

# United Nations Environment Programme Committee

## *Letter from the Chair:*

Hello Delegates,

My name is Reshma Chandy and I am delighted to be chairing UNEP at WAMUNC! I am currently a sophomore majoring in economics while minoring in psychology. I am originally from Connecticut and am very much a New England girl at heart. I started doing MUN in my freshman year of high school and it has given me so many opportunities. MUN has let me talk to consulate workers in New York City, travel to amazing places, with my closest friends and meet amazing people from all over the world. I usually participate in SOCHUM and WHO committees but have always been interested in UNEP so I can't wait to see how this committee plays out.

As your head chair, I am here to not only lead the committee but also help develop professional and personal growth. My experiences in MUN have helped me become a better leader, speaker and teammate. Now, I want to share that experience with others. My goal is to create an environment that fosters creative thinking, healthy competition and development of skills you can utilize outside of MUN. I am so excited to meet you at WAMUNC and if you have any questions, comments, concerns, or you just want to say hi, don't hesitate to email me at [rchandy25@gwu.edu](mailto:rchandy25@gwu.edu) while cc'ing your advisor(s). See you soon!!

Regards,

Reshma Chandy

## ***Committee Descriptions***

The United Nations Environment Programme (UNEP) was developed in 1971 and has since been committed to improving the environment and solving related issues. It comprises many subsections including Climate Action, Finance and Economic Transformations, and Nature Action. Since its inception, UNEP has made major strides in protecting the environment.<sup>1</sup> In 1973, it created a treaty, called the “Convention for the Prevention of Pollution from Ships” to reduce pollution associated with the shipping industry. In 1979, it adopted the “Convention on Migratory Species” which protected over 600 species ranging from great white sharks to monarch butterflies. UNEP was also involved with the creation and implementation of the Paris Agreement. One task they are currently working on, along with the rest of the UN, is the 17 Sustainable Development Goals. These goals are “humanity's blueprint for a better future.”<sup>2</sup>

### ***Topic A: Regulating Major Polluters***

#### ***Introduction***

Pollution is the “presence of substances and/or heat in environmental media (air, water, land) whose nature, location, or quantity produces undesirable environmental effects”. Pollution falls into three major categories: air, water and land. Pollution is associated with a slew of negative effects, from increasing greenhouse gasses to the destruction of habitats to impacting human health. It is estimated that air pollution alone causes 7 million deaths.<sup>3</sup> With pollution expected to increase to 3.4 billion tons by 2050, many are calling for ways to curb how much

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<sup>1</sup> “About UN Environment Programme,” UNEP - UN Environment Programme, n.d., <https://www.unep.org/about-un-environment>.

<sup>2</sup> “UNEP: 50 Years of Environmental Milestones,” UNEP - UN Environment Programme, n.d., <https://www.unep.org/environmental-moments-unep50-timeline>.

<sup>3</sup> “Pollution,” UNDRR, June 7, 2023, <https://www.undrr.org/understanding-disaster-risk/terminology/hips/tl0028>.

waste humans generate<sup>4</sup>. While some call for individuals to reduce practices like single-use plastics, many say regulating large institutions would be more effective. According to the University of Manchester, since 1988, 100 companies have been responsible for 71% of all greenhouse gas emissions. While consumer consumption patterns do impact pollution, it is clear that corporations are the ones driving current pollution trends.<sup>5</sup> While some call for corporation regulation, others call for country-based regulation. China, the U.S.A. and India are responsible for 42.6% of all emissions so many believe they should have an elevated responsibility for fighting pollution.<sup>6</sup>

While science shows that there is a need to reduce pollution, there are many reasons why minimal regulation has been implemented, namely financial ones. Pollution-based regulation, especially for a company, often looks like imposing a carbon tax, holding companies responsible for cleaning up waste sites and cap-and-trade programs. However, all of these come at a financial cost and long-term changes to reduce pollution can drop productivity. When these policies are implemented, especially in a single country, companies may move to a country with less regulation or they try to reduce costs through methods like cutting jobs. Since the most mainstream regulation techniques have this economic impact, many do not even get a chance to seriously discuss pollution regulations.<sup>7</sup>

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<sup>4</sup> “Pollution,” World Bank, n.d., <https://www.worldbank.org/en/topic/pollution>.

<sup>5</sup> Chris Waugh, “Corporations Vs. Consumers: Who Is Really to Blame for Climate Change?,” *Global Social Challenges*, July 7, 2022, <https://sites.manchester.ac.uk/global-social-challenges/2022/07/07/corporations-vs-consumers-who-is-really-to-blame-for-climate-change/>.

<sup>6</sup> Johannes Friedrich, “This Interactive Chart Shows Changes in the World’s Top 10 Emitters,” *World Resources Institute*, n.d., <https://www.wri.org/insights/interactive-chart-shows-changes-worlds-top-10-emitters>.

