

UNEP

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Yonsei Model United Nations

Chair Report.

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United Nations Environmental Programme (UNEP)

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[Agenda A: Devising Measures to Ensure Sustainable and Clean Water Supplies in
Developing Countries]

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About the United Nations

The United Nations is the largest intergovernmental organisation that was founded in 1945 after World War II. Consisting of 193 member states, the United Nations endeavours to sustain international peace, security and cooperation, guided by the United Nations Charter.

A replacement for the League of Nations, the United Nations has been the centre of discussion and euphony for multilateral issues such as general disarmament, international security, multilateral cooperation, international economy, human rights affairs and sustainable development. The United Nations is operated under six major organs - The Secretariat, General Assembly, Security Council, Economic and Social Council, Trusteeship Council and the International Court of Justice. The United Nations has also assigned other specialised agencies and rapporteurs in reach for international peace and security.

Sessions of committees pertaining to the United Nations carry arduous responsibilities of perpetuating peace and humanitarian rights. Delegates of member states thrive to represent their designated nation and to form an international consensus on a myriad of agendas.

Committee Introduction

Established in 1972, the United Nations Environment Programme (UNEP) is a preeminent environmental authority, headquartered in Nairobi, Kenya. Focusing on the quality of life of both the current and future generations, UNEP seeks to foster a sustainable future for the planet Earth and humanity. UNEP's mandate includes conducting extensive

research and devising pathways to deal with global-scale environmental crises, conserving the fauna and the floras, and maintaining balance between environmental preservation and economic development. UNEP takes a leading role in promoting cooperation among the 193 member states, hosting numerous multilateral agreements and research bodies such as the Convention on Biological Diversity (CBD). In doing so, UNEP serves as a major catalyst, actively encouraging member states to collectively address pressing environmental issues, including global warming, environmental pollution, and biodiversity loss.

UNEP also serves as one of the most potent agents for supporting the Sustainable Development Goals (SDGs), keeping track of 6 of the 17 SDGs and being the supervisor concerning 92 targets related to environmental protection. The committee is predominantly funded by voluntary contributions from member-states and the UN's regular budget funding, but also grants exclusive financial support from other partners such as the Green Climate Fund (GCF) and Global Environment Facility (GEF).

Agenda Introduction

Agenda A: Devising Measures to Ensure Sustainable and Clean Water Supplies in Developing Countries

Water is an indispensable factor in both the survival of humanity and preservation of planet Earth. There is no compromise in securing a needed amount of water, as fresh and clean water is crucial for sanitation and consumption, as well as agricultural and industrial usage. Water also serves as the preconditioning factor for the overall well-being of nature and humankind. Unfortunately, while the demand for water continues to mount, only a staggering 0.5% of the water on Earth is considered as usable freshwater. Moreover, even the sources are highly vulnerable to a myriad of perils, including contaminated run-offs, overdevelopment, and global warming, posing serious threats to both the quantity and quality of water. The water crisis is not a long way off; over 40% of the worldwide population currently lacks adequate access to sanitary water sources. UN-Water estimates that 1.8 billion individuals will reside in areas with absolute water scarcity in 2025.

The water crises are especially compelling in the cases of developing nations, for their low socioeconomic and political status easily perpetuates the issues in multiple ways. Inadequate infrastructure for supplying and sanitising water sources not only limits access to

water but also leads to the spread of waterborne diseases across the region; rapid population growth and relatively low economic levels put additional pressure on the existing burden of most developing nations. Political instabilities, such as corruption and mismanagement, may hinder further development of supplying fresh water.

The delegates of UNEP should be well aware of the perpetual problem of water crisis in developing countries, and its multifaceted, interrelated nature. Delegates must approach this issue in a pluralistic manner and seek possible countermeasures that would lead to the inclusive, long-term security of water sources for developing countries.

Key Terms

Water scarcity

UNEP defines water shortage as the lack of sufficient water resources. This includes a lack of access to safe water supplies to meet water demands within a specific region or area. Water shortage could occur for various reasons, including climate-related events such as droughts. Water scarcity, on the other hand, is a relative concept. Water scarcity refers to the state of ongoing, persistent water shortage and like water shortage can occur for various reasons, such as inadequate water supply infrastructure and failure in distribution. Water scarcity is seen to increase when demand for water continues to exceed supply.

Freshwater

Freshwater consists of two different types based on its accessibility. Firstly, usable freshwater refers to a portion of freshwater that is located in places accessible to man. Some sources of usable freshwater are groundwater, which is water that has infiltrated into the ground and into the pores in underground rocks, and surface water, which are sources such as streams, rivers, lakes, and wetlands. On the other hand, unusable freshwater refers to freshwater that is inaccessible to man. Unusable freshwater is usually locked up in glaciers, ice caps, the atmosphere, soil, or buried too far under that surface of the earth to be extracted for use. Among the 3 percent of freshwater on earth, 30 percent of it is considered usable while stunning 70 percent is unusable freshwater.

