

CCAS



- If harvesting involves seals, then the Convention for the Conservation of Antarctic Seals may apply.

Protocol on Environmental Protection to the Antarctic Treaty

- Annex II of the Protocol addresses conservation of Antarctic fauna and flora.
- Under this Annex, a permit is necessary for any taking, which include the capture of any native mammal or bird or the removal or damage of native plants in quantities such that their local distribution or abundance would be significantly affected.
- Harmful interference prohibited without a permit and this prohibition is defined to include “any activity that results in the significant adverse modification of habitats of any species or population of native mammal, bird, plant or invertebrate”.
- Restrictions under Annex II to the Protocol do not presently apply to the taking of microbes.
- However, in areas designated as Antarctic Specially Protected Areas (ASPAs) under Annex V nothing may be collected or removed without a permit.

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CRAMRA Model?

- At 2006 ATCM 29 meeting, France submitted information paper entitled “In search of a legal regime for bioprospecting in Antarctica”
- Raised issue of who might be competent authority to authorize bioprospecting.
- Noted that Article IV of the Antarctic Treaty in effect froze territorial claims, and that there may be a divergence of views with respect of sovereign rights and access to resources and genetic materials.
- Suggested that common rules should apply to the issuance of authorizations for bioprospecting and noted parallel issue with respect of the issuance of operating permits for mineral resources activities.
- CRAMRA, adopted in 1988 but never entered into force, provided for a permitting system that took into account various positions and interests with respect of territorial claims.
- Paper suggested that the regime foreseen under CRAMRA could provide a model for bioprospecting.

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Antarctica: Possible interim way forward 1



- As bioprospecting includes scientific research as a preliminary step, Antarctic Treaty parties should ensure that all expeditions organized in or by their ships or nationals or proceeding from their territory provide advance notification, conduct environmental impact assessment procedure and ensure that their scientific observations and results are exchanged and made freely available.
- Patents should not be available for naturally occurring genomes as these are not “new and novel” as foreseen under various rules and conventions overseen through WIPO.
- Left unresolved is issue of sharing of benefits.
- For marine areas, solution may be through measures under CCAMLR.
- For land areas or if decided that CCAMLR not the competent authority, then it may be necessary to devise a management and consent scheme based on chambered voting as foreseen in CRAMRA.

Antarctica: Possible interim way forward 2



- Further complication with respect of marine areas is that claimants and non-claimants have divergent views on territorial sovereignty and thus on sovereignty and jurisdiction over marine zones.
- Antarctic Treaty was signed in 1959, thus predates UNCLOS and agreements on limits of maritime zones (territorial sea, EEZ, extended continental shelf).
- To regulate marine bioprospecting as other than marine scientific research may require a resolution of these divergent views, which in turn would be complex and difficult.

Antarctica: Possible interim way forward 3



- Practical and prudent approach to ensure that results of scientific observations, to include investigations of marine genetic resources, be exchanged and made fully available and to accept that the publication of that scientific knowledge is a public benefit for all.
- Some may argue that this removes economic incentive for bioprospecting in Antarctica. However, an entity could still develop a product or a process from this freely available information generated from Antarctica, that product or process could then be patented and commercialized.
- In an earlier era, most Antarctic research funded through national academies and foundations to promote basic scientific knowledge. Though perhaps not in tune with current Zeitgeist, still a good model.
- Governments should be encouraged to return to it and not seek to capture benefits from basic research through commercialization.
- De-linking basic research from development could defuse concerns about bioprospecting in Antarctica.

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Arctic: UNCLOS



- For Arctic areas beyond national jurisdiction (high seas and in the Area), clear divide as to whether these genetic resources are governed under Part XI of UNCLOS as common heritage of mankind and subject to a benefits-sharing regime through ISBA or some other body, or whether these genetic resources are subject to Part VII of UNCLOS and are part of a high seas freedom regime.
- May take some years for all states to elaborate and discuss views and find a solution that all can accept.
- Possible interim and practical approach would be to recognize that marine bioprospecting builds on marine scientific research, thus subject to Part XIII of UNCLOS.

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Arctic: UNCLOS Part XIII



- Part XIII of UNCLOS focuses on marine scientific research
- Lays out principles and rules for MSR
- MSR in territorial sea, EEZ and on extended continental shelf must be conducted with the consent of the coastal state^[1]. Coastal state has sovereignty over the resources of its territorial sea and sovereign rights over the natural resources in its EEZ.
- On extended continental shelf, the coastal state has sovereign rights to explore and exploit its natural resources, to include the mineral and other non-living resources of the seabed and subsoil and the living organisms of sedentary species on or under the seabed. As likely impossible to conduct bioprospecting on or under the seabed without affecting those rights, coastal state consent also implied to conduct bioprospecting on extended continental shelf.^[2]

^[1] With respect of the extended continental shelf, the coastal state should not exercise its discretion to withhold consent to marine scientific research except in specific areas publicly designated for exploration or exploitation of natural resources for a reasonable time. See UNCLOS art 246(6)

^[2] If an entity moved beyond bioprospecting and wished to collect living resources to harvest them for use, under UNCLOS the coastal state has an obligation under Art. 62 to allow other states access to any surplus of an allowable catch within its EEZ for which it does not have the capacity to harvest. No such obligation exists with respect of living organisms of sedentary species on the extended continental shelf.

Arctic: Possible interim way forward 1



- Thus, drawing from Part XIII, the conduct of marine scientific research based on certain principles to include:
 - for peaceful purposes,
 - not unjustifiably interfere with other legitimate uses of the sea,
 - that it does not constitute the legal basis for any claim to any part of the marine environment or its resources,
 - that it respect the protection and preservation of the marine environment and,
 - that the resulting knowledge be published and disseminated.

Arctic: Possible interim way forward 2



- Health of the world's oceans continues to deteriorate.
- Some immediate steps that states should take now, and that Arctic countries should propose for the Arctic Ocean and related seas:
- Require operators to notify an appropriate national authority (science ministry, oceans ministry, national science academy) of any proposed research activities.
- Post these notifications on a web site, which in turn would help to avoid duplication of effort and promote cooperation among researchers.
- Require a prior environmental impact assessment, which would also be posted, operators to address any comments received.

Arctic: Possible interim way forward 3



- Research then goes forward, with appropriate monitoring for harmful effects, as necessary.
- Resulting knowledge would be published and disseminated, in conformity with UNCLOS. Any commercialization could then follow.
- With respect of benefit sharing, the publication and dissemination of knowledge could in the interim serve as a benefit until such time as the debate is concluded on whether or how to share benefits from marine genetic resources in areas beyond national jurisdiction.
- Immediate emphasis should be on conservation of those resources and their management for this and future generations.



Thank you

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