<sup>7</sup> Wayne Gray, “Environmental Regulations and Business Decisions,” *IZA World of Labor*, January 1, 2015, <https://doi.org/10.15185/izawol.187>.

## ***Regulation Methods***

As mentioned earlier, the most popular regulation methods are carbon pricing and cap-and-trade programs. While these are the most well-known, other strategies also exist and can be more effective. Understanding and intermixing all methods is crucial to creating the most effective regulation.

Carbon pricing is a broad term referring to any instrument that captures the external cost of pollution and ties it back to the polluter. This method's main goal is to hold polluters financially responsible for the damage their emissions are creating. This method helps achieve the goal of putting pressure on companies to reduce emissions while also minimizing costs on society. In theory, this method will also pressure people to invest in cleaner companies and energy-efficient technology as they will be more profitable than traditional companies. Carbon taxes are also one of the easier methods to implement and add money to the government budget. This money can be easily redistributed to the population via increased welfare, increased education funds, or carbon rebates. Carbon taxes are the most common form of carbon pricing. This is when a government taxes companies based on many metric tons of CO<sub>2</sub> they produce. However, there are also other methods such as carbon credit mechanisms, result-based climate finance (RBCF) and emission trading systems (ETFs).<sup>8</sup>

While carbon taxes look great on paper, there is a reason they are not more popular. For one, many countries argue that carbon taxes hurt the poorest part of the population. If a polluting company faces a carbon tax, instead of changing its behavior, it may just raise prices which would affect lower socioeconomic classes the most. Furthermore, there are many political barriers to imposing a carbon tax. Some argue that a carbon tax is the government meddling the

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<sup>8</sup> "What Is Carbon Pricing?," Carbon Pricing Dashboard, August 18, 2022, <https://carbonpricingdashboard.worldbank.org/what-carbon-pricing>.

free market and interfering with business operations. Many countries may struggle to get political support to get a carbon tax through. Finally, even if a carbon tax can force a company to change behavior, it may result in a negative impact on the macro economy. For the period while the company is transitioning, productivity, profits and job opportunities would be down which would hurt both the government and its systems.<sup>9</sup>

Cap and trade, also known as ETSs, are another form of carbon pricing that focuses more on rewarding good behavior than punishing polluters. Cap and trade is a slightly more complex model than a carbon tax yet it is often more palatable. It starts with the government or some international organization determining how much a certain industry can release in emissions; this is called the cap. The cap is split into allowances or permits which are assigned to different companies. Some of these permits are given away for free but many are auctioned off. For example, if a company gets 3 permits (each worth 2 tons), it can emit 6 tons of emissions. Once their emissions exceed this limit, the company is taxed on additional emissions and may be penalized. Each year, the cap is lowered which in turn lowers the amount of permits available. As time goes on, permits will get more expensive since demand is increasing. Companies know this will happen, and this financial pressure encourages companies to pursue more sustainable operation methods.<sup>10</sup> However, since this happens over a longer period, the transition is not as abrupt and has fewer negative impacts. Furthermore, if a company finds they are polluting under their permits, they can sell unnecessary permits to other companies. That is where the trade part comes in.

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<sup>9</sup> Roumeen Islam, “What a Carbon Tax Can Do and Why It Cannot Do It All,” *World Bank Blogs* (blog), March 16, 2024, <https://blogs.worldbank.org/en/energy/what-carbon-tax-can-do-and-why-it-cannot-do-it-all#:~:text=For%20example%2C%20a%20carbon%20tax,their%20consumption%20basket%20more%20expensive>.

<sup>10</sup> Will Kenton, “Cap And Trade Basics: What It Is, How It Works, Pros & Cons,” Investopedia, July 31, 2024, <https://www.investopedia.com/terms/c/cap-and-trade.asp>.

Unlike a carbon tax, cap, and trade is a more free system that allows companies to address specific pollution issues while not being punished immediately for noncompliance. It also can benefit society as purchasing permits from the government flows back into society and it gives consumers more insight into a company's pollution activity. While this system is less rigid, there still is structure in place that incentivizes companies to be more sustainable. While there are many pros, there still are cons to this system. For one, it can easily drag out change or not reduce pollution if the cap is set too high or not reduced fast enough. Furthermore, if the price of permits is too low, many companies would rather pay the permit than pay to switch away from fossil fuels. This in turn would raise prices for consumers as the cost of the permit is passed on to the market.<sup>11</sup>

Aside from carbon pricing and cap and trade, there are many other methods to encourage corporations to pollute more. The three main categories of other solutions are command and control regulation, incentive-based approaches and non-carbon market-based approaches. Command and control regulations is a traditional approach to regulation that involves the government setting limits on pollution or requiring companies to switch to sustainable technology. The government enforces these regulations through legal instruments. The benefit of this method is that the rules are clear and lead to near-immediate results, however this method suffers because it can be costly to enforce and face political opposition. Examples of this method include emission standards, technology mandate, and efficiency performance standards.<sup>12</sup>

The incentive-based approach gives financial rewards to companies that comply with pollution standards or make efforts to be more sustainable. In simple terms, this method involves

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<sup>11</sup> Center for Climate and Energy Solutions, “Cap And Trade Basics - Center for Climate and Energy Solutions,” May 1, 2024, <https://www.c2es.org/content/cap-and-trade-basics/#:~:text=In%20a%20cap%2Dand%2Dtrade,market%20establishes%20an%20emissions%20price>.

