

## United Nations Environment Programme

### Welcome

Dear Delegates,

Welcome to BUSUN 2010 as delegates to the United Nations Environment Programme. I hope you are as excited as I am to spend the next few days devising innovative solutions to the some major environmental problems facing the world today. But first, here's a little bit about me.

My name is Dan Towne, and I will be acting as the Chair of this committee, which is, in the real world, led by Executive Director Achim Steiner. I am currently a junior at Brown, but I joined Brown MUN last year and this is my first BUSUN conference, so I'm really excited to work with all of you! I am an International Relations and East Asian Studies double concentrator, interested especially in political economy and development.

Please take the time to read through this background guide, since in it you will hopefully find information that will help you learn about the topics we will be dealing with and provide some guidance for any research you undertake on your own. The guide is only meant to give a general introduction to, and background information on the UNEP and the particular issues that we will be discussing so that you can arrive at BUSUN ready to hit the ground running. Remember though, the conference is what you make it, so taking the time to find some impressive facts and figures of your own will definitely pay off!

If you have any questions, please feel free to email me at [UNEP@busun.net](mailto:UNEP@busun.net). I look forward to reading your position papers and meeting you all in November!

Best,  
Dan Towne

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### Committee History

**Mission:** To provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations.

Founded in June 1972 as a result of the Stockholm Conference (also known as the United Nations Conference on the Human Environment), the UN's first major conference on international environmental issues, the United Nations Environment Programme is responsible for coordinating the UN's environmental activities and helping developing nations to implement sustainable and eco-friendly environmental policies. UNEP is headquartered in Nairobi, Kenya, and has regional offices in six other nations.

UNEP activities typically include developing international environmental conventions; promoting the coordination of environmental science with policy; helping countries to develop, fund, and implement environmentally friendly policies; and implementing environmentally sound development policies.

In the past, UNEP has dealt with issues like international trade in harmful chemicals, the contamination of international waterways, and international air pollution. Specific successful projects have included solar loan programs in rural India and the negotiation of the Montreal Protocol. UNEP also publishes many reports, atlases, and newsletters that provide important information and analysis for policymakers.

The United Nations Environment Programme website is <http://www.unep.org/>.

### Topic 1: Waste Management in Space Background

Space debris is currently emerging as a critical environmental issue that must be dealt with in the twenty-first century. Since mankind's first explorations of space, we have left debris in geosynchronous (GEO) and low earth (LEO) orbits. Space debris consists of man-made objects in orbit around Earth that no longer serve any purpose and pose collision risks. Examples of space debris include defunct satellites, used rocket stages, paint flakes, coolant, and debris released from other collisions. Another source of debris was the anti-satellite (ASAT) weapons testing by the U.S. and U.S.S.R. in the '60s and '70s, as well as a 1985 test by the U.S. and a 2007 test by China.<sup>1</sup>

The vast majority of space debris are small particles like paint flakes and rocket fuel slag. These particles can cause erosive damage to spacecraft, similar sandblasting. Most spacecraft, with the notable exceptions of telescopes and solar panels, can be protected from these small particles with a thin layer of foil on the exterior of the spacecraft. The parts of spacecrafts that cannot be protected in this way are subject to constant wear and tear.

This foil layer, called a Whipple shield, is currently the only way to protect spacecraft from space debris collision damage. This means that debris with a diameter of 1 cm or more must be maneuvered around in order to avoid a collision. However, this requires knowing the precise orbital path of the piece of debris, and current technology can only track debris with a diameter of 5 cm in low earth orbit and 50 cm in geosynchronous orbit. Since the earliest days of the space race, the North American Aerospace Defense Command (NORAD) has maintained a database of rocket launches and the debris they create. This is the most

complete data set available, though it has been proven to under-represent the actual amount of space debris, due to technological limitations.<sup>2</sup>

When collisions with larger pieces of debris occur, new debris is created, increasing the environmental hazards of space travel. Once a certain amount of debris accumulates in orbit, the rate of creation of new debris from collisions will exceed the natural forces removing debris from orbit, and a chain reaction will reduce all objects in orbit to debris, rendered Earth orbits basically unusable. Scientists have coined the term "Kessler Syndrome" to describe this phenomenon.<sup>3</sup>

#### Current Situation

According to the National Academy of Sciences, most scientists agree that the critical density for causing the Kessler Syndrome has already been reached for objects in LEO. A 2006 NASA model predicted that the space environment would maintain its current level of debris until 2055, when the amount of debris would begin to increase on its own due to the Kessler Syndrome. Currently more than 13,000 close calls are tracked every week.

There is no international treaty on behavior in space aimed at the space debris growth mitigation, though international guidelines have been established by the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS). However, NASA and the European Space Agency (ESA) have introduced their own procedures to minimize the creation of new space debris. The ITU currently requires satellites in GEO to be able to move themselves to a "graveyard orbit" at the

<sup>1</sup> "Space Debris," by David Wright, *Physics Today*, Vol. 60, No. 10, October 2007, pp. 35-30 (Copyright 2007, American Institute of Physics).

<sup>2</sup> Hoots, Felix, Paul Schumacher Jr. and Robert Glover. "History of Analytical Orbit Modeling in the U. S. Space Surveillance System." *Journal of Guidance Control and Dynamics*, Volume 27, Issue 2, pp. 174-185

<sup>3</sup> "Space Debris," by David Wright, *Physics Today*, Vol. 60, No. 10, October 2007, pp. 35-30 (Copyright 2007, American Institute of Physics).

end of their lifetimes, though this has been proven to be insufficient to protect GEO orbits from debris. Other proposed solutions have included tethers and sails to slow objects down and cause their orbits to decay, bringing them back to Earth at the end of their usefulness, a ground-based laser that would sweep debris into decaying orbits, and cleaning up debris with a remotely controlled spacecraft. However, none of these options is currently cost-effective.

