



# UNEP PACMUN 2017

DIRECTOR **ROSHAN NAIR**  
ASST. DIRECTOR **ELAINE GUO**  
CHAIR **AUDRI SAULTERS**



# TABLE OF CONTENTS

Director Letter	2
Sources: Topic A	21
Sources: Topic B	23

## TOPIC A: SOLUTIONS TO SOLID WASTE

Topic Introduction	3
History	4
Past Action	5
Current Situation	6
Bloc Positions	7
Case Studies	9
Guiding Questions	10
Further Research	10

## TOPIC B: ECOSYSTEM EXPLOITATION

Topic Introduction	11
History	11
Past Action	13
Current Situation	14
Bloc Positions	15
Case Studies	17
Guiding Questions	20



# PACIFIC MODEL UNITED NATIONS ENVIRONMENT PROGRAMME

Dear Delegates,

I am excited to welcome you to Pacific Model United Nations 2017 and the United Nations Environment Programme (UNEP). My name is Roshan Nair and I will be serving as your director. I am a junior at Tesla STEM High School and this will be my second year of MUN. I will be joined by my chair, Audri Saulters, a junior at Inglemoor High School, as well as my assistant director, Elaine Guo, a sophomore at Interlake High School.

As a dias, we have selected two topics for the committee: solutions to solid waste and ecosystem exploitation. Both of these topics are globally impactful and therefore will allow for all countries to participate and contribute to discussion.

Solid waste is a pressing issue for many countries around the world, creating unsanitary human conditions and leading to environmental/ecological degradation. As we create more and more waste throughout the world, there is an increasing struggle to ethically and effectively dispose of it. Delegates must work collectively and globally in order to help mitigate the effects of the waste issue both environmentally and economically.

Similarly, ecosystem exploitation is a rapidly growing issue with immense global consequences today. With the world's accelerated population, elevated demand for resources is causing issues like overfishing, forest destruction, and desertification, hurting many of the earth's vital ecosystems. It is crucial to the world's economies and ecosystems that our increasing resource demand is able to be met while maintaining a sustainable future.

We, as a dias, have written this background guide to provide you with an understanding of the topics and a place to begin your research. It is our hope that you are able to use this information to generate a forward-thinking debate surrounding these two issues. Please feel at liberty to email us with any questions. I am excited to see you all in committee!

Yours sincerely,

Roshan Nair

Director, UNEP

# INTRODUCTION: SOLUTIONS TO SOLID WASTE

As the world continues to develop and populate, so does the amount of solid waste coming from an eclectic number of sources; be it manufacturing, construction, or sanitation. The demand to manage this waste at larger scales is increasing, and has put pressure on every country in the world. While many developed nations have implemented systems such as landfills or incineration of such waste, a significant number of underdeveloped nations lack these methods.

Trash and other hazardous materials in underdeveloped countries accumulate near residential areas, and this poses critical health and environmental risks. To evade these risks, some countries resort to dumping waste in less developed countries for a small cost. These issues ultimately stem from a lack of funding and resources available.

Ineffective waste management worldwide has also led to the polluting of the oceans, which has its own set of threats to the marine ecosystem. As the oceans are technically international zones, countries must collaborate to reduce the amount of waste in them as well as the amount contributed every year. Again, the lack of funds and resources challenges this prospect.

There are, on the other hand, several non-governmental organizations (NGOs) that take these necessary efforts into their own hands, including Zero Waste and Trash Free Seas. Although their actions have been progressive, there's still a need for governmental involvement. These organizations have advocated for controversial reforms, such as banning plastics entirely. While beneficial for the environment, some economies globally have significant dependency on current manufacturing habits.

Additionally, as semi-peripheral countries continue to industrialize, they demonstrate an evident contribution to the issue. Industrialization involves the mass production of disposable goods, which if not recycled, end up damaging the ecosystem. Many of the common materials today are designed to last longer and be cheaper than before, which means they also outlive natural environments if not disposed of properly. Plastic, an incredibly common material used today, has properties that allows it to last from 450 to 1000 years before decomposing. If not collected and managed, it ends up in the bodies or habitats of organisms and endangers them. Nonetheless, several initiatives by developed countries are being taken to begin manufacturing with biodegradable plastics, which are made from grains or vegetables.

# HISTORY

Solid waste is defined as materials that are found to be no longer of use, and therefore are disposed. Present in every society, the methods for handling waste have ranged from developing sewer systems, landfills, or simply dumping materials into streets. Before industrialization, waste mainly consisted of sewage and biodegradable agricultural substances, and were most often left to runoff in nature. This became more complicated as civilizations urbanized, meaning more people were living in closer quarters as cities grew larger. Diseases harbored in increasingly unsanitary conditions, which have contributed to major epidemics in the past including the Black Death and Influenza. Not only this, but as factories and new materials were manufactured, new forms of solid waste such as plastics and glass were as well.

Until the 19th century, most American cities did not have the infrastructure to support a mass disposal of solid waste. Several factors contributed to this, such as ponderous construction costs and lack of administration to put such intensive systems for organized disposal into place. Official governmental funding for these purposes would not be established until later in the century; solid waste disposal was left under regional responsibility. In 1895, the sanitation commissioner of New York City, George Waring, would make reforms that would transform American methods of solid waste disposal nationally; he introduced the concepts of recycling materials, street sweeping, and garbage collection from the streets. Landfills were put into place shortly after, and today, much of the developed world has adopted systems that involve these methods.

However, issues arise in rural or industrializing regions. Countries in Southeast Asia during the later half of the 20th century have demonstrated multiple examples of this. In 1997, studies from UN Habitat and the UNEP reported that less than 2% of cities in the Philippines had established landfills, 90% of non-recyclable solid waste was incinerated in Singapore, and only 1% of collected solid waste in Malaysia was recycled. The result of these statistics had been heavily littered waterways and roads, as well as neighborhood dumps found at the end of residential streets. Not only have disease and rodents been found to fester in these areas, but an increased prevalence of locals collecting items from these heaps to exchange for money as well. The subsequent health risk in these areas made it necessary for governments to pass laws such as the Ecological Solid Waste Act in the Philippines in 2001. This law in particular advocated for the implementation of an official solid waste management plan that involved both private sectors and non-governmental organization (NGO) involvement. Although most of these laws are still in place today, the presence of heavy litter and its effects are still prominent in the Southeast Asian region.