<sup>12</sup> “Command-and-control,” European Environment Agency, n.d., <https://www.eea.europa.eu/help/glossary/eea-glossary/command-and-control>.

the government giving money to greener companies. The strength of this method is that it is flexible, encourages voluntary participation and can even encourage innovation in the sustainability space. However, the biggest con is the cost. The government would need to offer companies substantial incentives which are costly and can slow progress. Examples of this method include tax breaks for lowering pollution, government funding to research green energy implementation strategies and grants for investing in renewable energy.<sup>13</sup>

The final method is non-carbon market-based approaches. This method takes ideas from carbon taxes and carbon cap and trade and applies them to other forms of pollution. For example, instead of taxing based on how much carbon is produced, the tax may be based on sulfur dioxide. Instead of selling permits based on how much carbon can be procured, the permit can be based on how much wastewater the company creates. These strategies allow for a more multifaceted approach to pollution and ensure that more positive change is created. While this method benefits from the strengths of a carbon tax and cap and trade, they also suffer from the same weaknesses.

There are a multitude of ways to try and regulate polluters. From carbon taxes to emission mandates to financial incentives. It is important to use a variety of these methods to create a diverse plan, however, it is also important to remember the pros and cons of each method. Different countries may react differently to each method so international cooperation is needed to ensure these plans are enforced and effective. While this background guide has covered a wide range of methods, there are still more methods that may be more modern or address issues of a specific country. It is important to research potential solutions to create the best plan of action possible.

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<sup>13</sup> “Economic Incentives | US EPA,” US EPA, August 5, 2024, <https://www.epa.gov/environmental-economics/economic-incentives>.

## ***Waste Management***

While the previously discussed regulation methods mainly focus on air pollution, other forms of pollution need to be regulated. Much of water and land pollution is due to improper waste management. Waste may not be dealt with properly due to insufficient funds or a company may just be trying to cut corners. Ensuring that polluters dispose of waste properly will ensure that the environment and humans stay healthy.

Solid waste is any discarded material that is a result of commercial, industrial, mining and/or agricultural operations. It can be anything from electronics to plastics to hazardous substances. UNEP estimates that over 11.2 billion tons of solid waste are created each year but not all of that is properly disposed of. The EPA estimates that 25% of this waste is generated by corporations. Furthermore, just 20 companies are responsible for an estimated 55% of all single-use plastic waste a year.<sup>14</sup> Not only does improper disposal of waste hurt the environment, it can also cause significant health issues. The National Institute of Health found that significant landfilling and incineration can be linked to issues such as developmental defects in children, hepatitis C and cancer.<sup>15</sup> These impacts show it is imperative that solid waste pollution needs to be managed properly and reduced in the coming years

The first half of the solid waste issue needs to be solved by regulating companies so they properly dispose of waste. Currently, the UN estimates that 40% of trash is dumped into open dumpsites. Open dumpsites are open pieces of land where companies and people dump their

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<sup>14</sup> Jason Breslow, “20 Companies Are Behind Half of the World’s Single-Use Plastic Waste, Study Finds,” *NPR*, May 18, 2021, <https://www.npr.org/2021/05/18/997937090/half-of-the-worlds-single-use-plastic-waste-is-from-just-20-companies-says-a-stu>.

<sup>15</sup> Ismaila Rimi Abubakar et al., “Environmental Sustainability Impacts of Solid Waste Management Practices in the Global South,” *International Journal of Environmental Research and Public Health* 19, no. 19 (October 5, 2022): 12717, <https://doi.org/10.3390/ijerph191912717>.



trash. Most of these sites are in population-dense areas. These issues hit Latin America and Africa especially hard, it is estimated that 90% of all waste in Africa is dumped in an open dumpsite. Unfortunately, the solution to this in many countries is a long and extensive process as these countries do not have the infrastructure to dispose of corporate waste even if they have regulations in place. These countries often lack the country-wide waste management system that more developed countries have. To help solve this infrastructure issue while also regulating polluters, some sort of corporate tax system would be ideal. By taxing companies on how much waste they add to these dumpsites, the government can generate revenue that can be reinvested into a waste management system. These regulations not only encourage companies to dispose of their waste better, but their taxes will grow the waste management system, improving the lives of citizens. These improvements will not only help waste management, but there will also be job opportunities as the waste treatment sector grows. While there may be some structural issues to put these systems in place, organizations like UNEP and The Institute for Global Environmental Strategies already have programs in place to help countries develop these systems.<sup>16</sup> In terms of what these tax systems could look like, the most popular ideas are similar to ways to regulate carbon emissions such as cap and trade and some form of pollution tax.

