Dear Delegates,

We are pleased to welcome you to the 2016 Washington State Model United Nations (WASMUN)! This year's United Nations Environment Programme (UNEP) staff is: Director Sarah Brenden, Assistant Tyler Lincoln, and Chair Isabel Nelson.

The topics under discussion for UNEP are:

I. Sustainable Development in the Arctic
II. The Disproportionate Impact of Climate Change and Sea Level Rise on Coastal Regions

The United Nations Environment Programme plays a unique role within the United Nations, as the leading global environmental authority. In this role, UNEP sets the global environmental agenda and promotes coherent implementation of sustainable development policies within the United Nations system.

We hope you will find this Background Guide useful as it serves to introduce you to the topics for this committee. It is not meant to replace further research and we highly encourage you to explore in-depth your countries' policies and the Bibliography to further your knowledge on these topics.

We wish you all the best for your preparation for the Conference and look forward to seeing you at the conference!

Sincerely,

Sarah Brenden, Director

Tyler Lincoln, Assistant Director

Isabel Nelson, Chair

Introduction

The UN Environment Programme (UNEP) was first suggested in 1972 at the United Nations Conference on the Human Environment in Stockholm, Sweden in response to growing global environmental concerns. UNEP was officially recognized six months later as an official United Nations (UN) body with its primary headquarters located in Nairobi, Kenya[1].

Mandate, Structure, Powers, Functions

UNEP reports to both the General Assembly and the Economic and Social Council.

Regarding structure, UNEP can be categorized into four components: United Nations Environment Assembly of UNEP[2]; Secretariat; Environment Fund; and the Committee of Permanent Representatives. In addition, UNEP is composed of seven sub-programs which address the topics: Climate Change, Disasters and Conflicts, Ecosystem Management, Environmental Governance, Chemicals and Waster, Resource Efficiency as well as Environment Under Review[3].

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[1] UNEP, *Historical Background*, http://www.unep.org/post2015/About/tabid/133025/Default.aspx

[2] UNEP, *Governance,* http://www.unep.org/about/sgb/Default.aspx
[3] UNEP, *Home, http://www.unep.org*

Serving as the UN's primary advocate for environmental change, UNEP works to monitor the status of the global environment and recommend policies accordingly. To promote the implementation of sustainable policies, UNEP works to develop attainable methods and strengthen both national and international institutions in the management of the environment. In addition, UNEP is responsible for supplying specialized scientific knowledge associated with environmental policy to Member States[4]. UNEP in funded on a voluntary basis, primarily from sources such as the Environment Fund, the Technical Cooperation Trust Funds, the UN Regular Budget, as well as donations from the private sector and individuals[5].

Membership and Procedure

Initially, UNEP was comprised of 58 members, however since 2012, this number has expanded to include all Member States. As of 2014 the General Assembly has determined that the United Nations Environment Assembly of the UNEP (UNEA) will meet biannually for the purpose of setting the global environment agenda and planning for the future of UNEP[6].

Current Works and Important Items

Alongside the 7 subprograms, UNEP is committed to initiatives such as the Green Economy (GEI) which partners with governments in an effort to move towards greener and more sustainable economies through policy reform[7]. Additionally, UNEP continues to promote the outcomes of the 2012 UN Conference on Sustainable Development (UNCSD), also known as Rio+20 which aimed to strengthen and secure global political commitment to sustainable development and plan for the future of the environment[8]. Currently, UNEP is focused on the development and implementation of the Post-2015 Sustainable Development Goals (SDGs). While UNEP stresses the importance that all SDGs must be achieved in a sustainable manner, Goal number 7 to "Ensure Environmental Sustainability" remains at the forefront of the UNEP agenda due to its prioritization of the environment[9].

Conclusion

UNEP has continued to expand and develop since its inception in 1972, and increases in relevance as issues concerning the environment steadily rise to the forefront of global attention. With commitment to sustainability from Member States, UNEP will play a key role in the 2016 UN system.

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[4] UNEP, *Priorities, http://www.unep.org/about/Priorities/tabid/129622/Default.aspx*
[5] UNEP, *Funding, http://www.unep.org/about/Funding/*
[6] Encyclopedia Britannica, *United Nations Environment Programme,* http://www.britannica.com/topic/United-Nations-Environment-Programme
[7] UNEP, *Priorities, http://www.unep.org/about/Priorities/tabid/129622/Default.aspx*
[8] UNEP, http://www.unep.org/rio20/About/tabid/101530/Default.aspx
[9] UNEP, *UNEP and the Post-2015 Agenda, http://www.unep.org/post2015/About/tabid/133025/Default.aspx*

I. Sustainable Development in the Arctic

Introduction

The Arctic region surrounding the North Pole is characterized by its geographical makeup of large ice sheets and harsh weather conditions which have been rapidly changing due to the effects of climate change[10]. According to the United Nations Framework Convention on Climate Change (UNFCCC) Climate Change "means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods"[11]. The eight Arctic countries with territorial claims consist of Canada, Denmark (including Greenland and Faroe Islands), Finland, Iceland, Norway, Russian Federation, Sweden, and the United States as recognized in the Arctic Environmental Protection Strategy (APES) of 1991[12]. The trend of climate change and global warming has caused the retreat of both sea and land ice at a faster rate than anticipated by the Intergovernmental Panel on Climate Change (ICC)[13]. There has been an increase in Greenhouse Gas (GHG) emissions through the thawing of the permafrost, which causes methane and organic carbon release as permafrost layers are softened and the pockets of gas within them opened to surface air[14]. Further environmental consequences of these changes include, rising sea levels, habitat degradation, and species loss and release of damaging natural chemicals[15].