As for solid waste in international zones such as the oceans, marine dumping has been a severe issue. Regulations prohibiting the disposal of materials into the ocean were not nearly as extensive as they are today. In 1970, it was reported that 4.5 million tons of industrial waste were dumped into the ocean, and these figures were similar regarding other toxic materials dumped at the time. Since the Marine Protection, Research, and Safety Act (MPRSA) was enacted in 1972, and Resource Conservation and Recovery Act (RCRA) in 1976, the types of hazardous materials dumped into the ocean by the United States has been heavily regulated. Despite these actions on the United States' behalf, not every country has implemented regulations to the same extent, which has become an ever growing concern as these wastes' effects are becoming more adverse. Of the top ten countries producing the most oceanic waste, eight of them are developing South and Southeast Asian nations, such as Sri Lanka, Vietnam, Malaysia, and Bangladesh. Solid waste has increasingly threatened marine and human lives globally, while seafood consumed by humans is often affected by the toxins found in such waste.

## PAST ACTION

As complications of solid waste disposal have become more prominent in recent decades, various countries and international organizations have attempted to address the issue, with a particular focus on developing countries. While there have been many forms of action that have proven to be effective, billions of people are still suffering from the effects of improper and unsafe waste disposal techniques.

In the second half of the 20th century, the issue of international trade of hazardous waste became more prominent and precarious. Many developed nations attempted to escape restrictive environmental laws by trading with developing nations, sending over large amounts of hazardous and chemical waste for lower prices. These incidents created outrage among the nations who received the toxic waste, and thus resulted in the Basel Convention in 1989, which regulated and minimized the trade of hazardous waste by enforcing means of notice and agreement among parties. This was followed by similar treaties which banned and regulated the trade, production, and disposal of hazardous and chemical waste, such as the 1995 Waigani Convention and the Rotterdam Convention in 1998, many of which are still active in the present day.

In the early 1990's, the United Nations Environmental Programme (UNEP) addressed the issue after it had been brought to attention in the General Assembly resolution 44/228 in 1989. They stated various goals and methods in order to minimize waste generation and ensure proper disposal of solid waste. Later that decade, during the 1992 Earth Summit, the Rio Declaration was created. It expanded on the principles in the 1970 Stockholm Declaration, which were based on environmental and developmental concerns. The summit resulted also in the creation of Agenda 21, which notes on environmentally sound disposal of hazardous, radioactive, and solid waste. This action plan was highly influential in later conferences regard-

ing sustainable development because of its ambitious goals. Both results from the summit caused more internal growth relating to the issue, as they influenced laws and action on both local and national levels.

In recent years, the UNEP has partnered with the International Solid Waste Association (ISWA) to create the Global Waste Management Outlook (GWMO), which takes a holistic approach in bringing waste under control, stressing the method to reduce, reuse, and recycle. The two organizations have additionally worked together along with the United Nations Industrial Development Organization (UNIDO) on the Global Partnership of Waste Management (GPWM). Established in 2010, the partnership promotes international cooperation in order to reach a collective approach to solid waste management. It focuses on reducing and safely managing waste in order to match the expenditures set aside for waste management. The program is currently running and on track to reaching its goal in 2020. Even so, the issue is still prominent and is continuing to grow in the present day, despite the efforts of the UN and other international organizations for decades.

## CURRENT SITUATION

The most common methods of solid waste disposal include using landfills and incineration, although some countries are expanding to others that are cost-effective or eco-friendly. Anaerobic digestion is one for example, that involves the degradation of biomass in waste by using microorganisms deprived of oxygen. This effectively transforms waste into fertilizer or in some cases, renewable energy. Sweden has taken initiatives like these, and as a result has begun importing trash from other countries to convert to energy. Despite the fact that Sweden is one of few countries that integrates effective methods to be able to afford to import trash for energy, it is doing part to balance out the toxic methods used by others.

Although outdated, many semi-peripheral countries still use Advanced Thermal Recycling methods (ATR). The issue with ATR is that it produces high levels of greenhouse gases, including methane and carbon monoxide, as well as being extremely expensive to carry out. Consisting of Pyrolysis and Gasification, these methods convert waste into either liquid or gaseous forms, however both of these forms ultimately end up contaminated. Today these methods compete with landfilling, with the false justification that ATR renews waste.

About 3.5 billion people are left without effective waste management services, which has resulted in a continually worsening open-dumping issue. Correlated with the rapidly developing tech industry, an escalating number of computer parts are collectively being dumped in rural areas. Known as Electronic Waste, or E-Waste, these parts have been found to contain many valuable materials that could be re-used. According to the UNEP, “one tonne of recycled electronic waste could yield as much gold as five to 15 tonnes of typical gold ore”. Since these hoards of E-Waste are still neglected, they instead pollute the local environment as leachate is contaminating nearby soil and water sources.

Urban solid waste is a heightening issue as well. The International Solid Waste Association (ISWA) has concluded that municipal solid waste per capita increases with income level. Hence, as urban areas are expanding, so are their waste levels. The ISWA also predicts that the solid waste per capita will double within the next 15-20 years in lower income cities in Africa and Asia. In order to compensate for this growth, there's a necessity to make reforms in the waste management systems. By eliminating open-dumping and open-burning methods, risks to public health and local environments decreases substantially. Doing so will involve heavy costs to implement more effective waste management infrastructure as well as integrated recycling programs.