#### Further Reading

- [http://ptonline.aip.org/journals/doc/PHIOAD-ft/vol\\_60/iss\\_10/35\\_1.shtml?bypassSO=1](http://ptonline.aip.org/journals/doc/PHIOAD-ft/vol_60/iss_10/35_1.shtml?bypassSO=1)
- [http://news.nationalgeographic.com/news/2006/01/0119\\_060119\\_space\\_junk\\_2.html](http://news.nationalgeographic.com/news/2006/01/0119_060119_space_junk_2.html)
- <http://orbitaldebris.jsc.nasa.gov/faqs.html#3>
- <http://orbitaldebris.jsc.nasa.gov/library/references.html>

## **Topic 2: Conservation of Mineral Wealth in the Middle East**

### Background

The Middle East contains significant mineral resources in the form of aluminum, iron, steel, and phosphate rock. Specifically, aluminum is present in Bahrain and the UAE, iron and steel are mined in significant quantities in Iran and Saudi Arabia (and to a lesser extent Oman, Syria, the UAE, and Qatar). Saudi Arabia also produces phosphorite, an industrial mineral used in metallurgy.

### Current Situation:

The recent construction boom in the Middle East has been responsible for greatly increasing the demand for these mineral resources, as they are the raw materials needed for the metals and other industrial materials used in construction. This rapid increase in

demand for mineral resources has led to questions about the conservation of such resources, the sustainability of the region's current growth, and the environmental impact of such large-scale mining operations.

In Israel, a land rich with diverse natural resources, the Society for the Protection of Nature in Israel has headed many public campaigns to conserve the environment, including the creation of the Israel Nature and Parks Authority. Israel has had many successes in reforestation and other efforts to preserve its diverse ecosystems.

For purposes of comparison, here is some information about other mineral conservation efforts around the world. The United States, for example, has developed an extensive bureaucracy to manage its natural resources. The Bureau of Land Management is responsible for managing the millions of acres of federal land and also of significant subsurface mineral resources on private land. The BLM implements utilitarian conservation policies that promote indefinite use of resources at levels that incur no environmental degradation. The Office of Surface Mining Reclamation and Enforcement coordinates state and federal efforts to lessen the adverse effects of coal mining.

For some detailed information on land rights, mineral management, and conservation, please read this presentation from the Black Canyon Land Trust: [http://www.blackcanyonlandtrust.org/BCLTpoints/BCLT\\_Severed\\_Mineral\\_Rights.pdf](http://www.blackcanyonlandtrust.org/BCLTpoints/BCLT_Severed_Mineral_Rights.pdf)

### Further Reading:

- <http://www.answers.com/topic/land-mineral-wildlife-and-forest-conservation>
- [http://www.mfa.gov.il/MFA/MFAArchive/2000\\_2009/2001/9/Focus%20on%20Israel-%20Nature%20Conservation%20in%20Israel](http://www.mfa.gov.il/MFA/MFAArchive/2000_2009/2001/9/Focus%20on%20Israel-%20Nature%20Conservation%20in%20Israel)

### Topic 3: Protection of Biological Diversity in the Tropics

#### Background

Preserving Earth's biological diversity is extremely important for human survival. Biodiversity serves as a measure of the health of the planet. Diversity of living organisms supports the planet's ecosystems and enables them to continue providing what we at UNEP call "ecosystem services," i.e. maintenance of air quality and climate, water purification, pollination, and erosion prevention. These services are critical especially for poor people and those living in areas of low agricultural productivity, where maintenance of biodiversity is therefore an important part of sustainable development. Biologically diverse ecosystems also provide food, medicine, timber, and fuel, and are the basis for a variety of industries that are important to the world economy.<sup>4</sup>

The planet's most biologically diverse areas are concentrated in the tropics and include for example rainforests in Puerto Rico, Costa Rica, and Nicaragua; Amazonian rainforests in Brazil and Venezuela; dry deciduous forests in western Madagascar and South Africa; and rainforests in eastern Madagascar.

#### Current Situation

Over the course of recent history, these regions have experienced an unprecedented increase in the rate of species extinction. This is in part because they have been exploited for their natural resources in ways that are often harmful to biodiversity, for example slash-and-burn agricultural practices. An acronym for the main causes of biodiversity losses is HIPPO: Habitat destruction, Invasive species, human over Population, and Overharvesting. Other important factors stem from human overpopulation, for example deforestation, air, water, and soil pollution, and climate change.

The 1972 UNESCO World Heritage convention first established biological resources as a common heritage of mankind. The 1992 Convention on Biological Diversity is an international legally binding treaty that commits signatories to conserve biological diversity, use biologically diverse resources sustainably, and share benefits arising from genetic resources fairly and equitably. The treaty has 193 parties; the U.S. signed but never ratified it.<sup>5</sup> However, the U.S. has implemented many of the treaty's provisions by creating things like species recovery programs.

Many approaches have been taken to conserving biodiversity. These include creating gene banks, "biodiversity banking," eradicating invasive exotic species, reduction of pesticide use, preservation of rural lands, and reintroduction of indigenous species. The transnational migration of many species can complicate these efforts. This issue is especially in focus for us now because UNEP has declared 2010 to be the International Year of Biodiversity.

#### Further Reading:

- <http://unep.org/themes/biodiversity/>
- <http://www.unep.org/iyb/>
- <http://www.iucn.org/>
- <http://www.cbd.int/>

<sup>4</sup> <http://unep.org/Themes/Biodiversity/About/index.asp>

<sup>5</sup> <http://www.cbd.int/>