Territorialization of the Arctic has taken place by individual states since 1925 with Canada's Amendment to the Northwest Territories Act, which made Canada the first Member State to claim a part of the Arctic Circle as it's the territory[16]. In 1991 APES was established as a declaration to protect the environmental integrity of the Arctic and two years later the Protection of the Arctic Marine Environment (PAME) was created as a working group to uphold the declaration[17]. The Arctic Council was established in 1996 as an international forum for the eight Arctic countries to encourage cooperation and coordination of policy around the region, with a historical emphasis on scientific and environmental developments[18].

There has been no official division of Arctic territory to the eight Arctic countries through the United Nations (UN). There have been several petitions the most recent being from the Russian Federation in 2015 for exclusive control of parts of the region through the provisions of the UN Convention on the Law of the Sea (UNCLOS)[19]. This provision is still under consideration by the Commission of the Limits of the Continental Shelf (CLCS), but there is much contention over their validity in that the area they are claiming is claimed by several other actors and is beyond their 200 nautical mile limit under UNCLOS[20]. The changes in the Arctic are affecting maritime trade and shipping routes, and opening the opportunity for the development and extraction of the large oil and gas reserves in the region[21]. The emerging

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[10] UNEP Year Book 2013, *The View From The Top: Searching for responses to a rapidly changing Arctic,* 2013, p. 19
[11] UN Framework Convention on Climate Change, Article 1
[12] UNEP, *Regional Profile: Arctic Region,* http://www.unep.org/regionalseas/programmes/independent/arctic/
[13] UNEP Year Book 2013, *The View From The Top: Searching for responses to a rapidly changing Arctic,* 2013, p. 19
[14] ibid, p. 22
[15] UNEP, *New Awareness of and Opportunities for UNEP to Address Climate Change in the Arctic,* 2013, p. 4
[16] Prince of Whales Northwest Heritage Center, *History of the Name of the Northwest Territories,* http://www.pwnhc.ca/territorial-evolution-of-the-northwest-territories/
[17] UNEP, *Regional Seas Program: Arctic Region, p. 2* *http://www.unep.org/regionalseas/programmes/independent/arctic/instruments/r_profile_pame.pdf*
[18] UNEP, *New Awareness of and Opportunities for UNEP to Address Climate Change in the Arctic,* 2013, p. 8
[19] UN Division for Ocean Affairs and the Law of the Sea, *Commission on the Limits of the Continental Shelf (CLCS) Outer limits of the continental shelf beyond 200 nautical miles from the baselines: Submissions to the Commission: Partial revised Submission by the Russian Federation*, 2015
[20] International Business times*, Russia submits claim over Arctic and North Pole to UN citing scientific proof,* 2015. http://www.ibtimes.co.uk/russia-submits-claim-over-arctic-north-pole-un-citing-scientific-proof-1514616
[21] UNEP, *New Awareness of and Opportunities for UNEP to Address Climate Change in the Arctic,* 2013, p. 10

possibilities of large oil extraction operations and expedited shipping lanes through the melting in the region also increase risks of pollution and oil spills in the delicate environment[22].

The current Arctic development structure revolves around the eight Arctic countries and that must be expended to further include global governance structures to change the tide of melting and mitigate the development of the region. However, this issue goes far beyond the eight arctic countries, limiting the lifestyle of indigenous groups native to the region[23]. A notable reduction of biodiversity in the Arctic has accelerated through habitat loss and fragmentation, pollution, overharvesting of wildlife, and shifting seasonal cycles[24]. The rising sea level particularly though sea ice melt "contribute up to 40 percent of the average 3mm of global sea level rise per year"[25] that affects nations around the globe. The issue at hand is globally pivotal to the changing environment due to climate change and UNEP must work towards collaborative agreements towards sustainable development and environmental protection[26].

International Framework

The Arctic Council is the forerunning forum for policy on the arctic as it is comprised of the eight Member States with territorial claims to the Arctic Circle through UNCLOS. The Arctic Council was founded with the signing of the Ottawa Declaration in 1996 following the sentiment of the APES declaration[27]. The Arctic Council works with observer bodies such as indigenous groups[28], UNEP, and civil society organizations (CSOs)[29] to gather scientific data on the changing region and to create policy for those most affected by these changes. A majority of the Council's collaborative work is carried out through six working groups are mandated to work on separate environmental and development issues including PAME and the Arctic Monitoring and Assessment Program (AMAP)[30]. In 2013 The Arctic Council Secretariat (ACS) was established with goal of improving coherency and efficiency of the body, and changes between the Member States on a two year cycle[31]. In 2011 the Arctic Council passed the Nuuk Declaration which included, the *Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic*, the first legally binding document from the body[32]. This increase in legitimacy for the agreements made by the Arctic Council is explained by the rapidity of the changes experienced in the region. Other Arctic Member States have seen the treaties as a way to achieve better coordination on the changes faced by the region.[33]

The United Nations Convention on the Law of the Sea (UNCLOS) was written in 1982 as a means of determining a set of maritime regulations including exclusive economic zones[34], the regulation of international waters[35], and the protection of marine environments[36]. UNCLOS is not entirely in direct reference to arctic policy, but many of its provisions play a prominent role in arctic policy such as Part I