Waterborne diseases

Waterborne diseases, according to the World Health Organization (WHO) are diseases that are transmitted by the ingestion of contaminated water. Some well-known waterborne diseases include diarrhoeal diseases, cholera, shigella, typhoid, hepatitis A and E, and poliomyelitis. In order to prevent waterborne diseases, WHO promotes certain health regulations to governments and works on increasing access to safe drinking water, improving personal hygiene, and educating people on how infections spread.

Sustainable Water Management

Sustainable water management refers to the method of using water in a way that fulfils current socio-economic needs without impacting the capacity to meet the same needs in the future. Along with increasing attention in utilising sustainable energy sources, developing sustainable water sources and water management has risen to be crucial in eliminating the imminent water crisis, especially in developing countries.

Historical Background

Although the consequences of climate change are reinforcing the importance of water, the significance of clean water supply has been recognized from the very beginning of human civilization. The first human civilizations were created around water sources such as rivers or natural springs, varying depending on their location. In the case of Mesopotamia, their society evolved on the banks of the Tigris-Euphrates River. Furthermore, in many of the ruins of ancient civilizations, evidence proving the existence of water facilities are found. One example is that of Indus Valley Civilization, where their sophisticated systems of water supply, drainage and sanitation were found among the ruins. As can be noted, societies have consistently expanded and newly created their communities in close proximity to water sources, which inevitably points out the intrinsic connection between man and water. The inseparable connection is also demonstrated through the invention of water filtration and further development of technology aiming to increase the supply of safe water. The historical background of water and human societies underlines the magnitude of water and their role in our livelihoods.

With increase in the development of water-related technology, awareness on waterborne diseases has heightened among the populace. After the first examination conducted in 1858 of the water supplied in London revealed cholera as the source of waterborne diseases, the chemical-limited examinations were extended to include bacteriological analysis during the following decades. However, the effectiveness and necessity of water filtration had not been yet proven until a cholera epidemic hit the cities Hamburg and Altona in 1892. In this epidemic it was proven that using filtered water, like the people in Altona had done, could prevent waterborne diseases, unlike in Hamburg where one in 30 people were infected as they had not filtered the water supplied to people. This event in water sanitation history marked the start of the necessity of water sanitation and safe water supply.

Once the significance of water sanitation had been established, humanity was now left to face the issue of water shortage. Water shortage has a complicated history, as its causation can be attributed to numerous factors. Some of the factors include globalisation, urbanisation, climate change, and economic development. All of these causes are interlinked with each other, making the water shortage issue more complicated and harder to resolve. At the dawn of the industrial revolution and globalisation, economic competition between countries has quickened its pace. In order to gain a comparative advantage in trade or industries that require a lot of water, such as agriculture, developing countries focused on extracting goods and natural resources. However, as these nations have poorly established regulations and infrastructure for water consumption management, this naturally led to a cycle of over-production and intensive water pollution. As a direct result, the supply of freshwater has drastically reduced to the levels that it harmed not only their economy but also the citizens.

Another continuous contributor in the water shortage crisis is climate change. Compared to the two previous decades, both the number and duration of droughts have increased by 29 percent in the year 2000, with Africa suffering from a concentrated level of drought-related deaths. Ironically, flood-related disasters have also risen by 134 percent in the same time period, and many of the deaths and economic losses were recorded particularly in Asia. Furthermore, climate change has also affected the quality of water since the early 2000s. While man-induced pollution is a serious problem, rise in water temperatures, along with frequent floods and droughts, also exacerbated many forms of water pollution. Examples of such pollution are sediments, pathogens, and pesticides; such factors further reduce the amount of usable freshwater and increase transmission of waterborne diseases.

The famous example of Lake Chad clearly portrays the process of water supply reduction from climate change, overuse, and population growth. Lake Chad lost over 50 percent of its water between the years 1973 and 2002. Lake Chad has been a vital source of freshwater, human sustaining resources, livestock and wildlife communities in the four African states nearby, Cameroon, Chad, Niger, and Nigeria. Figure 1 shows the gradual shrinking of Lake Chad during the past four decades.