While developing countries can help mitigate waste through developing a waste management system, how can more developed countries deal with this issue? In America, the EPA believes that over half of American rivers are not suited for swimming, fishing or drinking.<sup>17</sup> To deal with issues like this, regulation has been very successful in the past. Countries like South Korea have a Pay-As-You-Throw program which charges businesses based on the

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<sup>16</sup> “Open Dumping,” UNEP - UN Environment Programme, n.d., <https://www.unep.org/topics/chemicals-and-pollution-action/waste/open-dumping>.

<sup>17</sup> “Water Pollution: Everything You Need to Know,” May 2, 2024, <https://www.nrdc.org/stories/water-pollution-everything-you-need-know#categories>.

amount of waste they create. They pair this program with strict recycling enforcement to ensure all waste is accounted for.<sup>18</sup> The European Union implemented the Water Framework Directive which limited what pollutants industries could use and monitored their disposal of pollutants. This program was enacted in 2000 and has significantly improved the water across the EU.<sup>19</sup> This regulation also must cover company liability in the case of some sort of waste spill. In 1980, the United States passed the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) which put liability on companies to clean up any messes they create. This has positively impacted the country as companies like ExxonMobil were forced to finance cleanup activities for spills like the 1989 Valdez Oil Spill.<sup>20</sup> While most of the regulation around waste management has been country or region-specific, international programs are also necessary as pollution rarely stays in just one country. This regulation paired with programs that reward or incentivize less wasteful production processes will help ensure that waste does not get out of hand.

One final issue relating to waste management is how developed countries deal with the waste they collect. It is important to remember that polluters are not always companies, they can be entire countries. While developed countries have the infrastructure to collect and centralize waste, few people think about what happens to this trash after it leaves their sight. Unknown to most, there is a trash exporting industry where developed countries ship their waste and plastic to the developing world. In 2022, the EU alone exported 1.1 million tons of plastic waste to

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<sup>18</sup> Ki-Yeong Yu, "Pay as You Throw System of Seoul," *Seoul Solution* (Seoul Metropolitan Government, n.d.), [https://seoulsolution.kr/sites/default/files/policy/2%EA%B6%8C\\_Environment\\_Pay%20as%20you%20throw%20stem%20of%20Seoul.pdf](https://seoulsolution.kr/sites/default/files/policy/2%EA%B6%8C_Environment_Pay%20as%20you%20throw%20stem%20of%20Seoul.pdf).

<sup>19</sup> "2 - the Essence of the Water Framework Directive," WAREG - European Water Regulators, November 19, 2023, <https://www.wareg.org/articles/the-essence-of-the-water-framework-directive/>.

<sup>20</sup> "Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)," LII / Legal Information Institute, n.d., [https://www.law.cornell.edu/wex/comprehensive\\_environmental\\_response\\_compensation\\_and\\_liability\\_act\\_\(cercla\)#:~:text=The%20Comprehensive%20Environmental%20Response%2C%20Compensation,high%20levels%20of%20hazardous%20materials.](https://www.law.cornell.edu/wex/comprehensive_environmental_response_compensation_and_liability_act_(cercla)#:~:text=The%20Comprehensive%20Environmental%20Response%2C%20Compensation,high%20levels%20of%20hazardous%20materials.)

countries like Turkey, Malaysia and Indonesia. Electronic waste is also exported which leads to places like Accra Ghana being deemed a Toxic City. All the electronic waste dumped in Ghana ends up burning which releases toxic fumes that poison locals.<sup>21</sup> This process is done because developing countries are supposed to recycle plastic waste but few have the infrastructure or enforcement mechanisms to complete this process safely. There have been efforts to stop this such as the Basel Convention which was designed to stop the transfer of hazardous waste to developing countries. However, this convention places the regulation burden on the exporting countries and has many loopholes leading to minimal change. China used to be the recipient of most of this waste but in 2018 they banned the import of plastic. This made conditions much better in China but much of the waste was then diverted to Southeast Asia. This issue is particularly hard to deal with because this waste can not just disappear. It needs to be put somewhere but is it ethical for developed countries to push this responsibility on developing countries who can not keep up with the amount of waste they receive?<sup>22</sup> There is no clear solution to this problem. The Basel Convention was a good first attempt but it fell short. The current trend is to use some sort of regulation to curb this problem. Some call for the Basel Convention to be amended and strengthened to ensure no loopholes are left.<sup>23</sup> This issue needs to be addressed from a new perspective and developed countries need to start taking more responsibility for their trash.