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[22] ibid, p. 5
[23] UNEP Year Book 2013, *The View From The Top: Searching for responses to a rapidly changing Arctic,* 2013, p. 28
[24] Ibid, p. 23
[25] Ibid, p. 23
[26] UNEP, *New Awareness of and Opportunities for UNEP to Address Climate Change in the Arctic,* 2013, p. 32
[27] Arctic Council, *Declaration on the Establishment of The Arctic Council: Joint Communique of the Governments of the Arctic Countries on the Establishment of the Arctic Council, 1996*
[28] UNEP, *Yearbook 2013: Emerging Issues in Our Global Environment,* 2013, p.32
[29] Ibid, p, 48
[30] Arctic Council, Working Groups, 2016, http://www.arctic-council.org/index.php/en/about-us/working-groups
[31] Arctic Council, *Host Country Agreement Between The Kingdom of Norway and The Arctic Council Secretariat on the Legal Status of the Secretariat and the privileges and immunities of the Secretariat and its Staff Members,* 2013
[32] Arctic Council, *Nuuk Declaration on the Seventh Ministerial Meeting of the Arctic Council*, 2011
[33] American Society of International Law, *Increasing Relevance of Treaties: The case of the Arctic*, 2014
[34] *The United Nations Convention on the Law of the Sea,* 1982, art. 55-59
[35] Ibid, art. 242
[36] Ibid, art. 145

which deals with the determination of maritime borders and Part XI that addresses development of resources and the protection of marine environments[37]. These provisions define the area of the region that the state has claim to legally within maritime law as well as the restrictions of action particularly within the extraction of resources and development of infrastructure within said region[38]. There are distinctions within the treaty on the difference of regulations on water zones and of the continental shelf which involves the resources within the sea bed[39].

The Exclusive Economic Zones (EEZ) are of particular importance in the development of the arctic in that they expand the 12 natural miles from the coast line that states are allowed to include in their territorial sea[40]. EEZs allows States to petition for use of economic zones up to 200 nautical miles from the state borders for "exploring and exploiting, conserving and managing natural resources"[41] The EEZ also provides regulations on environmental protection particularly with the preservation in biodiversity.

Indigenous Rights Frameworks have also played a major role in Arctic policy creation in that the region houses the native land of several communities within the border regions of several Arctic Member States[42]. Arctic indigenous peoples have been given the status of permanent participants and states require their consultation in all decision making, particularly in negotiating practices on ancestral land[43]. Within the Council there is an Indigenous Peoples Secretariat (IPS) as a support for the many native organizations with participant status through providing them with materials and avenues to push their goals[44]. A strong tool for these groups is the 2007 Declaration on the Rights of Indigenous Peoples which focuses on their right to have the faculty to participate in "strengthen[ing] their distinct political, social and economic" systems[45]. While cooperation of some governments and corporations is promising the environmental changes are driving traditional food sources out of ancestral lands and the prospect of oil is threatening their autonomy[46].

Committee Specific Action

There is no Convention within UNEP for the Arctic region as of yet, but there has been much cooperation within regional bodies such as the Arctic Council to determine the best practices for the preservation of the environment[47]. Previous internal discussion on the topic of the Arctic includes Decision 22/11 which the UNEP Governing Council adopted in 2003 regarding increased engagement in the region with continuous assessment of emerging issues[48]. This decision also urges the body to work more closely with the Arctic Council on pertinent issues such as pollution risks, biodiversity, the effects of climate change, and collaboration with indigenous people[49]. Decision SS.X/10 was adopted by the Governing Council in 2008 on the sustainable development of the arctic region encouraging UNEP to join with current

[37] *The United Nations Convention on the Law of the Sea,* 1982.
[38] Ibid.
[39] Ibid.
[40] Ibid, art. 3
[41] Ibid, art. 56
[42] UNEP Year Book 2013, *The View From The Top: Searching for responses to a rapidly changing Arctic,* 2013
[43] American Society of International Law, *Increasing Relevance of Treaties: The case of the Arctic*, 2014.
[44] Arctic Council Indigenous Peoples' Secretariat, *About.*
[45] United Nations Permanent Forum on Indigenous Issues, *Declaration on the Rights of Indigenous Peoples,* n.d.
[46] UNEP, UNEP Year Book 2013: Emerging issues in our global environment, 2013, p. 27.
[47] UNEP, *Arctic Region – Governing Instruments.*
[48] UNEP, *New Awareness of and Opportunities for UNEP to Address Climate Change in the Arctic,* 2013, p. 4
[49] UNEP, Sustainable development of the Arctic (UNEP/GC22/11 (2003), 2003.

Multilateral Environmental Agreements (MEAs) other relevant organizations in order to sustain and enhance Arctic observing networks[50].

As an active observer state, UNEP has worked closely with the Arctic Council on several programs and mechanisms to monitor changes in the Arctic and actions made by Arctic States that may affect its environmental landscape further[51]. Through collaboration with the Polar Center at GRID-Arendal, UNEP, through programs such as its Chemicals Program has worked with with most of the working groups of the Arctic Council[52]. The UNEP World Conservation Monitoring Center (WCMC) has worked with the Arctic Council on biodiversity monitoring and habitat conservation through the lens of anticipated climate change trends[53]. UNEP has also collaborated on nation specific programs such as the Arctic Agenda 2020 Program that was designed as a long term "sustainable environmental management" plan in the Russian Arctic region which worked towards the "strategic Action Program for Protection of Environment in the Arctic Zone" (SAP-Arctic) which the Russian government approved in 2009[54].

UNEP has worked rigorously on climate change mitigation policy which alters the delicate Arctic environment exponentially more than many other habitats types in the globe[55]. One UNEP initiative on this topic is The Climate and Clean Air Coalition (CCAC) which was founded in 2012 with the goal of reducing pollutants in the atmosphere that affect climate change[56]. The CCAC functions through the UN Framework and Convention on Climate Change (UNFCCC) which works on new ways to reduce climate change and mitigate its affects[57]. The functions of and mandate of the UNFCCC are found in the document (FCCC/ADP/2013/INF.2) which lays out the mandate for climate change mitigation[58]. Climate change policy is particularly pertinent to the arctic region and the melting of the sea and land ice[59].