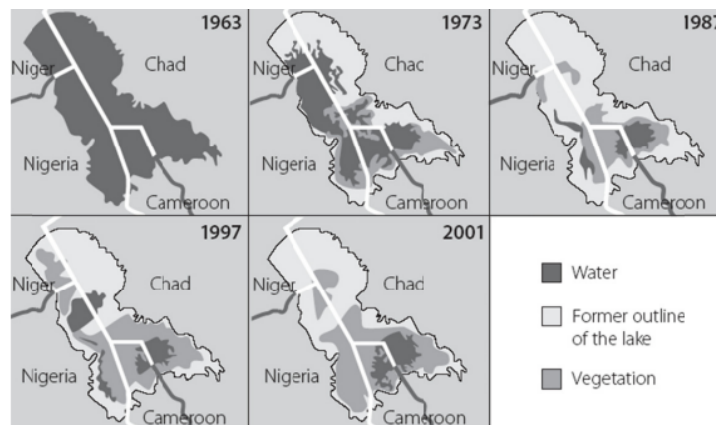


Figure 1 - The shrinkage of Lake Chad, UNEP, 2006

The history of water sanitation and supply clearly articulates the importance of addressing water related issues. Because of its multifaceted nature, resolutions of the water crisis are intricately connected to other issues, such as solving health problems in developing countries, fighting against natural diseases deriving from climate change, and achieving sustainability. The committee therefore attempts to raise the awareness of this issue through the agenda and urges delegates to focus on the multilateral aspects of this issue in forming resolutions to help the people in need.

Status Quo

In 2015, the Sustainable Development Goals (SDGs) were adopted by all states of the United Nations with the goal of ending poverty, reducing inequality, and creating prosperity for all societies by the year 2030. Among these goals, the 6th goal aims to ensure sustainable and clean management of water for all humankind. Sustainable management of water resources and providing clean water and sanitation for all is essential for further economic

growth, productivity and improvement of health conditions, especially in developing countries. Although the significance of this issue is widely recognized, a quarter of the whole global population is still suffering from water shortage. The current most water stressed countries are mostly concentrated in the Middle East and Africa. The majority of these countries are also those considered as developing countries, which makes it harder for them to deal with the water crisis by themselves. A few examples are Cyprus, Bahrain, Oman, Qatar, and Iran. Apart from these regions, there are further countries such as Greece, India, Tunisia, and Chile that are also among the list of the most water stressed countries.

Currently, 2.2 billion people are considered not to have adequate clean water sources located near their homes and premises. Among these 2.2 billion people, many are in the situation of having to take water from poorly maintained wells and springs, and in severe cases, they have to collect water from untreated surface water from lakes, rivers, ponds, and streams. These statistics point out the current situation of geographic, socioeconomic inequalities persisting and blocking people from their basic right to sufficient, safe, physically accessible and affordable water. Additionally, inadequate management of water resources indicate that the drinking water of billions of people are dangerous and contaminated, which could lead to drastic increase and spread of waterborne diseases. According to statistics from the World Health Organisation (WHO), approximately 1 million people are estimated to die each year from diarrhoea as a result of polluted, unsafe drinking water. Although diarrhoea is a preventable disease, 395,000 children under the age of 5 are reported to die each year because the risks of unsanitary water are not being addressed. Additionally in 2021, over 251.4 million people were in need of treatment for schistosomiasis, a painful chronic disease caused by parasitic worms caught through exposure to infected water. This agenda therefore strives to shed light on this water related health issue, especially prominent in developing countries, and ask delegates to present resolutions on effectively preventing deaths resulting from waterborne diseases along with devising measures on how we could provide sustainable water supplies in developing countries.

Furthermore, excessive climate change, increasing water scarcity, population growth, and urbanisation pose an even bigger challenge than ever for water supply. An estimated amount of 2 billion people worldwide are living in water-stressed countries and do not have access to safe drinking water. These numbers are expected to increase and to achieve universal coverage of basic drinking water services by 2030, the rates of historically recorded progress would have to be doubled. In such situations, reusing wastewater to recover water,

nutrients, or even energy has become an important strategy, one that this committee would like to focus on.

Clearly recognizing the importance of this matter, the delegates are asked to develop measures to protect and restore water sources and formulate methods of sustainable water management and sanitation, ensuring the end of water scarcity in developing countries.

Past Actions by Nations and Organisations

United Nations Water

United Nations Water (UN Water) was created to coordinate the UN's work on water and sanitation and is composed of UN entities and international organisations. The three lines of work of UN Water are informing policy processes and addressing impending issues, supporting, monitoring and reporting on water and sanitation, building knowledge and inspiring people to take action. All the SDG indicators under Goal 6 are arranged by UN Water and following through its work of informing policy decisions, UN Water has developed a data portal as a hub for SDG 6.

UN Water has been particularly active in Africa, with the vision of equitable and sustainable use and management of water as a solution for poverty reduction and national, regional development. As a means to achieving this goal, from early on they have recognized the significance of international cooperation among African countries, as many water resources in Africa are not located inside one country but across the borders of several countries. The importance of international partnership has been demonstrated through the Southern African Development Community Protocol on Shared Watercourse System, and the Nile Basin Initiative, both of them representing successful models for international cooperation over shared water resources. Further on, there have been numerous joint water projects such as the Lesotho Highlands Water Project and Kornati Basin Project, which encourage positive regional cooperation.

