

Contact Information

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Career Stage (select one): **High School Student**

Brief Biography

You should answer the following questions in 300 words or less:

- Describe the stage of your career and why you feel you fit the ‘early career’ status.

I am a junior attending Korean Minjok Language Academy, a boarding school in South Korea. I am in the early preparation stage of my career. I hope to continue gaining knowledge, experience through internships, and exploring areas that I am interested in, especially environmental studies.

- What are your career objectives?

I want to be a lawyer specializing in the environment or human rights.

- What is your interest in the Antarctic Treaty System?

I have always been interested in the ecosystems of polar region, which I consider the last frontiers on earth. The Antarctic Treaty System has thus far performed an important role preserving Antarctica. But the world is rapidly developing, and commercial interests are threatening once protected areas. Thus, I believe the Antarctic Treaty and protection of Antarctic are timely issues.

- What else should we know about you?

I have volunteered for the UNEP (the United Nations Environment Program) in Korea, and I am also an active member of “Root and Shoot,” the environment club at my school.

ESSAY

2. What is the largest challenge the Antarctic Treaty System will face in the next 50 years, and how can scientists and policy-makers work together to start overcoming that challenge?

Our world's polar regions face grave threats. Twenty years ago, the Exxon Valdez poured 24 million gallons of crude oil into Prince William Sound in Alaska. While much of the area has recovered, a testament to the restorative powers of nature, declining populations of harbor seals, ducks, and herring remind us of how fragile these ecosystems can be. And a broader consensus on the negative effects of global warming has drawn attention to the plight of the polar bear and shrinking sea ice. In both cases, it is clear that human activity, emissions of greenhouse gases, and especially commercial interests - such as oil and gas exploration - are the main culprits in threatening these ecosystems.

Lesser known to the broader public are the challenges that the Antarctic region is facing. Isolated, and with little human population, Antarctica exemplifies the adage that "out of sight is out of mind." Its harsh weather and geography makes it nearly inhabitable for humans, and its seeming lack of resources has thus far limited commercial exploitation. In fact, a main focus of the Antarctic Treaty is that the Antarctic be used for scientific and peaceful purposes. The danger during the Cold War, when the Treaty was enacted, was that the area would be exploited for military purposes or nuclear testing. While the Cold War has ended, the Antarctic Treaty System remains, seemingly providing ample protection for the area. However, this is likely to change in the next 50 years, as researchers and companies realize the potential commercial value of this last frontier.

Biotechnology and pharmaceutical companies, in addition to public and private institutions, are becoming more interested in bioprospecting extremophiles - organisms that can survive the extreme conditions of the Antarctic. A discovery could lead to development of new drugs or synthetic chemicals. The commercial potential is enormous, and while any discovery could benefit mankind as a whole, it is important to protect the fragile ecosystem with regulations and oversight.

According to the Convention on Biological Diversity, an international treaty, each country is responsible for preserving its biological diversity and utilizing its biological resource through sustainable development. However, Antarctica is a unique case, for The Antarctic Treaty denies any claim to territorial sovereignty in Antarctica. All of mankind, therefore, has the responsibility to preserve and utilize the biological diversity of the Antarctic. Research shows that many products (anti-freezer proteins, anti-cancer drugs, and enzymes) that are sourced from Antarctic genetic resources are already being marketed by a number of companies.ⁱ Therefore, there is a gap between the Antarctic Treaty influence and activities which can harm the ecosystem. In addition, there is the ambiguity of research zones and rights. The Antarctic Treaty should establish an efficient solution which can fill up the gap and protect fragile Antarctica from unrecoverable damage.

The fact that biological prospecting deals with microorganisms and genetic resources which can be collected in small amount in Antarctica and mass-cultivated in other places creates enormous legal and policy challenges. While biological prospecting may cause less destruction to the environment than perhaps oil drilling, it can produce additional legal conflicts in regards to benefit sharing, patent, and intellectual property. Thus, scientists and policy-makers should be prepared to address legal and intellectual property issues.

About twenty eight countries have undertaken research with actual or potential commercial applications in the Antarctic environment, and more than one hundred companies and organizations involved in commercially-oriented research of Antarctic genetic sources.ⁱⁱ Therefore, it seems that the tentatively named “Antarctic Science and Research Organization for Biological Prospecting (ASROBP)” should be immediately established to keep any patent and ownership regarding Antarctic extremophiles under the international community as a whole. Any country should not be allowed to undertake research individually, for the bioprospecting should be an international effort. Also, the ASROBP can establish a company or organization that manages the profit earned from any commercialized products using the knowledge from ASROBP. All profit can be used for Antarctica and for the interest of international community.

This united scientific and commercial organization will keep not only the commitments of the Antarctic Treaty honored but also manage the sustainable development of Antarctica. Scientists can exchange information and data more efficiently, avoid duplicating research (which can be a burden to Antarctica’s fragile environment), and the whole international community can benefit from products of the Antarctic extremophiles. Everyone on Earth has ownership in Antarctica. Thus, as an international community, it is our responsibility to manage and protect, as well as responsibly benefit, from this amazing ecosystem and resource.

ⁱ Intergovernmental Meeting of Experts on Biological Prospecting in the Antarctic Treaty Area, Draft Working Paper: The Antarctic Biological Prospecting Database, 21 January 2009.

ⁱⁱ Working Paper for XXXII ATCM: A Gap Analysis of the Antarctic Treaty System Regarding the Management of Biological Prospecting