Case Studies

Biodiversity Conservation in the Arctic

The protection of biodiversity in the Arctic is an important issue that has been pursued by both Arctic and non-Arctic Member States, as well as by Non-Governmental Organizations (NGOs); particularly environmentally focused, and indigenous communities.[60] Biodiversity is defined as "the variety of life on Earth, it includes all organisms, species, and populations; the genetic variation among these; and their complex assemblages of communities and ecosystems" by UNEP.[61] An increase in development and economic activity in the Arctic region the impact on environmental systems will also increase drastically.[62] Certain treaties on biodiversity focus on specific regions of the Arctic Sea such as the 1992 North Atlantic Marine Mammal Commission Agreement (NAMMCO Agreement), which focuses on getting a better understanding of the maritime biodiversity in this region and the importance of the presence of all level of the food chain.[63] Other treaties are species specific, including the 1946

[50] UNEP, Sustainable development of the Arctic region (UNEP/GCSS.X/10), 2008

[51] UNEP, *New Awareness of and Opportunities for UNEP to Address Climate Change in the Arctic,* 2013, p. 9
[52] Ibid.
[53] UNEP World Conservations Monitoring Center, *Conservation Dashboard.*
[54] UNEP, *New Awareness of and Opportunities for UNEP to Address Climate Change in the Arctic,* 2013, p. 9
[55] UNEP Year Book 2013, *The View From The Top: Searching for responses to a rapidly changing Arctic,* 2013, p. 31
[56] UNEP, *New Awareness of and Opportunities for UNEP to Address Climate Change in the Arctic,* 2013, p. 9
[57] UN Framework Convention on Climate Change, *Overview.*
[58] UN Framework Convention on Climate Change, FCCC/ADP/2013/INF.2, 2013.
[59] UNEP Year Book 2013, *The View From The Top: Searching for responses to a rapidly changing Arctic,* 2013
[60] De Roo and al, Environmental Governance in the Marine Arctic, 2008
[61] UNEP, *Biodiversity Factsheet,* 2010.
[62] De Roo and al, *Environmental Governance in the Marine Arctic*, 2008.
[63] North Atlantic Marine Mammal Commission, *NAMMCO Agreement*, 1992.

International Convention for the Regulation of Whaling (ICRW), the 1995 UN Fish Stocks Agreement, and the 2000 United States/Russia Bilateral Agreement for the Conservation of Polar Bears in Chukchi/Bering Seas.[64] Within protecting the species themselves there is also a need to protect ecosystems from pollution and the damaging effects of economic activities on the environment.[65] The 1973 International Convention for the Prevention of Pollution from Ships (MARPOL) "includes regulations aimed at preventing and minimizing pollution from ships – both accidental pollution and that from routine operations."[66]

There is a large amount of legal framework for protecting the biodiversity within the arctic region due to its fragility and complexity, but there is still a high risk of losing the unique ecosystems within the region. The Arctic Council working group on the Conservation of Arctic Flora and Fauna (CAFF) has claimed habitat loss as the largest cause of loss of biodiversity and climate change as the highest threat to the preservation of the Arctic habitat. [67] Climate Change in has propelled the recent loss of sea ice, caused the loss of the permafrost which has led to massive erosion, and caused ocean acidification in the Arctic region.[68] These problems are all interconnected and must be handled with care in an effort to protect unique habitat and preserve indigenous lifestyles.[69]

Japan and Trade through the Arctic

With sea ice coverage receding in the arctic region there is growing accessibility to trade routes and other forms of commercial development, which has drawn the attention of states such as Japan[70]. There are three separate shipping passages through the Arctic Ocean, the Northwest Passage (NWP), the Northeast Passage (NEP) including the Northeastern Sea Route (NSR), and the Transpolar Sea Route (TSR) also known as the Trans Arctic Sea Route[71]. Both the NWP and the NEP require traveling through coastal waters of Arctic states and fall within their legal jurisdiction making the prospect of a less complicated route such as the TSR desirable[72]. The TSR is not yet fully accessible and any transportation requires costly icebreaker escorts[73] and is restricted seasonally based on the times with the most sea melt[74]. The TSR is predicted to increase accessibility and by the year 2030 to become the predominant route with an ice-free summer freeing the lane without the need of ice breakers[75].

Japan was admitted to the Arctic Council in May of 2013 as an observer state, it shares this status with 12 other countries[76] and many other specialty bodies such as UNEP and interest groups focused on the environment and indigenous peoples[77]. This increased interest in the Arctic is partially based on the increased possibility of shorter transit times for maritime shipping. The first voyage through the NWP occurred in 2013 by the Nordic Orion a 75,000 deadweight-ton Japanese ship traveling from Vancouver, Canada to Pori, Finland[78]. The upcoming availability will drastically reduce the shipping time for Japan