United Nations Children's Fund

Created by the UN General Assembly in 1946 and originally named United Nations International Children's Emergency Fund, UNICEF strives to reach the disadvantaged children and adolescents and protect the rights of every child wherever they are. Providing safe water and sanitation is also amongst the works of UNICEF. UNICEF has executed missions to provide safe water to nearly 666,000 people in northeast Nigeria, and have given 1.5 million people in Somalia access to 7.5 litres of water per day for 90 days, establishing new water sources and ensuring water supply. Furthermore, UNICEF has conducted projects in South Sudan along with the World Food Programme to promote water sanitation in remote areas, and supported water and sanitation services for 4.5 million people in Yemen.

Stances of Major Countries and Non-Governmental Organisations (NGOs)

China

Irrigated agriculture is a fundamental source of livelihood and employment in rural areas of China and the products produced contribute up to 75% of the total agricultural outputs of this country. However, irrigated agriculture consumes more than 60% of the nation's total water resources, agitating water stress and shortage due to population growth, industrialization and climate change. China focuses on improving water management and irrigation systems through the first and second Water Conservation Projects supported by the World Bank. More recently alongside the Water Conservation Project II, the country aims in increasing the capacity of farmers and operators and has further introduced methods to strengthen climate change adaptation capacity for irrigated agriculture.

India

Suffering from rapid industrialization, economic development, population growth, and climate change, India is projected to have an increase of 70% in water demand by 2050. Facing the extreme situation of water stress and pressure, India is currently taking an approach to this problem focused on sustainability, protection and conservation of water resources. An example of the initiatives formulated to achieve such goals is the Jal Shakti Abhiyan. Launched in 2019 it puts strength on renovation of traditional water bodies, watershed development, water-harvesting measures to encourage water sustainability.

South Africa

In South Africa, it is projected that the demand for water will exceed the supply by 17% in 2030. Inefficiency in water management is adding on to the existing water crisis along with population, economic growth and climate change. South Africa's Strategic Water Partners Network (SWPN) is working on addressing this issue, most focused on water efficiency, management of wastewater and agricultural supply-chain water. One of the programs conducted through the SWPN, the No Drop Program, has shown success in reducing water losses through water-use efficiency rating system and a rewards/penalties system. Similar programs are currently in progress to reach the goal of reducing water stress.

Haiti

Experiencing two droughts, 26 hurricanes and 31 floods during the years 1993 and 2012, Haiti is one of the most water stressed countries. Increased climate change is creating an accumulating lack of access to clean drinking water which is affecting the health, livelihoods, and economy of Haitian communities. To solve this severe situation, the government has been working closely with the United Nations Development Programme (UNDP) and has recently received 4.5 million US dollar funding from the Global Environment Facility-Least Developed Countries Fund. The projects currently being conducted in Haiti are primarily focused on strengthening climate resilience of clean drinking water and working on providing solutions at multiple levels.

Greece

Also one of the countries facing challenging water futures, Greece faces the potential danger of supply of water not meeting the demand. In Athens, the water demand is growing exponentially at the rate of 6% a year. The reason behind this is similar to others; growing urbanisation and population. One solution Greece has put forth is advancing its desalination technology in order to increase freshwater availability. Greece improved this technology's capacity to the point that it is able to produce roughly 200,000 cubic metres of freshwater a day. The national government is also encouraging the developments so that they can expand the desalination of saltwater to further regions.

Nepal

Compared to 1990, there has been a 49 percent increase in the percentage of those who have access to cleaner water sources and a six percent increase in households who now have improved sanitation facilities. However, the broader and fundamental water crisis in Nepal is yet to be solved. Together with UNICEF and the Water, Sanitation and Hygiene (WASH) Sector Development Plan (2016-2030), Nepal has worked to improve water and sanitation services. Their main goal is to provide enhanced access to the use of safe and sustainable drinking water along with focus on sanitation services in schools and health care facilities.

United States of America

The U.S, like the rest of the world, is currently most interested in creating sustainable water infrastructures. The U.S. Environmental Protection Agency (EPA) is currently most focused on building sustainable water infrastructure. Over the years, they have invested in building and renewing the network of drinking water, wastewater infrastructure, as most of them were built some time after World War II. They recognize the importance of renewing and maintaining such systems in providing sustainable water utilities to the public and are also currently focusing on making sure that investments made in water infrastructure are sustainable in the long-term.

Water.org

Water.org pursues the goal of sustainable clean water supply by expanding their partnership with numerous organisations and communities, and financing various institutions who try to make clean water and sanitation affordable and accessible. They contribute to the SDG 6, focusing on achieving this goal and now have helped more than 60 million people gain access to safe water.