On an international level, the extremity of "garbage patches" in the oceans has exacerbated. Two of these patches are located in the Eastern and Western areas of the Pacific Ocean, and their size estimates range from about that of the state of Texas to twice that of the continental United States. The composition of these patches has diversified since their discovery in the 1990s, but still mostly consist of varying forms of plastics. The journal Science estimates that China alone contributes 1.3 to 3.5 metric tons of trash to the oceans every year, adding to the ever-growing garbage patches. Due to the properties of these plastics, they do not degrade quickly, but rather break down into microplastics. These microplastics are not easily visible to satellites, but are continuously building up in these patches even today.

## BLOC POSITIONS

### **USA, Canada, Japan, New Zealand, Western Europe**

As developed countries, these countries have advanced methods of managing solid waste and in addition take initiatives to reduce production of it in the first place. Often working with their respective private sectors and NGOs, these countries recognize the importance of reducing environmental impacts; Japan even goes to the extent of regulating an intricate trash sorting system among its citizens that even differentiates the handling of materials that can and cannot be incinerated. There are however some policies and circumstances that act as obstacles toward more ecologically sound systems. For example, costs of recycling are high in New Zealand and a significant amount of trash in each of these countries still ends up in bodies of water.

### **Latin America**

Despite being the most rapidly urbanizing region in the world, the solid waste management systems are lacking in many areas. Rates of recycling and government support of it are relatively low, though this varies in each country. In addition, the funding and education programs behind waste management services are also lacking. Due to the fact the necessary policy changes can only most effectively be implemented by the municipalities themselves rather federal government's, prog-

ress is slow. This does not take away from the fact that some municipalities do have and strive for their effective systems in place.

## **Middle East**

Being the region hosting the countries with the largest solid waste production in terms of capita, the Middle East strives toward achieving advanced solid waste management systems. From landfills to incineration sites, this region definitely allocates funding for these services. On the other hand, noting that the most common methods of management involve the ecologically unfriendly methods of gasification and pyrolysis, the carbon footprint of waste management is not the primary priority when it comes to waste management.

## **Eastern Europe & Russia**

Unfortunately, the lowest rates of recycling and highest of illegal dumping in Europe are found in this region. Due to little funding, awareness, legislation, and infrastructure, member states in Eastern Europe have high levels of contamination in their landfills. The governments nonetheless do express a desire to solve this issue as it poses a large health risk, but don't have nearly enough resources to do so.

## **Africa**

Urbanizing at such a fast pace, many countries in this region don't have the infrastructure to support the growing population. The subsequent slums which don't have access to basic services such as water and waste management are then growing in size, resulting in more waste generation that isn't accounted for. The major health and environmental risks are only increasing. The solution paralleling that of Latin America, is strongly dependent on action taken by the municipalities themselves as well as NGOs.

## **South, Southeast Asia, & China**

Despite many countries in this general region facing similar solid waste management crises, the governmental responses among them remain mixed. In Malaysia, there's a particular awareness of how solid waste management is a necessity for the appeal of public spaces and health risks, which was sparked after data collection during the 1990s. However, due to a lack of resources this still remains unresolved as solid waste dumping and low recycling rates are still prevalent issues. China is another example of a country that recognizes the importance of proper waste management, however, they do have the means of implementing such. Waste is often incinerated, which although reduces mass significantly, is not an environmentally preferable option as it releases toxins in the air. There are plants in China that do have cleaner methods of incineration, however they are less popular because they make a far smaller profit due to the high costs of toxin removal. On the other hand,

there are the countries that do not prioritize solid waste management and also do not have the resources to make improvements. This is what has led residents to protest, as they are the ones who experience the effects of improper waste management the most.

# CASE STUDIES

## Case Study #1: Seoul

Since the 1980s, Seoul, South Korea (ROK) has been working to better their solid waste disposal systems. By implementing a waste disposal hierarchy of reduction, utilization, incineration, and then landfill, the city was able to improve their municipal waste disposal system while reducing the amount of waste produced by the city to begin with. The city began using landfills in the eighties, which were short-lived and received much opposition by the local communities. In 1991 Seoul created The City of Seoul Basic Waste Treatment Plan, which included building 11 municipal waste incinerators. Due to strong opposition because of the concern over potential environmental and health related risks, only four were ever built.

The concern of the people of the city of Seoul pushed the country toward changing their waste disposal habits. In the year 1995 the ROK adopted a volume-based disposal fee system. In this system, consumers purchase disposal bags, where the money generated from their sale is used to fund the whole collection and disposal process, as well as the bag production. They followed with the inclusion of volume-based fees for food waste.

This shift in the Korean waste disposal system has prompted other changes surrounding waste production and disposal in the country. By mandating citizens pay for the waste they produce, consumers are urging businesses to utilize less packaging on products to begin with. This has allowed for, not only a better waste disposal strategy but, one that reduces the amount of waste in the stream. This volume-based system has also increase the willingness of people to separate and take apart items for recycling, as recycling is collected for free. This resulted in less unnecessary waste going to incinerators and landfills and therefore an increase rate of recycling.

The city began in 1994 with a recycling being relatively minimal and only done by companies. As of 2012, the city had improved, and achieved a recycling rate of 65.3% due to the plans implemented by the Korean government and their ability to make it easy and viable for citizens follow them.

# GUIDING QUESTIONS

1. What are the most common methods of waste management in your country and what are the benefits and drawbacks of them?
2. How can the UNEP promote awareness of the ecological impact of solid waste management?
3. What should be done to mitigate illegal dumping and littering?
4. What is the root of increasing solid waste production rates and how can this be implemented into a solution?
5. Which solid waste management solutions have worked and which ones have not?