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[64] De Roo and al, *Environmental Governance in the Marine Arctic*, 2008.
[65] International Maritime Organization, List of IMO Conventions, 2014.
[66] International Maritime Organization, International Convention for the Prevention of Pollution from Ships (MARPOL), 2014.
[67] CAFF, *Key Findings.* http://arcticbiodiversity.is/the-report/report-for-policy-makers/key-findings#KF1
[68] Ibid.
[69] Ibid.
[70] Cima and Sticklor, *Asian Giants Look to the Arctic,* The Diplomat, 2014.
[71] Arctic Council, *Arctic Marine Shipping Assessment 2009 Report,* 2009.
[72] Humpert & Raspotnik, *The Future of Arctic Shipping Along the Transpolar Sea Route,* 2012, p. 290
[73] ibid, p. 292
[74] Smith & Stephenson, New Trans-Arctic shipping routes navigable by midcentury, 2014.
[75] Humpert & Raspotnik, *The Future of Arctic Shipping Along the Transpolar Sea Route,* 2012, p. 285
[76] Sinclair, *Japan and the Arctic Not So Poles Apart,* JOGMEN Washington Office, 2014, p.39
[77] UNEP Year Book 2013, *The View From The Top: Searching for responses to a rapidly changing Arctic,* 2013
[78] Gloystein & McGarrity, *Big freighter traverses Northwest Passage for 1st time,* Reuters, 2013.
http://www.reuters.com/article/us-shipping-coal-arctic-idUSBRE98Q0K720130927

even farther than it is has cut through the use of arctic routes such as the NWP[79]. Through using the Suez Canal a voyage from Japan to Europe takes 27 days and with the TSR that will be reduced to 16 days, this is a distance saving of 41 percent[80]. Arctic Sea routes are not yet heavily used because of the risks involved and that they are not yet safe or reliable given the unpredictable variability of sea ice melt and weather conditions[81].

While the increased routes are profitable from a business standpoint they may be dangerous from an environmental one. An increase in shipping through the region also boosts the risk of accidents particularly the danger of oil spills, pollution, and environmental damage particularly straining biodiversity[82]. In 2009 the Arctic Marine Shipping Assessment was published by the Arctic Council to prepare for the risks of opening shipping lanes in the delicate environment[83]. The 2013 report observed the mechanisms AMSA put in place to protect the environment and native people from the detrimental effects of shipping such as which shipping incidents caused the most environmental damage and how the practice affects regional biodiversity[84].

Oil and Gas Resource Exploitation

The estimates for undiscovered oil reserves located in the Arctic predict that the region holds 30 percent of the world's untapped natural gas, which is promising for investors and countries alike[85]. However, this opportunity for development comes with dangerous risks for the surrounding ecosystem and preventative measures are needed to avoid unfortunate outcomes. There have been several incidents that have called into question the security of arctic oil development such as the 2006 Prudhoe Bay oil spills which resulted in over one million liters of oil spilled in the tundra of Alaska[86]. This environmental disaster took five days to be discovered causing one of the largest oil spills in Alaskan history and widespread environmental damage[87]. The spillage had damaging effects on the biodiversity of the region, including limiting the range and killing individual animals of a number of migratory species such as caribou[88]. Many environmental interest groups are questioning if the potential untapped oil reserves in the Arctic should be further exploited, or if the costs are too high. In 2013 the US Department of the Interior published an expedited review of 2012 offshore drilling in the arctic particularly the challenges Shell has experienced through the grounding of the containment vessel the Arctic Challenger and operational issues with two drill rigs[89].

An approach based on sustainable development principles, where economic activities in the Arctic could be done in respect of the environment and populations, is considered a key to success[90]. The economic activities of the Arctic have the potential to benefit local people and communities for employment and infrastructures, not only to the corporations and governments[91]. The regulation of oil extraction will

[79] Humpert & Raspotnik, *The Future of Arctic Shipping Along the Transpolar Sea Route,* 2012, p. 291
[80] ibid
[81] The Headquarters for Ocean Policy*, Japan's Arctic Policy,* 2015, p. 5..
[82] UNEP, UNEP Year Book 2013: Emerging issues in our global environment, 2013, p. 27
[83] Protection of the Arctic Marine Environment, *AMSA*
[84] Arctic Council, *Status on Implementation of the AMSA 2009 Report Recommendations,* 2013.
[85] UNEP Year Book 2013, *The View From The Top: Searching for responses to a rapidly changing Arctic,* 2013, p. 26
[86] Roach, Alaska Oil Spills Fuels Concerns Over Arctic Wildlife, Future Drilling, 2006.
[87] Ibid.
[88] Ibid.
[89] US Department of the Interior*, Secretary Salazar Launches Expedited Assessment of 2012 Arctic Operation*, 2013.
[90] UNEP, UNEP Year Book 2013: Emerging issues in our global environment, 2013.
[91] ibid

require the involvement of non-Arctic States in the hopes of lasting and thorough governance structures around its exploitation and trade[92].

[92] UNEP, *New Awareness of and Opportunities for UNEP to Address Climate Change in the Arctic,* 2013, p. 10.

II. The Disproportionate Impact of Climate Change and Sea Level Rise on Coastal Regions

Introduction

The rise of sea levels due to climate change affects millions of people across the world. Over half the world's population and three-quarters of all large cities are within 60 km of the sea with many residing directly on the coast.[93] Sea level rise is attributed mainly to the rise in global temperatures stemming from the increase in greenhouse gas (GHG) emissions, causing a thermal expansion of the ocean, melting of glaciers and small ice caps, melting of Greenland and Antarctica, changes in ocean circulation, and changes in water storage on land.[94] Not only are sea levels rising, but the rate at which they are rising has been increasing as well. Over the span of years between 1910 and 2010 the average global sea level rise was about 1.7 mm/yr, however when that range is shortened to the years between 1993 and 2010 the average global sea level rise was about 3.2 mm/yr.[95] This rise in sea level corresponds to the increase in the global mean sea surface temperatures of about 6°C.[96] The International Panel on Climate Change (IPCC), using data from scientists all over the world, estimates that in order to avoid serious consequences from increased climate change global warming cannot exceed 2°C.[97] In order to accomplish this goal by the year 2100, GHG emissions need to be reduced by 40-70% by the year 2050.[98]