Possible Solutions

1. Devising measures to utilise the natural resources to minimise the damage against extreme water events and climate change

Utilising natural resources such as wetlands, their mangroves, seagrasses, marches and swamps, can be an effective starting point in reducing CO₂ and greenhouse gas emissions. Wetlands are extremely sufficient carbon sinks and are able to store CO₂ which ultimately leads to reducing greenhouse gas emissions. One approach to improving carbon storage in wetlands is to re-flood it. However, as wetlands are also used as a water supply source for human purposes such as housing or agriculture, trying to re-flood a wetland might be complex. Nonetheless, restoring wetlands and enhancing their carbon storage capacity is vital in the way that it assists in slowing down climate change and thus provides less natural disasters? such as floods or droughts which directly affect the supply of water. Further on, preservation of wetlands itself is directly linked to sustainable water supply as wetlands absorb excess water and precipitation, thus acting as a natural water storage, and additionally provides water purification through its microorganisms.

2. Developing climate-smart agriculture technology to increase water efficiency

Drip irrigation is a well-known example of water-efficient agriculture technology. Also known as trickle irrigation, drip irrigation is the method of dripping water onto the soil at a very slow rate from a system of small plastic pipes fitted with outlets. Water is applied in close proximity to plants so that only the soil in which roots are placed underground is trickled with water. Drip irrigation is considered efficient in using water for agricultural purposes because it requires a lower level of water and minimises drainage problems often occurring in other irrigation methods. Knowing that many developing countries depend heavily on agriculture as their main economic source, developing climate-friendly methods of agriculture in general can be seen as an indirect, but effective way to increase water efficiency in those countries.

3. *Expanding international cooperation in water related activities and programmes to build a bigger capacity of support to developing countries*

This solution is also one of the indicators of the sixth Sustainable Development Goals, which endeavours to ensure access to water and sanitation for all. This implies how important it is to facilitate even wider and more active cooperation in solving the water crisis. Because the crisis of water shortage and the issue of sustainable water supply is not caused by one dominant factor but numerous, and because this problem is not occurring in just one region, but worldwide, international cooperation and elaboration of related activities are especially critical. An example of ongoing international cooperation is the African Water and Sanitation Association (AfWASA). AfWASA's prime objective is to promote and coordinate international cooperation, which also includes activities facilitating information exchange on methods of drinking water supply and sanitation. All organisations in African countries who are in charge of public water production, supply, and sanitation are considered as regular members of AfWASA, and other countries outside of Africa are also included as to encourage worldwide partnership.

Questions to Consider

- What are some ways that could focus on solving one of the fundamental causes of water shortage - climate change?
- What steps can be taken to increase the sustainability of water infrastructure and management?
- What actions can both meet the current excess demand for water and ensure the preservation of the amount of current freshwater?
- Consider the consequences that might follow from the solutions and what measures can be taken to prevent or minimise those consequences.
- In solving water shortage, what should the role of developed countries or countries who do not face immediate water scarcity be? Keep in mind that these countries could also be gradually facing water crises and are not in a position that is unaffected by the water crisis of the rest of the world.
- Consider the characteristics of water not only as a daily resource but also as a valuable asset in industries and how solutions could be applied to benefit both areas.

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[Agenda B: Implementing Methods to Ensure the Conservation of Global Biodiversity
Hotspots]

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Agenda Introduction

Agenda B: Implementing Methods to Ensure the Conservation of Global Biodiversity Hotspots

Global biodiversity hotspots refer to regions with highly concentrated levels of biodiversity and a remarkable number of endemic species residing in the area, but facing serious habitat loss. Comprising only 2.4% of the world's ecosystem, biodiversity hotspots are habitats of nearly 60% of the world's flora and fauna. In order for a region to be considered a biodiversity hotspot, the area should primarily be inhabited by more than 1500 species of vascular plants as endemic, which is more than 0.5% of the world's total. In addition, the area must be damaged, having less than 30% of initially vegetated species.

Already vulnerable as it is, biodiversity hotspots worldwide have gone through great trials and tribulations in recent years. UNEP and its partnered organisations have assisted sustainable land management by devising the Decade on Ecosystems Restoration 2021-2030 to mitigate the damage; nevertheless, the interrelated threats complicate one another. The exponential rise in human population and armed conflicts leads to increased pressure on the local environment. Overdevelopment, including excessive mining, deforestation, and advancement of agricultural and urban infrastructures, lead to habitat loss and fragmentation

for endemic species. The compound impacts of these factors further accelerate global warming, thereby deteriorating the biodiversity hotspots even more.

Unfortunately, as the majority of biodiversity hotspots are located in developing nations, the severity of the issue is rarely recognized. As biodiversity hotspots often overlap with regions with the most natural resources and economic development being a top priority for developing countries, the cycle of overexploitation in the biodiverse regions continues. Financing the conservation measures at a domestic level remains extremely burdensome due to high poverty rates of the nation-states. Acknowledging that biodiversity provides a foundation for all life on Earth, devising cooperative measures to diminish both direct human-induced threats leading to habitat management and indirect factors that perpetuates the damage is urgently required.