# FURTHER RESEARCH

1. <http://www.unep.org/ecosystems/>
2. <http://www.unep.org/chemicalsandwaste/>
3. <http://www.sustainable-environment.org.uk/>
4. <https://sustainabledevelopment.un.org/>
5. <http://bit.ly/2xj82xh>
6. <http://www.unric.org/en/latest-un-buzz/29873-iswa-world-congress-meets-to-waste-on-the-global-agenda->

# INTRODUCTION: ECOSYSTEM EXPLOITATION

An ecosystem is the crucial functioning relationship between all biotic and abiotic factors in a given area. Ecosystem services provide humans with essentially everything we need to live. Our dependence includes food, water, timber, and environmental cycles. As the world's population of 7.5 billion people continues to grow, so will the need for the many different resources all of us use every day. These valued commodities often are not sustainably utilized or planned for use in the long term.

The increase in demand for food products has created a dramatic increase in creation and overuse of agricultural lands. In the tropics, forests are being cut and burned to create farm land, and overgrazing on dry pasturelands is causing great desertification. This increased need for food is not being fulfilled with sustainable practices, but rather practices which cannot be sustained in the long term. As the world's arable land is massively in decline, it also jeopardizes future food security.

The maintenance of the world's ecosystems is crucial in the preservation of timber resources and the earth's environmental cycles. The most productive ecosystems: tropical rainforests, wetlands, and coral reefs, scrub large amounts of carbon from the atmosphere, aiding to mitigate climate change. By cutting down forests for pasture land, burning them, building on wetlands, and overfishing delicate oceanic ecosystems, we are contributing to the cyclic removal of the environmental systems we rely upon.

## HISTORY

The move toward industrialization has caused an increase in demand and need for many resources such as food, water, and lumber. This, coupled with a population increase puts large strain on the many ecosystems of the earth, as we try to meet the resource demands of a growing market.

In the earlier half of the 19th century in England, the Industrial Revolution took place where manual labor was quickly replaced with machine labor. Such machines were initially run with lumber fueled steam power, but when lumber supply was exhausted, the shift was made toward using coal out of Britain's coalfields. Countries worldwide followed suit shortly after, and a global demand for fossil fuels surged. With a thriving economy serving as an incentive to continue these manufacturing habits, companies worldwide augmented their rates of mass-production of goods, which required the extraction of even more raw materials. Later in the century, Europe would imperialize Africa among other non-industrialized regions of the world to exploit them for their resources to meet such demands via the Berlin Conference, in which European countries divided up and claimed regions of Africa amongst themselves. The regions claimed suffered through desertification and local flora and fauna endured severe declination in their populations, as they were

exploited at such high rates.

Although Europe has mostly withdrawn from regions beyond its continent, neocolonialism has taken its place. Developed countries in the 20th century began outsourcing factory jobs to foreign countries, most often less developed, in order to benefit from lower labor costs. This has contributed to an even greater level of resource exploitation, as many of these countries that are outsourced to, mostly in Africa and Southern Asia, had economic dependency on these outsourced jobs. The environmental impacts thus paralleled that of imperialism only a century before.

Following the industrial revolution, farming patterns have evolved into an Agricultural Revolution. As machines proved more efficient, crop yield soared and agricultural density in industrializing nations sunk as fewer farmers were needed to oversee larger farms. The result were larger scale farms used more intensely than ever before with the rise of new farming techniques and technology. However, this shift to a more capitalist based focus meant more monocrops were put in place, which lessened the diversity of these crops. A significant demonstration of the downsides of such an intense practice was the Dust Bowl in United States' midwest region in the 1930s. After a drought in an area that mostly consisted of monocrops that weren't native to the natural soil, many of the crops withered and the soil was no longer held together by plant roots and water. This loose dirt subsequently was swept up by the wind and left dust storms that suffocated livestock and led over 60% of the population to leave the area.

Although much of the global ecosystem's exploitation has had motives rooting from industrialization, there were other forms of exploitation as well, such as poaching. The Ivory Trade was a prime example of this, the height of elephant poaching for their ivory tusks took place throughout the 20th century in sub-saharan Africa. The purpose of ivory poaching had shifted from manufacturing parts for piano keys and hairbrushes to sport and a display of ostentation, which led the decline in elephant population from 10 million in 1900 to less than one million in 1985. Although the trade of ivory was banned worldwide in 1989 followed with a decrease in demand from the Western world, it rose in China and regions of Southeast Asia, which still follows through today.

# PAST ACTION

The issue has been brought up more frequently in recent years due to the rising amount of people experiencing its effects. It has been an integral part of the United Nations Environmental Programme (UNEP), as well as being a key topic in development conferences. However, the issue is still largely at hand, despite the efforts made by numerous nations and organizations.

In 1992, at the UNCED (United Nations Conference on Environment and Development), the Rio Declaration was signed by 170 independent states. Its 27 principles indicate that long term development and economic security are dependent on environmental protection, stability, and the intergovernmental cooperation thereof. Additionally, the action plan Agenda 21 was established, which emphasized the importance of resource management and conservation, with various ways to implementation from local to global levels. Both of these were reaffirmed and influenced future decisions regarding sustainable development, such as in the Earth Summits of 2002 and 2012. Most recently, it's influence can be see in the 2030 Agenda for Sustainable Development. The Sustainable Development Goal 15 states to “protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss”. It involves 193 member states, and has gone into effect as of late 2015, with hopes of reaching its first series of goals by 2020. The aims of this agenda have been the primary focus for ecosystem protection since it's implementation.

In 1994, the UNCCD (United Nations Convention to Combat Desertification) was held by a recommendation of Agenda 21. The 195 states signed into the international agreement, aimed at aiding areas under distress from land degradation. Work is directed toward areas in danger of becoming desertified, especially in the developing world, by specifically implementing developed technology in order to better the land management toward sustainability. This convention continues to work today through initiatives such as the Global Mechanism, which helps countries execute the actions specified in the convention.

In 2008, UNEP partnered with the United Nations Development Programme (UNDP) and the United Nations Food and Agriculture Organization (FAO) to establish a program which would focus on reducing forest carbon dioxide emissions, something which was addressed to help sustainable development. This resulted in United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD), which helps nations address the issue of carbon emissions due to deforestation and achieve the goals of the organization.