With the increased rate of climate change and sea level rise, the frequency and intensity of climate-change related natural disasters has also increased. Extremes such as heat-waves, floods, droughts, cyclones, wildfires, and hurricanes have increased in regions around the world, however coastal regions continue to be the most vulnerable to these disasters due to their lack of adaptive capacity to recover from such events.[99] Furthermore, these events have extreme costs to the coastal marine ecosystems, including coral bleaching, degradation of freshwater due to flooding, erosion, and wetlands.[100] Each of these has extreme costs to the economies of the coastal region state, as the natural disasters disrupt tourism, a major industry for most developing coastal and island states, and the marine ecosystem are often depended upon for goods and services by these regions.[101] Climate change is also expected to increase the risk of food insecurity. With the increased amounts of flooding coastal and low-lying regions from rising sea levels combined with an increase in global temperatures the production of agriculture in these regions is expected to decrease.[102] The rise in pH balance of the sea due to increased amounts of carbon being absorbed is causing global marine species to relocate, adding on to the ongoing problem of a decrease in marine biodiversity occurring in coastal regions.[103]

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[93] UNEP, *Cities and Coastal Areas, 2005,* http://www.unep.org/urban_environment/issues/coastal_zones.asp
[94] IPCC, *IPCC Workshop on Sea Level Rise and Ice Sheet Instabilities, 2010,* http://www.ipcc.ch/pdf/supporting-material/SLW_WorkshopReport_kuala_lumpur.pdf
[95] IPCC, *IPCC Climate Change 2014 Synthesis Report, 2014,* http://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full.pdf
[96] IPCC, *IPCC Coastal Systems and Low-Lying Areas, 2010,* https://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter6.pdf
[97] COP21, *Understanding the Action Plans to Reach 2°C, 2015,* http://www.cop21.gouv.fr/en/why-2c/
[98] *Ibid*
[99] IPCC, *IPCC Climate Change 2014 Synthesis Report, 2014,* http://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full.pdf
[100] IPCC, *IPCC Climate Change 2010 Synthesis Report, 2010*https://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter6.pdf
[101] *Ibid*
[102] IPCC, *IPCC Climate Change 2014 Synthesis Report, 2014,* http://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full.pdf
[103] *Ibid*

In light of these effects of climate change, during the 85th plenary meeting in December 1989, the General Assembly (GA) passed resolution A/RES/44/206 which called for special attention to be given to coastal areas, especially developing states in low-lying coastal areas, when discussing frameworks on climate change.[104] Since then, the IPCC, co-established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) in 1988, has published five assessment reports reporting the most current knowledge relevant to climate change, each report having a section which focuses on the impact of sea level rise on coastal regions, the most recent of which was published in 2009.[105] In 1992 the United Nations Framework Convention on Climate Change (UNFCCC) was also created to help combat climate change by focusing on the rising levels of carbon in the atmosphere, as it makes up 60 percent of the contributions to GHG emissions.[106] The UNFCCC also hosts some of the largest climate change negotiation sessions, the Conference of the Parties (COP) and the Parties to the Kyoto Protocol (CMP).[107]

International Framework

In June, 1972, the United Nations Conference on the Human Environment produced the Declaration of the United Nations Conference on the Human Environment (1972) which created a foundation for the United Nations (UN) to increase its involvement in promoting sustainable development and its investment in the environment by promoting pollution and climate-change-reducing measures.[108] The Declaration was readdressed in the 1992 Earth Summit held in Rio de Janeiro, Brazil, title the UN Conference on Environment and Development (UNCED) to create a framework for tackling the causes and effects of climate change.[109] From this conference came two of the most important documents to the future of climate change and sea level rise; Agenda 21 and the UNFCCC.

Agenda 21 is a comprehensive blueprint for the future of sustainable development, and considered by the conference as one of the most important agreements discussed.[110] In the 1994 Global Conference on the Sustainable Development of Small Island Developing States (SIDS) focused on coastal regions and marine resources as areas in special need of urgent action because they are vital to the Earth's ecosystem, necessary for maintaining global food security, and important for sustainable economic prosperity, especially in developing states. [111] The 2002 World Summit on Sustainable Development further perpetuated the importance of coastal regions as they are host to much of the world's biodiversity.[112]

The UNFCCC was created specifically for the purpose of combating global warming.[113] Five years after the convention's creation in 1997, the Kyoto Protocol (KP) was adopted as the operationalizing force of the UNFCCC by committing industrialized countries to stabilize their GHG emissions as they are largely responsible for the current high levels, however the agreement wasn't in force until 2005 following COP 7 in Marrakesh, Morocco in 2001.[114] With the KP understood, international organizations began working

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[104] UN General Assembly, *Possible adverse effects of sea-level rise on islands and coastal areas, particularly low-lying coastal areas, 1989* http://www.un.org/documents/ga/res/44/a44r206.htm
[105] IPCC website http://www.ipcc.ch/
[106] UNFCCC Secretariat page http://unfccc.int/secretariat/items/1629.php
[107] *Ibid*
[108] UNEP, *Declaration of the United Nations Conference on the Human Environment, 1972,* http://www.unep.org/documents.multilingual/default.asp?documentid=97&articleid=1503
[109] UN, *Earth Summit, 1972,* http://www.un.org/geninfo/bp/enviro.html
[110] *Ibid*
[111] UNCSD, *Rio 2012 Issues Brief, 2012* http://www.uncsd2012.org/content/documents/216Issues%20Brief%20No%204%20Oeans_Rio20_FINAL.pdf
[112] *Ibid*
[113] UNFCCC Secretariat page, http://unfccc.int/secretariat/items/1629.php
[114] UNFCCC, *Kyoto Protocol* http://unfccc.int/essential_background/kyoto_protocol/items/6034.php

with countries all over the world to limit carbon emissions specifically, seeing as they make up 60% of GHG emissions. In 2009 in Copenhagen (COP15) all 195 countries of the UNFCCC met to discuss the goal of limiting GHG emissions necessary to limit global warming to 2°C by 2100. By the end of the conference all countries pledged to reduce their level of GHG emissions by 2025-2030 according to their Intended Nationally Determined Contribution (INDC).[115]