Key Terms

Biodiversity

The variety of life on Earth at all levels of biological configuration, ranging from diversity in genes to species and the entire ecosystems, is referred to as biodiversity. As biodiversity provides a variety of ecosystem services that are necessary for human life, it is crucial to the health and balance of ecosystems. These services include air and water purification, pollination of crops, climate regulation, and the provision of food and medicine.

The loss of biodiversity has been greatly exacerbated by human actions, including pollution, overuse of natural resources, habitat destruction, and climate change. For the sake of both human societies and environments, conservation initiatives and sustainable practices are crucial to maintaining and protecting biodiversity.

Biodiversity Hotspots

Biodiversity hotspots are regions on Earth characterised by exceptionally high levels of species richness and high levels of the occurrence of species that are found nowhere else in the world. These hotspots are areas with a concentration of unique and threatened biodiversity, making them important for conservation efforts.

Invasive Alien Species (IASs)

Plants, animals, fungi, and microbes that have been purposefully or inadvertently introduced by humans and have expanded outside of their native ranges in the past or present are considered invasive alien species (IAS). IAS may have some unanticipated negative effects on the ecosystem, threatening the biodiversity and its associated ecosystem services.

Indigenous Peoples and Local Communities (IPLCs)

Indigenous Peoples and Local Communities refer to ethnic communities that trace their ancestry from and identify with the aboriginal inhabitants of a certain territory, unlike those that have recently occupied, or colonised the area. IPLCs play a pivotal duty in tackling the issue of biodiversity hotspots for multiple reasons. Most of the IPLCs depend on utilising the hotspot resources to maintain their living, although the degree may vary. They also possess practical skills and knowledge that may help foster understanding of the local environment and possible solutions to mitigate the consequence of the excessive usage of natural resources available in hotspots.

Historical Background

Biodiversity loss refers to the demolition of species, an ecosystem, a given geographical area, or Earth regarding biospheric variety. Biodiversity loss has been the subject of concern, for it entails the destruction of the habitat as a whole, making it hard for both animals and humans to prosper.

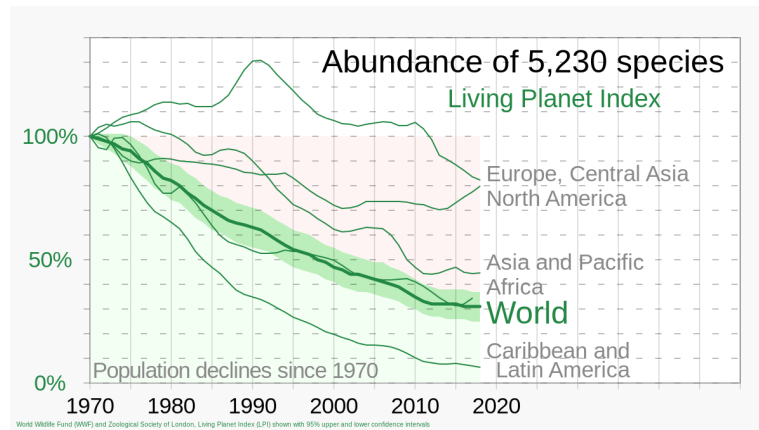


Figure 1 - The decline rate of species worldwide from the 1970s to 2020, WWF, 2022

However, it has not been long since human society has acknowledged the man-induced causes behind these losses and put practical efforts to recover from the damage. The term "biodiversity" itself was coined only in 1985, and the corresponding effects are still hardly known to the public, even to the scholars. Compared to the long history of biodiversity loss, sufficient progress is yet to be made to protect Earth's diverse species and ecosystems.

After witnessing the abnormal decrease in the abundance of species worldwide from the 1970s, acknowledging the severity of human activities in biodiversity and taking immediate measures became priorities in the 80s. Especially, regions with vibrant species sought more attention, prompting the need to create a concept that encompasses the conservation priority on these unusual concentrations of species in a particular area. The Convention on Biological Diversity (CBD) and its efforts to define biodiversity have widely applied in creating the concept of a biodiversity hotspot, first coined by the environmentalist Norman Myers in 1989. Accordingly, the crucial roles of these hotspots began to receive recognition as they are inhabited by flora and fauna that are nowhere else to be found.