In 2012, UNDP had established a series of ways to respond to future problems relating to ecosystems, with the Biodiversity and Ecosystems Global Framework in order to help further the agenda that resulted from the 2012 Earth Summit. This plan focuses on ecosystem management, the contributions to sustainable development in protected areas, and rehabilitation in order to better adapt to the effects of climate change. A few years later, the Addis Ababa Action Agenda was established in 2015, which helped further international cooperation to simultaneously protect the environment and promote economic prosperity. Both of these recent forms of action to better protect ecosystems have resulted in improved organization and understanding of the issue. Despite the actions of the UN ecosystems continue to be damaged in the present day.

## CURRENT SITUATION

The UNEP predicts that by 2030 we will see a global demand of 40 percent more freshwater, 40 percent more timber, 40 percent more energy, and 50 percent more food. This increase in global demand must be satisfied without compromising ecosystem stability and longevity.

Deforestation for the benefit of agricultural production (slash and burn) is one of the largest ecosystem issues. The UNFAO (United Nations Foreign Agricultural Organization) defines a forested area as one, one hectare or larger (0.01 square miles) with a minimum tree cover of 10 percent. This increasingly growing problem in South America, Southeast Asia, and Africa, has a massive impact on the most ecologically diverse ecosystems on earth. Brazil, the largest deforester, has removed 42,330,000 hectares of tropical rainforest, in the 15 years between 1990 and 2005. The majority of the deforested land is used to grow crops and/or for pasturing livestock. The soil of tropical rainforests is nutrient deficient, resulting in continuous deforestation, as farmers constantly need new land. In Africa, particularly, many countries have removed large percentages of their forests, such as Comoros and Burundi, which have deforested 60 and 47 percent of their lands, respectively.

Desertification is another issue caused by poor agricultural practices. According to the UNCCD (United Nations Convention to Combat Desertification) it affects 1.9 billion hectares of land and 1.5 billion people globally, putting biodiversity and socio-economic stability in jeopardy. Caused by deforestation and overgrazing, desertification leads to a loss of 24 billion tons of soil every year, due to wind and water erosion. This malpractice furthers the global food crisis, creating long reaching issues that need addressing for a well nourished future.

Overfishing is one of the largest international resource issues we face. UNESCO (United Nations Educational, Scientific and Cultural Organization) predicts within the next 20 years an influx of 6.3 billion people to coastal areas, creating a strain on the fishing industry. This increase in demand for fish only adds to the already large demand that by 2002 had already depleted approximately  $\frac{3}{4}$  of the

marine stocks faster than their reproductive capabilities. According to the UNFAO 47 percent of global stocks are fully exploited and another 18 percent are over exploited. This large removal of fish from the oceans largely alters marine ecosystems, changing their food webs, which affects their long term sustainability.

The hardship that human populations instill on the world's ecosystems is immense. We depend on the environment's ability to provide us with food, clean water, and a stable environment. However, the more natural resources we utilize, by necessity, the harder it becomes for the world to keep up with the increase in human population. Without sustainable forestry, fishery, and agricultural practices there is potential to see the complete decline of ecosystems to destruction. Since industrialization these ecosystems have been used as immediate resource banks rather than something to invest in, so that in the long run we will have a viable source of economic and human sustenance.

## BLOC POSITIONS

### **Southeast Asia**

As a developing region, many governments promote agricultural investments from private sectors; or in other words, the commercialization of land. Although this greatly supports the respective economies of these countries, the ecosystems end up taking tolls as farmlands are exploited at larger scales. In addition, many developed countries outsource factory and manufacturing work to this general region, which contributes to large scale acquisition of raw materials such as metals. Despite many of these countries being aware of these environmental impacts, they are still largely dependent on the economic benefits of industrialization.

### **East Asia**

Countries in this region being more developed, there are large demands for commodities. Many of such being imported, this leads to the exploitation of energy, mineral, and food sources in developing countries. As the global economy is evolving, Eastern Asia is adopting the same trends North American markets showed a few decades prior.

### **North America**

Hosting some of the largest tech companies in the world, the demand for materials and manufacturing of them has significantly increased. This contributes toward exploitation both domestically and internationally as some of this work is outsourced. The same exploitation patterns have occurred with the energy sector as the dynamics of fossil fuel extraction have evolved. With the second largest shale reserve and a push toward sourcing materials and manufacturing more locally, the

exploitation of varying fossil fuels is more heavily concentrating in the rural US and Canada. However, this region acknowledges the detrimental effects of resource exploitation and has therefore been a world leader in land preservation techniques like the creation of national parks in the United States, which has spread around the world. This spread awareness in collaboration with NGOs and public opinion does reduce some aspects of exploitation and demand in importing manufactured goods.

## Europe

Like North America, Europe's markets tend to import more than they do manufacture, and thereby contribute toward exploitation of ecosystems in developing countries rather their own. Nonetheless, a significant case of exploitation in Europe is overfishing as it is a factor in the endangerment of a multitude of marine life species. Some countries in Europe have established protected areas and work together with the International Union for Nature Conservation (ICNU) to set conservation guidelines. Yet, organisms are still continually declining in population as the ecosystem is thrown off balance.

## Latin America

As countries in this region continue to develop, many are undergoing deforestation and experiencing overfishing. However, there are strong initiatives and demands to reduce such. The Brazilian government is continuing to update its laws on preservation of the Amazon rainforest and the Galapagos Islands are protected by strict legal frameworks by the Ecuadorian government to reduce as much fishing in the area as possible. On the other hand, there's a prevalence of illegal mining, particularly of gold. This has a tendency to ruin soil quality and consequently contribute to the devastation of rivers and forests, yet this issue has yet to be thoroughly addressed by local governments throughout the region. Moreover, the most ecologically friendly energy sources actually have detrimental side effects, and yet many regions rely on them. Specifically hydroelectric dams, the construction of such lead to ruination of rivers, deforestation, and higher production levels of methane. Due to reliance, implementation of them is only increasing.