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<sup>21</sup> “The Rich Countries Practice Waste Colonialism | D+C - Development + Cooperation,” n.d., <https://www.dandc.eu/en/article/industrialised-countries-are-disposing-large-volumes-their-waste-poorer-countries>.

<sup>22</sup> Helena Varkkey, “By Exporting Trash, Rich Countries Put Their Waste Out of Sight and Out of Mind,” CNN, n.d., <https://www.cnn.com/2019/07/29/opinions/by-exporting-trash-rich-countries-put-their-waste-out-of-sight-and-out-of-mind-varkey>.

<sup>23</sup> Hiroko Tabuchi and Michael Corkery, “Countries Tried to Curb Trade in Plastic Waste. The U.S. Is Shipping More.,” The New York Times, March 12, 2021, [https://www.nytimes.com/2021/03/12/climate/plastics-waste-export-ban.html?unlocked\\_article\\_code=1.cU4.OUxm.QgoOaOGBiGN0&smid=url-share](https://www.nytimes.com/2021/03/12/climate/plastics-waste-export-ban.html?unlocked_article_code=1.cU4.OUxm.QgoOaOGBiGN0&smid=url-share).

### ***Guiding Questions***

- What type of polluters operate in your country and what pollutants do they emit?
- What type of regulation method would work best in your country?
- What programs are currently in place within your country that are targeting polluters?

How effective have they been?

- What will the economic effects of certain regulation methods be?
- What are ways your country can deal with a potential decrease in output or reduced GDP due to regulation?
- Should developing countries get more leeway when it comes to regulating polluters?
- Does your country believe that corporate polluters or entire countries should be regulated?

### ***Topic B: Combatting Biodiversity Loss in the Developing World***

#### ***Introduction***

Forrest covers only 31% of the world yet is home to over 80% of all terrestrial species and is a massive aid in carbon sequestration. Although forests are integral to a healthy planet, 100 million hectares of healthy land were destroyed between 2015 and 2019. The UN believes that this loss impacted 1.3 billion people by increasing pollution and disease. Furthermore, deforestation can lead to the extinction of certain plants or animals which can disrupt entire ecosystems. Although it is clear that deforestation has negative effects, the demand for agriculture makes it hard to combat. Agriculture is estimated to cause 90% of deforestation with palm oil farming alone being responsible for 7% of it.<sup>24</sup>

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<sup>24</sup> Martin, "Forests, Desertification and Biodiversity - United Nations Sustainable Development," United Nations Sustainable Development, October 20, 2023, <https://www.un.org/sustainabledevelopment/biodiversity/>.

Biodiversity is not just being lost on land, marine biodiversity is also taking major hits. While forests are responsible for a large portion of carbon sequestration, the true “lungs” of the earth is the ocean. It is estimated that 50-80% of the planet’s oxygen comes from photosynthetic marine life. While the ocean is already struggling to battle water pollution and rising temperatures, overfishing is directly impacting biodiversity and delicate ecosystems. It is estimated that 37.7% of fish stocks are currently overfished. This has a domino effect leading to fewer fish for future generations as well as potential extinction. Furthermore, the decline of fish affects other species. Sharks and rays have been estimated to have declined by 71% since 1970 and the primary driver for decline is overfishing. Furthermore, current fishing practices are not precise leading to something called “bycatch” which is unwanted marine life that is caught while targeting another fish. About 9.1 million tons per year are deemed as bycatch and are discarded.<sup>25</sup>

Although it is clear that biodiversity loss is a major issue, much of the developing world can not stand to reduce agriculture or fishing as it is a livelihood for many. The UN has recognized this issue and has incorporated conservation as the 15th goal of the Sustainable Development Goals (SDGs). Global cooperation is essential to help sustain ecosystems around the world, especially in developing countries. There has been a recent surge in support to help target biodiversity loss. The Biodiversity Plan is a UN-Landmark agreement that has been adopted by 196 countries. The goal is to curb human impact on nature by 2030. The plan is multifaceted and focuses on biodiversity loss, ecosystem restoration, and indigenous rights protection.<sup>26</sup>

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<sup>25</sup> “Biodiversity and Fishing | Marine Stewardship Council,” United States - English, n.d., <https://www.msc.org/en-us/what-we-are-doing/oceans-at-risk/biodiversity-and-fishing>.

<sup>26</sup> Hannah Ritchie and Max Roser, “Fish and Overfishing,” Our World in Data, December 28, 2023, <https://ourworldindata.org/fish-and-overfishing>.