In accordance with GA Resolution 64/236, the United Nations Conference on Sustainable Development (Rio+20) was held in Brazil in 2012, marking the 20 year anniversary of the UNCED in Rio de Janeiro.[116] This conference focused on several aspects of sustainable development including energy, food, oceans, and disasters, especially as they relate to coastal regions.[117] The conference also produced the outcome document, The Future We Want, which set up the framework for the Post-2015 Agenda adopted in September 2015 under GA Resolution 70/1. This document addressed and clarified the new Sustainable Development Goals (SDGs) which promote an investment into sustainable development.[118] Many of the SDGs address core aspects of climate change, such as limiting GHG emissions and promoting climate resilience, both of which are necessary to the well-being of coastal regions.[119]

Most recently, in December 2015, almost 200 countries met in Paris during COP21 to review commitments to lowering GHG emissions as mentioned in the KP in order to keep global temperatures well below the 2°C mark by 2100. For the first time in history, all the countries have signed onto a single agreement to combat climate change by cutting GHG emissions, as well as providing reviews for each country's progress every five years and calling for richer countries to provide climate finance to poorer nations as they switch to renewable energy sources.[120]

Committee Specific Action

In general the UNEP provides support for states affected by the negative impacts of climate change and actively promotes the implementation of policies that will aid states in combating these negative impacts. The greatest action the UNEP takes to reduces sea level rise and its disproportionate effect on coastal regions is by slowing the rate of global warming by reducing GHG emissions. It is well understood that as weather patterns shift, food production decreases with more food insecurity, sea levels rise which contaminates freshwater sources and increases the risk of especially harmful flooding, and damage the marine ecosystem through coral bleaching and fish relocation. To combat these effects, the UNEP has taken on a multi-faceted approach to reduce global warming to its target goal of under 2°C by 2100. One approach the UNEP takes is to partner with multiple organizations such as the Climate Technology Centre and Network (CTCN) and the UNFCCC in producing low-carbon technologies and promoting sustainable energy.[121] Furthermore, since agriculture and food security are large parts of both GHG emissions and coastal region economies, the UNEP looks to reduce agriculture waste and inefficiencies by investing in simple, green farming and storage technologies through programs such as Carbon Finance

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[115] COP21 *2°C Target, 2015,* http://www.cop21.gouv.fr/en/2c-target-result-of-state-contributions/
[116] UNCSD, *About Rio+20, 2012* http://www.uncsd2012.org/about.html
[117] UNSCD, *Issues of Rio+20, 2012,* http://www.uncsd2012.org/7issues.html
[118] UN SDGs, http://www.un.org/sustainabledevelopment/development-agenda/
[119] *Ibid*
[120] BBC news, *Global Climate Deal: In Summary,* 2015, http://www.bbc.com/news/science-environment-35073297
[121] UNSCEB, *How the UN System Supports Ambitious Action on Climate Change,, 2014,* http://www.unsceb.org/CEBPublicFiles/CEB%202014%20How%20the%20UN%20System%20Supports%20Ambitious%20Action%20on%20Climate%20Change_en.pdf

for Agriculture, Sylviculture, Conservation and Action against Deforestation (CASCADe) and the UNEP Bioenergy Programme.[122]

The UNEP is especially important in mitigating the negative effects of climate change by providing information and building the capacity necessary to prepare for climate change in those most vulnerable to it, including coastal regions. The UNEP uses multiple information-gathering partners, such as the Assessments of Impacts and Adaptations to Climate Change (AIACC) project and The Many Strong Voices Programme to enhance scientific understanding of vulnerability to certain climate change disasters such as flooding or droughts and to assist in identifying relevant information to use for projects for development.[123] UNEP also focuses on supporting adaptive capacities to combat climate change by building resilient ecosystems in vulnerable areas. Specifically for developing countries, the UNEP is facilitating an international process for a Global Climate Change Adaptation Network to provide coherence in mobilizing resources to enhance scientific, technical, and institutional adaptation capacity in combating climate change.[124]

Finally, UNEP has partnered with both private and public financial avenues to provide the assistance countries need to develop these measures for adapting to climate change. Recognizing the importance of the private sector in driving innovation and investment the UNEP Finance Initiative integrates their interests into the interests of climate change adaptation.[125] UNEP is also driving a Green Economy Initiative, which combines the benefits of having low carbon emissions, being resource efficient, and socially inclusive so as to provide a growth that is based on both private and public interest to reduce carbon emissions and pollution.[126] Measures like these would help to grow the economy, especially helping developing states, while at the same time reducing the effects of climate change.