## Middle East & North Africa

These regions are known for their abundance of fossil fuels and some have established prosperous economies as a result. Accordingly, the foreign demand for fossil fuels is not expected to decrease any time soon; by 2050 it's estimated that Central Asia will provide over 80% of oil distributed to the US. By extensively extracting fossil fuels in this way, carbon dioxide is emitted from these regions at a ten time higher rate than the global average. However, most policies in these countries favor the trade of oil at this scale for the economic benefits. In addition and similar to that of Latin America, hydroelectric dams and water are sources of conflict among coun-

tries in these regions. As water is scarce, these dams contribute to desertification in regions that are already quite desertified, as well as reduce the amount of water flow to other countries. This leads countries to import most of their water from foreign sources, and at its current rate, exploit it.

## **Sub-Saharan Africa**

With some of the most underdeveloped yet rapidly populating regions in the world, Sub-Saharan Africa experiences the negative impacts to biodiversity, deforestation, and desertification as agricultural lands are over-utilized to satisfy growing demands. This has been difficult to measure and regulate as this takes place in primarily rural areas and is often necessary to sustain life. With priority being eliminating poverty, the process of achieving such typically involves hindrances to the environment for the sake of development. However, there are many exceptions to this, as some farms have been protected from desertification and over-utilization when invested in resource-based capital.

## **New Zealand**

Dependent on agriculture, over-utilization of soil and the degradation of its quality is common. This contributes to the deteriorating quality of wildlife reserves as fertilizer runoff makes its way downstream. Furthermore, without funding for renewable energy resources, New Zealand is on par with semi-peripheral countries when it comes to clean energy. Working with the New Zealand Emissions Trading Scheme (ETS) and calling for education and protection of its biodiversity, New Zealand strives to achieve sustainable practices.

# CASE STUDIES

## **Case Study #1: Overfishing in the North Sea**

Several towns along the North Sea are reliant on the fishing industry. Beginning at around the 1960's, the fisheries in these towns have caused a massive overfishing problem. Overfishing leads to a chain of negative effects on the environment within the ocean ecosystems. These can include disrupting the local food chain, harming the natural habitat, or in many cases, causing some aquatic species to become endangered or extinct. The most prominent example of the effects of overfishing in this region can be seen in the sharp decline of the mackerel and herring populations in the 1970's. While both garnered attention and had massive impacts on fishing towns, different action was taken on each species and thus, yielded different results.

The herring population in the 1970's were at an all-time low within the North Sea, prompting the fishery to close in 1977 to allow for the stocks to recover. It was later reopened in the early 1980's, but again suffered from exploitation in the 1990's.

In 1996, a recovery plan was introduced in order to combat this issue. Drafted by the European Union (EU) and Norway, it cut the total allowable catch (TAC) by 50% from the previous year. This management plan was most recently revised in 2016 and updated the state management regulations on fishing practices which may threaten the spawning habitat. Herrings are now considered by the International Council for the Exploration of the Sea (ICES), which works with the EU and Norway on issues regarding the North Sea, to have recovered and are harvested sustainably.

The mackerel population has yet to recover fully from the 1970's. The mackerel's decline was a gradual one throughout the '60's and '70's. The fishery did not need to close, and instead changed their migration patterns, fishing in the further reaches of the North Sea. Thus, these adaptations caused no formal conservation plan to be established for the mackerel in the North Sea. Currently, the population of the mackerel within the North Sea has only recently been declared as sustainable by the ICES. The ICES suggests that strict regulations on targeted mackerel fishing be taken in areas where it is most prominent, while also lowering its TAC.

Following these incidents, the European Union (EU) had constructed the Common Fisheries Policy (CFP) in 1983. Their purpose is to manage the fishing regulations within the North Sea, ensuring to prevent overfishing and its effects while allowing a healthy competitive market for fishers. The EU has discussed and altered the regulations of CFP as the state of the ecosystem changed over the past few decades. The most recent reform occurred in 2014 with hopes for fish stocks to recover by 2020. It stated a maximum sustainable yield on all commercial species, banned the discarding of edible fish, and member-states have switched to a decentralized decision-making process. They can now formulate their own conservation plans and methods based on their own country or region's knowledge, known as regionalisation. Since this reform, several species that were once unsafe to fish are now considered "sustainable", such as the North Cod, which had been considered unsustainable for years. However, the North Sea's ecosystem still remains unbalanced after decades of overfishing.

## **Case Study #2: Deforestation in Indonesia**

Deforestation has plagued Indonesia for the past few decades. In the 1960's, 82% of Indonesia's land was comprised of forests. Since then, roughly 74 million hectares of land has been burned, logged, and destroyed, causing the nation now be 49% comprised of forests. This drastic decrease is mostly a result of illegal logging and intentional fire, which are done both by large corporations and the local people. Crops such as palm oil essentially require large plantations. Thus, local farmers and companies can burn entire forests and then some, if the fire is not controlled, for this land. Approximately 73 to 80% of logging in Indonesia is done illegally, even though several corporations have logging permits. These companies begin to log outside of their permitted area to help fuel their industries. This makes it difficult for the nation to keep track of the forests that is being logged. While both activities

seem to be economically beneficial, the World Bank estimates that deforestation caused Indonesia to lose roughly \$16 million last year. The effects of deforestation include destroying habitats for the local wildlife, altering the health of the soil, and caused Indonesia to become one of the largest carbon emission contributors.

The Indonesian government has attempted to take action against deforestation, but their efforts are largely criticized. Corruption within the government on national, regional, and local tiers has prevented the problem from being properly addressed. By relaying land rights over to private corporations, politicians can receive money and influence over business owners. This practice further promotes illegal logging. Much of the land that is handed over has previously been reserved for indigenous people, sparking further outrage. Despite that, few people are convicted of forestry crime. Law enforcement are often not bothered to step in the improbability that their actions will have an impact and the major hostility that loggers have against those who try to stop them.