## *Sustainable Agriculture*

As mentioned earlier, agriculture is one of the driving causes of biodiversity loss. Agriculture is not just farming crops, it also includes livestock rearing, aquaculture and logging. These issues impact different parts of the world as each country and economy is different. For example, large-scale industrial palm oil production drives much of the harm in Indonesia and Malaysia. In those countries alone, 3.7 million hectares of land have been destroyed in recent years to make way for palm oil plantations. To make matters worse, the land in this area has been deforested via fire which pumps greenhouse gasses into the atmosphere while also decreasing air quality for citizens and surrounding countries.<sup>27</sup> Brazil houses the Amazon rainforest which is home to 50% of the world's biodiversity, 20 million people and many freshwater resources. Yet this invaluable resource has shrunk by almost 20% in recent years primarily due to cattle ranching. In recent years, it is estimated that cattle ranching caused 80% of Amazon deforestation. In Nigeria, the Omo forest is being threatened due to both legal and illegal logging. This forest is home to rare and endangered species like the African elephant and pangolins, their extinction is near guaranteed if things don't change.<sup>28</sup> Off the coast of Cambodia, illegal fishing has exploded leading to 64% of fish stock in the area being overfished while also collapsing the local fisherman market.<sup>29</sup>

It is clear that biodiversity loss is an issue across the globe but in many of these developing countries, the path forward is unclear. These countries do not have the resources to just stop farming. In 2023, Indonesia produced 47 million tons of palm oil. This oil was worth

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<sup>27</sup> Yale Center for Business and the Environment, "Palm Oil in Indonesia: Environmental and Social Aspects," n.d., <https://cbey.yale.edu/research/palm-oil-in-indonesia-environmental-and-social-aspects>.

<sup>28</sup> Taiwo Adebayo, "Logging Is Growing in a Nigerian Forest Home to Endangered Elephants. Rangers Blame Lax Enforcement | AP News," AP News, August 30, 2023, <https://apnews.com/article/deforestation-logging-nigeria-climate-49513339cd47629b7413ae4788d61a3a>.

<sup>29</sup> Rebecca Kessler, "Efforts to Save Cambodia's Coast Tread Water as Fish Stocks Plummet," Mongabay Environmental News, June 13, 2024, <https://news.mongabay.com/2024/06/efforts-to-save-cambodias-coast-tread-water-as-fish-stocks-plummet>.

billions of dollars and is 4.5% of Indonesia's GDP. Furthermore, this industry employs over 16 million people.<sup>30</sup> In Nigeria, there have been attempts to prevent logging and to protect the Omo Forest yet these efforts have fallen short as there have been challenges enforcing new regulations. In addition to many countries depending on unsustainable industries for economic reasons, the world also depends on these industries. The Indonesian palm oil industry has grown due to skyrocketing demand for palm oil across the globe. Overfishing occurs because so many people eat fish every day. The world can not live without many of these products and developing countries would suffer if we eliminated them. This is where sustainable agriculture comes in. It allows countries to produce necessary goods in a manner that is better for the environment.

Sustainable agriculture is any form of farming that protects the environment rather than destroying it. Not only does sustainable agriculture protect biodiversity, it also leads to more fertile soil, cleaner water and food for generations to come. Some argue that sustainable agriculture is unsuitable for developing countries due to its labor-intensive and often costly nature; however, the reality is quite the opposite. Sustainable agriculture can lead to a 30% increase in jobs and more economic growth than non sustainable farming.<sup>31</sup> There are many types of sustainable farming as efficient methods are influenced by the environment. Methods like crop rotation help soil retain nutrients which ensures viable farming land for years to come. While these more general methods help the greater environment, more specific methods are needed to curb and fight biodiversity loss.

In recent years, different studies and initiatives have shown how biodiversity and sustainable agriculture are linked. For example, the International Union for the Conservation of

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<sup>30</sup> Stockholm Environment Institute, "Trase: Indonesian Palm Oil Exports and Deforestation | SEI," SEI, October 8, 2024, <https://www.sei.org/features/indonesian-palm-oil-exports-and-deforestation/>.

<sup>31</sup> United Nations Environment Programme, "A Beginner's Guide to Sustainable Farming," UNEP, n.d., <https://www.unep.org/news-and-stories/story/beginners-guide-sustainable-farming>.

Nature looked at sustainable agriculture in Guatemalan highland farms. There were 20 farms in this study and 10 of them were asked to use Ecosystem Based Adaptation (EbA), a sustainable farming technique. At the end of the study, the 10 EbA plots had significantly more biodiversity, they had 68 species of insects while the conventional farms had 34. This study concluded that techniques used on the EbA farms like contour farming, crop diversification and intercropping are all effective ways to increase biodiversity in a climate similar to Guatemala.<sup>32</sup>