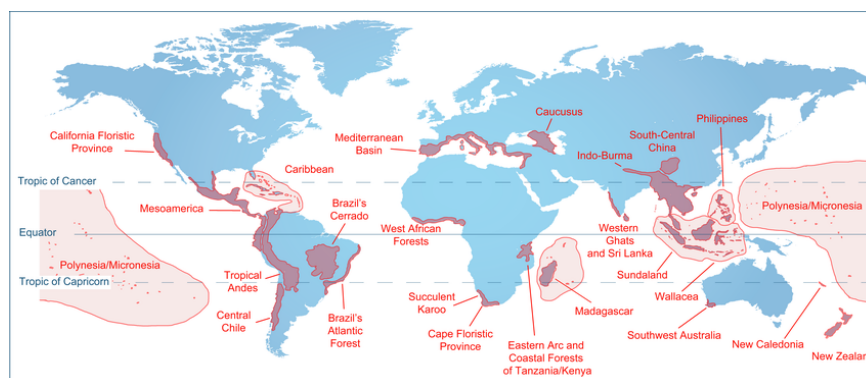


Figure 2 - The areas of global biodiversity hotspots, Spicer, 2017

Thus, the 34 areas of biodiversity hotspots were created, and with it, the global effort to mitigate the loss of biodiversity and prioritise the conservation of the world's hotspots. Preserving biodiversity hotspots is a vital agenda because biodiversity is predicated on interrelationships—without each other's existence, the species and habitats that provide natural sources would also be lost. As biodiversity provides a framework for all living things on Earth, biodiversity hotspots, providing habitation for the majority of the world's endemic flora and a staggering 43% of fauna, would be prioritised, although they consist of only 2.5% of Earth's land surface. Furthermore, the hotspots are some of the richest places with natural resources from which people benefit and, therefore, are crucial. However, biodiversity hotspots have been susceptible to human-induced dangers, notably the three main factors.

First, biodiversity hotspots are vulnerable to the prosperity of the Invasive Alien Species (IAS). IAS refers to species introduced from outside habitats that disrupt the biodiversity as they thrive. The majority of them are introduced by human activities such as large-scale migration and international trade; IAS poses significant harm as they out-compete the indigenous flora and fauna and disrupt the entirety of the food and resource chain, causing a cascading effect. IAS is highly detrimental in the cases of biological hotspots because they are much more likely to prosper there due to the rich natural resources available. The potential richness of alien species is estimated to be 1.4 times greater in biodiversity hotspots than in other regions, with all hotspots suitable for 17% of the defined IAS worldwide to inhabit. As the frequency of human migrations continues to expand due to the development of massive transportation, such invasions of alien species have hardly ceased to halt. In biodiversity hotspots, the number of invasive species has been growing exponentially. IAS has burdened the world economic cost more than \$423 billion annually in 2019. Since 1970, the expenditures for IAS have increased by at least four times every decade.

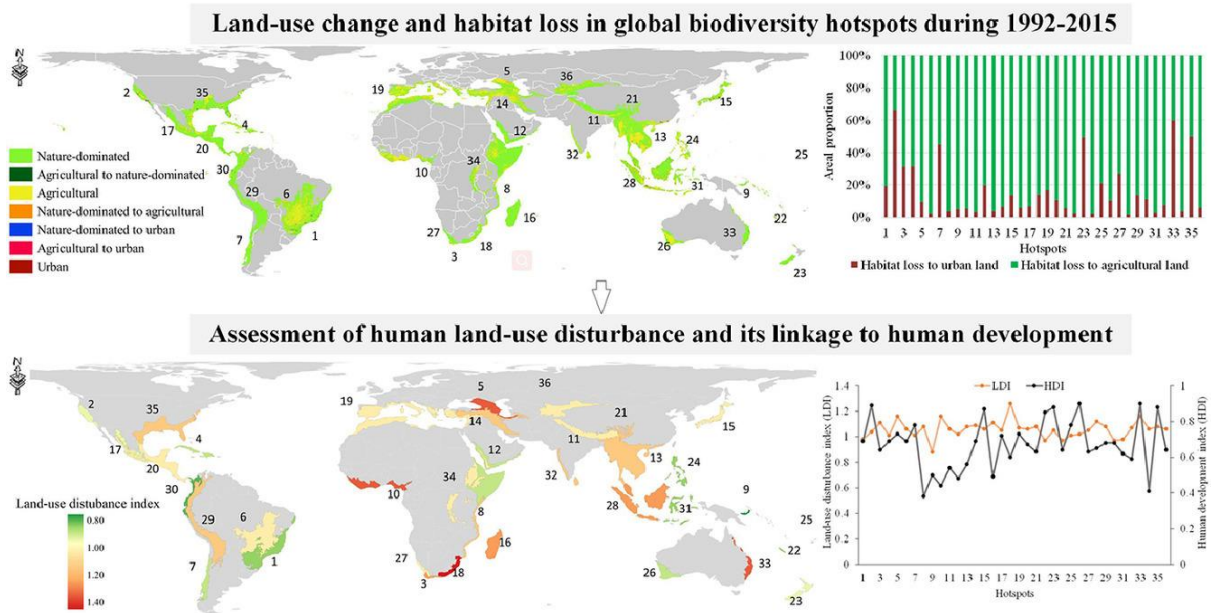


Figure 3 - The assessment of land-use change and habitat loss in biodiversity hotspots, Kong, et al., 2021