The nation has partnered with organizations in order to prevent and stop deforestation. Their most prominent partnership is with the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD), who helps the nation take part in the REDD+ program. This program has helped Indonesia and other countries keep track and monitor logging areas. Through this program, the nation signed a \$1 billion deal with Norway to reduce emissions from deforestation through a moratorium. However, these efforts have yet to reap the results that either country had hoped for, with only around \$60 million being paid.

Even though Indonesia has taken various approaches in order to prevent and stop deforestation, they are still not enough to combat deforestation. The nation is incentivized by temporary financial benefit to not enforce forest protection laws. While outside organizations can attempt to help prevent deforestation, the true power to whether the problem can be stopped is in the hands of the government. In order to truly prevent deforestation from persisting, properly establishing and enforcing deforestation laws is key.

# GUIDING QUESTIONS

1. What initiatives have your country taken to reduce resource exploitation if at all?
2. Which energy resource is most viable for your country and what can be done about its environmental impacts?
3. What can the UNEP do to mitigate deforestation and desertification?
4. How economically dependent is your country on trading practices that may negatively impact the environment?
5. What influence do other countries have on yours, and yours on theirs, as far as resource exploitation?

# SOURCES: TOPIC A

<http://ocean.si.edu/ocean-news/ocean-trash-plaguing-our-sea>  
<http://oceanservice.noaa.gov/facts/garbagepatch.html>  
[http://serc.carleton.edu/NAGTWorkshops/health/case\\_studies/plastics.html](http://serc.carleton.edu/NAGTWorkshops/health/case_studies/plastics.html)  
<http://staging.unep.org/Documents.Multilingual/Default.asp?DocumentID=52&ArticleID=69&l=en>  
[http://wps.prenhall.com/wps/media/objects/107/110141/ch19\\_a3\\_d2.pdf](http://wps.prenhall.com/wps/media/objects/107/110141/ch19_a3_d2.pdf)  
<http://www.basel.int/TheConvention/Overview/tabid/1271/Default.aspx>  
<http://www.cpreec.org/pubbook-solid.htm>  
<http://www.ecomena.org/waste-to-energy-perspectives-for-middle-east/>  
[http://www.europarl.europa.eu/intcoop/acp/2014\\_mauritius/pdf/un\\_habitat\\_presentation\\_en.pdf](http://www.europarl.europa.eu/intcoop/acp/2014_mauritius/pdf/un_habitat_presentation_en.pdf)  
[http://www.fukuoka.unhabitat.org/kcap/activities/egm/2009/pdf/torres\\_en.pdf](http://www.fukuoka.unhabitat.org/kcap/activities/egm/2009/pdf/torres_en.pdf)  
<http://www.gcsusa.com/pyrolysis.htm>  
<http://www.latimes.com/science/sciencenow/la-sci-sn-tons-of-plastic-trash-in-oceans-20150213-story.html>  
<http://www.mfe.govt.nz/publications/environmental-reporting/state-new-zealand%E2%80%99s-environment-1997-chapter-three-production-3>  
<http://www.npr.org/sections/thetwo-way/2012/10/28/163823839/sweden-wants-your-trash>  
<http://www.pic.int/TheConvention/Overview/tabid/1044/language/en-US/Default.aspx>  
<http://www.pic.int/TheConvention/Overview/tabid/1044/language/en-US/Default.aspx>  
<http://www.sprep.org/legal/waigani-convention>  
[http://www.plasticseurope.org/documents/document/20161014113313-plastics\\_the\\_facts\\_2016\\_final\\_version.pdf](http://www.plasticseurope.org/documents/document/20161014113313-plastics_the_facts_2016_final_version.pdf)  
[http://www.sustainable-environment.org.uk/Action/Agenda\\_21.php](http://www.sustainable-environment.org.uk/Action/Agenda_21.php)  
[http://www.sustainable-environment.org.uk/Action/Rio\\_Declaration.php](http://www.sustainable-environment.org.uk/Action/Rio_Declaration.php)  
[http://www.un.org/apps/news/story.asp?NewsID=46211#.WR\\_s\\_ojyvb0](http://www.un.org/apps/news/story.asp?NewsID=46211#.WR_s_ojyvb0)  
[http://www.un.org/en/events/pastevents/UNCED\\_1992.shtml](http://www.un.org/en/events/pastevents/UNCED_1992.shtml)  
[http://www.unep.or.jp/ietc/Publications/spc/State\\_of\\_waste\\_Management/6.asp](http://www.unep.or.jp/ietc/Publications/spc/State_of_waste_Management/6.asp)  
<http://www.unep.org/gpwm/>  
<http://www.unep.org/gpwm/what-we-do/integrated-solid-waste-management>  
<http://www.unep.org/ietc/what-we-do/global-waste-management-outlook-gwmo>  
<http://www.unric.org/en/latest-un-buzz/29873-iswa-world-congress-meets-to-waste-on-the-global-agenda>  
<https://publications.iadb.org/handle/11319/7177>

[https://sustainabledevelopment.un.org/content/documents/641Synthesis\\_report\\_Web.pdf](https://sustainabledevelopment.un.org/content/documents/641Synthesis_report_Web.pdf)  
<https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>  
<https://waste-management-world.com/a/1-innovations-in-waste>  
<https://www.env.go.jp/en/recycle/smcs/attach/swmrt.pdf>  
<https://www.epa.gov/ocean-dumping/learn-about-ocean-dumping>  
[https://www.iswa.org/fileadmin/galleries/Publications/ISWA\\_Reports/GWMO\\_summary\\_web.pdf](https://www.iswa.org/fileadmin/galleries/Publications/ISWA_Reports/GWMO_summary_web.pdf)  
[https://www.iswa.org/fileadmin/galleries/Publications/ISWA\\_Reports/GWMO\\_summary\\_web.pdf](https://www.iswa.org/fileadmin/galleries/Publications/ISWA_Reports/GWMO_summary_web.pdf)  
<https://www.ncbi.nlm.nih.gov/pubmed/15462338>  
[https://www.researchgate.net/publication/237832880\\_SOLID\\_WASTE\\_MANAGEMENT\\_IN\\_SOUTHEAST\\_ASIAN\\_COUNTRIES\\_WITH\\_SPECIAL\\_ATTENTION\\_TO\\_MALAYSIA](https://www.researchgate.net/publication/237832880_SOLID_WASTE_MANAGEMENT_IN_SOUTHEAST_ASIAN_COUNTRIES_WITH_SPECIAL_ATTENTION_TO_MALAYSIA)  
<https://www.theguardian.com/environment/2010/apr/01/waste-recycling>