In Kenya, the Agroecology movement has been gaining momentum. Agroecology applies ecological principles to farming systems and practices. In Kenya, this process manifests as deep digging to protect soil health, farm waste manure to reduce waste, and prioritizing seed saving over commercial crops and terraces for water conservation.<sup>33</sup> The Inter-sectoral Forum on Agrobiodiversity and Agroecology (ISFAA) is a group that works in Kenya to help sustainable agriculture and biodiversity in the area. They work with local farmers to show the importance of growing a diverse set of crops. This then helps grow biodiversity as it attracts more pollinators and creates a more robust ecosystem. While this movement aims to help people, there have been challenges. Agroecology is more time intensive however Kenya faces a major food insecurity issue and does not have the flexibility to prioritize less efficient farming. While groups have tried to put in regulations to protect biodiversity, there is a gap between policy and implementation.<sup>34</sup>

Places like Guatemala and Kenya use smaller-scale farming but many argue that large-scale plantation farming in places like Indonesia is the bigger driver for biodiversity loss. While this is true, there has been a positive change regarding Indonesia's deforestation trends.

From 2018-2022, only 32,406 hectares were deforested - 18% of what it used to be in

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<sup>32</sup> "Sustainable Agriculture Supports Biodiversity Conservation, IUCN Study Confirms," IUCN, September 9, 2023, <https://iucn.org/news/202309/sustainable-agriculture-supports-biodiversity-conservation-iucn-study-confirms>.

<sup>33</sup> "Best Agroecological Practices," Pelum Kenya, n.d., <https://www.pelumkenya.net/wp-content/uploads/2021/11/12-Best-Agroecological-Practices.pdf>.

<sup>34</sup> Agroecology Coalition, "A Conversation About Agroecology and Biodiversity | Agroecology Coalition," n.d., <https://agroecology-coalition.org/a-conversation-about-agroecology-and-biodiversity/>.



2008-2012. Part of this is due to Indonesia's zero-deforestation commitment which 85% of companies have adopted.<sup>35</sup> However other practices like building plantations on unused farmland have significantly contributed to this decline. By using land that has already been cleared, biodiversity is protected. This process generates 99.7% less emissions than deforestation.<sup>36</sup> Furthermore, sustainability has been kept in mind when deforestation needs to be done. Nowadays, many companies are required to leave sizable patches of rainforest intact when building plantations to ensure any displaced biodiversity has a place to go. Luckily, due to strong government enforcement and public backlash, these standards are met by most companies.<sup>37</sup>

### ***Reforestation and Conservation***

While sustainable agriculture can help limit harm to biodiversity, it can not do much to restore lost biodiversity. This is where reforestation and conservation come in. Reforestation is the “direct human-induced conversion of non-forested land to forested land” and preservation is using regulation to protect land or biodiversity from being harmed. Reforestation helps rebuild lost biodiversity while conservation ensures the problem does not get worse. Countries like the United States have been able to create robust conservation systems, like National Parks, since they have the funding to create and protect conservation sites. Although developing countries may want to reforest or conserve certain sites, they can fall short due to economic issues. However, there are ways to overcome these hurdles like creating an ecotourism industry, international aid, or working with the UN.

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<sup>35</sup> “Sustainable Agriculture Supports Biodiversity Conservation, IUCN Study Confirms.”

<sup>36</sup> Kirstie A. Goggin and Denis J. Murphy, “Can Palm Oil Be Produced Without Affecting Biodiversity?,” *Frontiers for Young Minds* 8 (July 7, 2020), <https://doi.org/10.3389/frym.2020.00086>.

<sup>37</sup> “Putting ‘no Deforestation’ Into Practice in the Palm Oil Industry |,” n.d., <https://www.ox.ac.uk/research/research-impact/putting-no-deforestation-practice-palm-oil-industry>.

Ethiopia had major success with its Green Legacy Initiative. The goal of this program was to combat deforestation, soil erosion and climate change. This program was a massive success and is responsible for planting over 25 billion (the original target was 20 billion) between 2019 and 2024. This was a country-wide effort that over 20 million citizens helped with. It also led to the development of 120,000 tree nurseries, spurring the creation of over 767,000 jobs. Furthermore, millions of the trees planted bear high-value fruit such as avocados and mangos which not only helps the country become food self-sufficient but also helps grow their exporting industry.<sup>38</sup> This program was so successful because it was incredibly organized and addressed multiple different issues. For one, the government made this a priority by dedicating large chunks of funds to help aid the growth of this program. Furthermore, the Prime Minister, Abiy Ahmed, played a big role by building morale in the community and urging everyone to get involved. This helped boost community engagement which is one of the key pillars of this program. On one single day in 2019, 350 million trees were planted by citizens because the whole country was passionate about this cause.<sup>39</sup> While the Ethiopian government did help fund this program, they also partnered with the UN and World Bank to get additional funding. This was especially helpful for the development of nurseries. Ethiopia was able to combine amazing leadership, community action and international collaboration to create one of the most successful reforestation initiatives in recent years.<sup>40</sup> All this work has led to a much more diverse ecosystem for plants and animals alike.