Case Studies

Mozambique

Mozambique is one of the largest coastal states in Africa. Two-thirds of its population of about 20.5 million live on the coast, as well as most of the major cities, all depending on the diverse ecosystem to sustain them.[127] Like most coastal states, Mozambique relies heavily on tourism, fishing, and agriculture to sustain its economy.[128] In both the north and the south of the country the coast has a diverse ecosystem of coral reefs, sea grass beds, mangroves, and many beautiful beaches which continues to attract more and more tourists each year.[129]

Due to its geographical location, Mozambique is particularly vulnerable to climate change and sea level rise. Being located in the western Indian Ocean the country experiences multiple tropical cyclones and typhoons each year.[130] This number is only expected to rise as climate change continues to increase the

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[122] UNEP, *Climate Change Mitigation : Agriculture,* http://www.unep.org/climatechange/mitigation/Agriculture/tabid/104336/Default.aspx
[123] UNEP, *UNEP and Partners United to Combat Climate Change, 2009,* http://www.unep.org/pdf/081127_POZNANBKL_web.pdf
[124] *Ibid*
[125] UNSCEB, *How the UN System Supports Ambitious Action on Climate Change,, 2014,* http://www.unsceb.org/CEBPublicFiles/CEB%202014%20How%20the%20UN%20System%20Supports%20Ambitious%20Action%20on%20Climate%20Change_en.pdf
[126] UNEP, *Green Economy,* http://www.unep.org/greeneconomy/AboutGEI/WhatisGEI/tabid/29784/Default.aspx
[127] UNEP 2008 Report on Mozambique, http://gridnairobi.unep.org/chm/eafdocuments/Mozambique/Draft_Final_Report_Costa_do_Sol.pdf
[128] *Ibid*
[129] *Ibid*
[130] *Ibid*

rate at which natural disasters strike the country. Furthermore, sea level rise has significantly increased coastal erosions across the country, ranging anywhere from a loss of 0.95 and 1.75 m/year.[131] Under current predictions Mozambique is expected to lose 150m of coastline by 2041, 380m by 2071, and 610m by 2098 as the sea level rises by 0.8m.[132] This rise will cause a significant loss to housing of the population, major industries located on the coast, as well as cause a change in the coastal water circulation patterns due to more sediment being introduced through further erosion.[133] If sea levels continue to rise according to the same pattern, Mozambique's tourist industry will no longer be able to sustain its national income, crippling its economy and displacing millions of people.

While the Mozambique government has introduced its second Action Plan for the Reduction of Absolute Poverty to help alleviate those who find themselves in poverty, their environmental concerns must be addressed if the country hopes to achieve sustainable production, food security, and economic growth.[134] One possible solution is the Joint Programme on Environment Mainstreaming and Adaptation to Climate Change proposal which would especially focus on the most pressing issue for the country at the moment; access to water both for human consumption and productive uses.[135]

Bangladesh

Although Bangladesh is one of the leaders in advancing the climate change agenda, being one of the lowest GHG producing countries, it is one of the most severely affected countries by climate change and sea level rise. In its current location, Bangladesh is already hit with a disproportionate amount of cyclones each year, and with the increase in global temperatures that amount is only likely to go up.[136] The increase in sea level rise has not helped either. The country's rivers are badly polluted making groundwater the only source of usable clean water, but increased pumping causes the land to settle and the already sinking cities are becoming even more vulnerable to the risk of flooding from rising sea levels.[137] By 2050 it is estimated that 18 million people will be displaced and 17 percent of the land inundated.[138]

Although the country has attempted to build sea walls and prevent further risk to sea level rise, its measures have largely made long-term inundation worse.[139] The government has begun to work on its Climate Change Strategy and Action Plan, which includes increasing food security, disaster risk management, building more resilient infrastructure, and increasing their knowledge base of climate change.[140] However, in order for Bangladesh to really become safer from increased impacts of climate change and further sea level rise, the 2°C mark cannot be crossed.

Haiti

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[131] *Ibid*
[132] *Ibid*
[133] *Ibid*
[134] FAO, *Climate Change Adaptations in Mozambique, 2013* http://www.fao.org/climatechange/77271/en/
[135] *Ibid*
[136] NYT, *Borrowed Time on Disappearing Land, 2014,* http://www.nytimes.com/2014/03/29/world/asia/facing-rising-seas-bangladesh-confronts-the-consequences-of-climate-change.html?_r=0
[137] *Ibid*
[138] *Ibid*
[139] *Ibid*
[140] GCCA, *Bangladesh Climate Change Resilience Fund, 2012* http://www.gcca.eu/national-programmes/asia/gcca-bangladesh-climate-change-resilience-fund-bccrf

According to an Oxfam report in 2014, Haiti is considered to be the most disproportionately affected country by climate change and sea level rise[141]. Already intense rainfall during tropical seasons combined with the severe problem of deforestation adding to poor soil integrity has caused an intense flooding and erosion across the coastal zones of the country.[142] Being a small island developing state, Haiti's coasts are particularly vulnerable to sea-level rise as it has little ability to adapt to the flooding of seawater and increased frequencies of hurricanes.[143] Moreover, with the majority of Haiti's economy relying on agriculture, the increased amount of seawater flooding combined with higher levels of soil erosion as well as erratic cycles of drought, storms, and floods have had devastating effect on the nation's income.[144]

While the Haitian government has put in place policies for disaster and risk management, the plans are often poorly elaborated on.[145] Renewable energy sources are talked about, but unable to be implemented since they are not at the center of the government's energy policies.[146] Education for women, who make up the majority of the agriculture work force, doesn't have the support it needs to get information about sustainable agricultural practices to those who need them, and while the Ministry of Agriculture has attempted to improve irrigation systems, water management is still a critical issue for building Haiti's adaptive capabilities.[147] Haiti's government now relies on development aid for 50 percent of its national revenues, however this aid needs to be directed towards increasing infrastructural capacity and education if Haiti is to adapt to the increasingly devastating effects

[141] OXFAM, *Climate Change Resilience, The Case of Haiti, 2014,* http://webcache.googleusercontent.com/search?q=cache:fQEpx1yG45IJ:www.alnap.org/pool/files/rr-climate-change-resilience-haiti-260314-en.pdf+&cd=5&hl=en&ct=clnk&gl=us
[142] *Ibid*
[143] *Ibid*
[144] *Ibid*
[145] *Ibid*
[146] *Ibid*
[147] *Ibid*