# SOURCES: TOPIC B

<http://futurewewant.org/about/>  
<http://sdg.iisd.org/news/undp-launches-2012-2020-global-framework-on-biodiversity-for-sustainable-development/>  
<http://web.mit.edu/africantech/www/articles/EnvChall.htm>  
[http://www.grid.unep.ch/products/3\\_Reports/ew\\_overfishing.en.pdf](http://www.grid.unep.ch/products/3_Reports/ew_overfishing.en.pdf)  
<http://www.history.com/topics/dust-bowl>  
<http://www.internationalwildlifelaw.org/galapagos.html>  
[http://www.landcoalition.org/sites/default/files/documents/resources/RAVA-NERA\\_Asia\\_web\\_11.03.11.pdf](http://www.landcoalition.org/sites/default/files/documents/resources/RAVA-NERA_Asia_web_11.03.11.pdf)  
<http://www.pbs.org/wgbh/globalconnections/mideast/questions/resource/>  
<http://www.un-redd.org/how-we-work>  
<http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>  
<http://www.un.org/en/events/desertificationday/background.shtml>  
<http://www.un.org/esa/ffd/ffd3/press-release/countries-reach-historic-agreement.html>  
<http://www.un.org/sustainabledevelopment/biodiversity/>  
<http://www.undp.org/content/undp/en/home/presscenter/pressreleases/2015/09/24/undp-welcomes-adoption-of-sustainable-development-goals-by-world-leaders.html>  
<http://www.unep.org/ecosystems/what-we-do/economics-ecosystems>  
<http://www.unep.org/ecosystems/what-we-do/funding-future>  
<http://www.unep.org/ecosystems/what-we-do/integrated-solutions>  
<http://www.unep.org/ecosystems/what-we-do/preserving-our-ecosystems>  
<http://www.unep.org/ecosystems/who-we-are/about-ecosystems>  
<http://www.unep.org/stories/story/attitudes-slash-and-burn-guinea%E2%80%99s-highlands-are-changing>  
<http://www.unep.org/stories/story/managing-peatlands-and-keeping-carbon-dioxide-under-control>  
<http://www.unredd.net/about/what-is-redd-plus.html>  
<http://www2.unccd.int/about-us/global-mechanism>  
<http://www2.unccd.int/convention/about-convention>  
[https://earthobservatory.nasa.gov/Features/Deforestation/deforestation\\_update2.php](https://earthobservatory.nasa.gov/Features/Deforestation/deforestation_update2.php)  
[https://earthobservatory.nasa.gov/Features/Deforestation/deforestation\\_update3.php](https://earthobservatory.nasa.gov/Features/Deforestation/deforestation_update3.php)  
<https://sustainabledevelopment.un.org/topics/biodiversityandecosystems>  
<https://www.arcgis.com/home/item.html?id=df0d64bb7b-904584ba306260a090aae8>  
<https://www.economist.com/blogs/americasview/2014/09/illegal-mining-latin-america>

[https://www.eea.europa.eu/publications/report\\_2002\\_0524\\_154909/regional-seas-around-europe/page121.html/#3.1](https://www.eea.europa.eu/publications/report_2002_0524_154909/regional-seas-around-europe/page121.html/#3.1)  
<https://www.lowyinstitute.org/publications/east-asias-demand-energy-minerals-and-food-international-politics-resources>  
<https://www.marxists.org/subject/africa/nkrumah/neo-colonialism/introduction.htm>  
<https://www.nationalgeographic.org/media/history-ivory-trade/>  
<https://www.ncbi.nlm.nih.gov/pubmed/12290969>  
<https://www.pachamama.org/blog/amazon-rainforest-preservation-law-a-work-in-progress>  
<https://www.theatlantic.com/business/archive/2014/04/americas-coming-manufacturing-revolution/360931/>  
<https://www.thenational.ae/uae/environment/region-s-carbon-emissions-doubled-in-past-30-years-report-1.586064>  
<https://www.npr.org/sections/thetwo-way/2017/05/15/528451534/wanna-cry-ransomware-what-we-know-monday>  
<https://www.nytimes.com/2017/05/15/business/china-ransomware-wanna-cry-hacking.html?mcubz=0>  
<https://www.ft.com/content/82b01aca-38b7-11e7-821a-6027b8a20f23>  
<http://www.securityweek.com/patched-wannacry-ransomware-has-no-kill-switch>

<https://www.justice.gov/opa/pr/seven-iranians-working-islamic-revolutionary-guard-corps-affiliated-entities-charged>  
<https://www.akamai.com/us/en/resources/ddos-attacks.jsp>  
[https://www.washingtonpost.com/world/national-security/justice-department-to-unseal-indictment-against-hackers-linked-to-iranian-government/2016/03/24/9b3797d2-f17b-11e5-a61f-e9c95c06edca\\_story.html?utm\\_term=.f744c257af5f](https://www.washingtonpost.com/world/national-security/justice-department-to-unseal-indictment-against-hackers-linked-to-iranian-government/2016/03/24/9b3797d2-f17b-11e5-a61f-e9c95c06edca_story.html?utm_term=.f744c257af5f)  
<https://arstechnica.com/information-technology/2017/05/examining-the-fcc-claim-that-ddos-attacks-hit-net-neutrality-comment-system/>