Costa Rica is another country that has lots of success with reforestation and conservation, primarily through ecotourism and programs like “Payment for Ecosystem Services” (PES). PES

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<sup>38</sup> “Green Legacy Initiative | Department of Economic and Social Affairs,” September 30, 2022, <https://sdgs.un.org/partnerships/green-legacy-initiative>.

<sup>39</sup> Ministerie van Landbouw, Natuur en Voedselkwaliteit, “Ethiopia’s Green Legacy Initiative,” Nieuwsbericht | Agroberichten Buitenland, July 25, 2023, <https://www.agroberichtenbuitenland.nl/actueel/nieuws/2023/07/25/ethiopias-green-legacy-initiative>.

<sup>40</sup> “Green Legacy Initiative | Department of Economic and Social Affairs.”

is an innovative financial tool that encourages reforestation and conservation. This program has protected over 1.3 million hectares of land while also distributing 524 million dollars (USD) across 18,000 families. This program works by paying landowners who use their land to benefit the environment.<sup>41</sup> For example, if a family decides to reforest the land they own, they will get a payment for their work. People can also vow to conserve land by selling a contract to the government through this program. There are also credits for people who help improve biodiversity. Furthermore, small businesses are allowed to participate in this program which allows for a larger impact. This program is already impressive due to its visionary nature and its success however it also is entirely self-funded. One of the primary financiers is the 3.5% carbon tax Costa Rica puts on fossil fuels. Almost all that money is funneled back into that program.<sup>42</sup> Costa Rica also has many systems in place to make ecotourism a very profitable industry. 25% of Costa Rica's land is protected as a national park, wildlife refuge, or reserve. Costa Rica is home to beautiful wildlife which attracts tourists from all over. Costa Rica capitalizes on this demand by charging fees to enter any park or reserve. This generates enough money for tourism to be 5.1% of Costa Rica's GDP. Costa Rica's approach to ecotourism has benefited not only the country but also all the wildlife within its borders.<sup>43</sup>

Countries like Costa Rica and Ethiopia show that more developing countries can create impactful reforestation and conservation systems if they are given the right leadership and resources. Now the issue is how can resources reach those who need them most. Costa Rica is on the threshold between developing and developed countries which is why they were able to spare

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<sup>41</sup> "Payments for Environmental Services Program | Costa Rica," United Nations Climate Change, n.d., <https://unfccc.int/climate-action/momentum-for-change/financing-for-climate-friendly-investment/payments-for-environmental-services-program>.

<sup>42</sup> Ina T Porras and Adriana Chacon-Cascante, "Costa Rica's Payments for Ecosystem Services Programme," International Institute for Environment and Development, 2018, <https://www.iied.org/g04272>.

<sup>43</sup> Astha Garg, "Ecotourism in Costa Rica: What You Should Know ;," The Tico Times | Costa Rica News | Travel | Real Estate, July 6, 2022, <https://ticotimes.net/2022/07/03/ecotourism-in-costa-rica-what-you-should-know>.

resources for environmental programs. Ethiopia had great leadership and international help to create its Green Legacy Initiative. There needs to be some system that can match developing countries with donors who want to help the environment. Furthermore, there needs to be strong enforcement methods to make sure that the money is going to the right places and that any rules are being followed. Restoring and protecting biodiversity can not be done alone. There needs to be a global corporation to ensure that the environment is protected around the globe.

### ***Guiding Questions***

- What area of your country is facing the most biodiversity loss? Why is this happening?
- What methods would effectively combat biodiversity loss and work on regrowth in your country?
- Can your country finance a regrowth initiative domestically? If not, what potential partners or other countries may be a good fit?
- Developed countries, how can you help combat biodiversity loss without also getting something in return?
- Is your country doing anything to combat biodiversity loss? If so, how effective has it been?
- What are some creative initiatives that target biodiversity loss in the developing world but also benefit potential investors?
- Does your country believe that combating biodiversity loss is worth the financial impact?

## ***Country List***

1. United States
2. China
3. Brazil
4. India
5. Norway
6. DRC
7. Germany
8. Indonesia
9. Australia
10. Kenya
11. Canada
12. Russia
13. Costa Rica
14. Mexico
15. South Africa
16. Japan
17. Saudi Arabia
18. Ethiopia
19. France
20. Argentina
21. Pakistan
22. Nigeria



23. Philippines
24. Vietnam
25. Bangladesh
26. United Kingdom
27. Italy
28. Thailand
29. Turkey
30. Egypt
31. Peru
32. Morocco
33. South Korea
34. Ukraine
35. Chile
36. Singapore
37. Spain
38. Colombia
39. Poland
40. Greece
41. Sweden
42. Iran
43. Venezuela
44. Zimbabwe
45. Malaysia



46. Finland

47. Algeria

48. Bolivia

49. Portugal

50. Qatar



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