Secondly, land modification and degradation by overexploitation have caused a tremendous burden upon biodiversity hotspots. The conversion of land in biodiversity hotspots into agricultural and human settlement uses leads to the impoverishment of nutrients in soils and homogenise flora and fauna, further demolishing the diversity among species. Such overexploitation is particularly the case in biodiversity hotspots with high levels of plantation, such as the Amazon rainforest, where the deforestation rate has reached up to 22%, leaving a critical impact on the sustenance of inhabitants. Warfare also threatens biodiversity because it directly destroys the land habitats. Research has shown that more than 90% of the significant armed conflicts that have occurred between 1950 and 2000 took place in nations that were hotspots for biodiversity. Over 80% of these conflicts directly took place within biodiversity hotspots. Of the 34 identified hotspots, less than one-third avoided major conflict throughout this time, with the majority experiencing violent occurrences on a regular basis. Throughout these five decades, this trend remained surprisingly constant.

Lastly, the aforementioned problems have been gaining continuous momentum because most hotspots overlap with middle or low-income countries. The majority of hotspots are found in tropical developing nations, which deal with issues such high population pressure, food scarcity, poverty, and corruption on a national level. These problems are expected to multiply in the future. As developing nations lack the necessary

financial and technological resources to tackle the conservation of biodiversity hotspots on a domestic scale, their priorities remain on exploiting the natural resources that would otherwise negatively impact the future of these hotspots and their potential inhabitants.

Biodiversity and its implication has only recently been acknowledged yet the severe progress of biodiversity loss has persisted for a relatively long period of time. The delegates of UNEP, thus, should acutely be aware that the countermeasures that have been taken into account are much insufficient compared to the prolonged threats upon biodiversity hotspots. Thus adequate, multidisciplinary solutions to tackle both the driving forces and the perpetuating forces of demolishment in hotspot regions are essential.

Status Quo

The status of biodiversity hotspots has been much more grave and multifaceted than ever due to the COVID-19 pandemic. It has been mistakenly acknowledged among the public that the pandemic has inadvertently provided a time for nature to recover due to the lockdown measures—yet such is not the case in biodiversity hotspots. The consequences of the pandemic on global hotspots can be divided into three main sectors: behavioural, institutional, and structural.

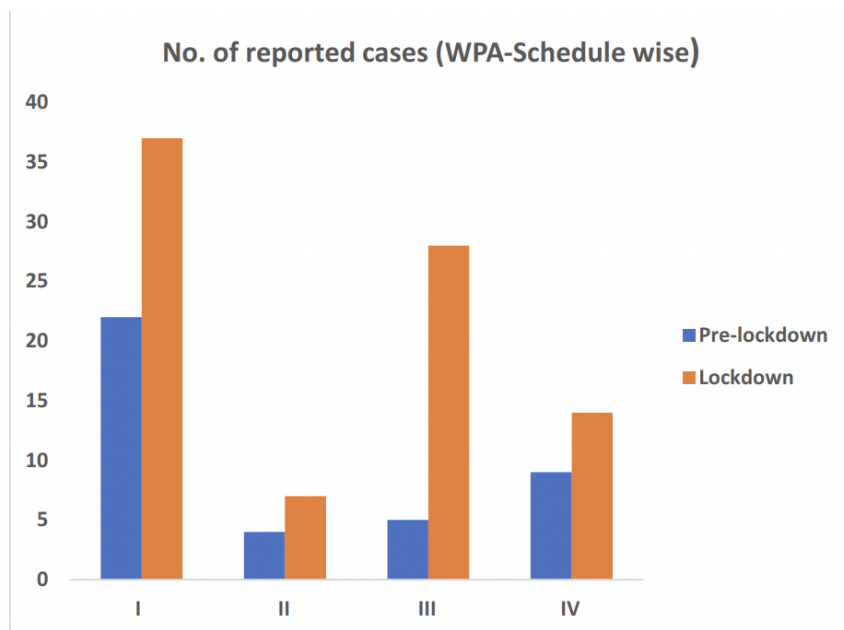


Figure 4 - The number of reported illegal poaching incidents in India, where targets were wild animal species protected by the Wildlife Protection Act (WPA), Badola, 2020

First, behavioural consequences refer to unsustainable patterns in everyday lives, mainly among individuals and communities. Illegal poaching has been at an increasing rate with the start of lockdown measures in biodiversity hotspots, with the absence of tourists in biodiversity hotspots and regulatory measures due to the stay-at-home, making the syndicates much more accessible to target wild animals. Such has significantly impacted the biodiverse regions of India, where the population of rhinos has heavily decreased due to the increase in illegal poaching incidents amidst the lockdown. This has heavily impacted the overall disruption in food chains, posing grave threats to biodiversity in the long run.

Secondly, institutional consequences refer to the inability to develop the conservation implementation effectively or enforce the existing regulations. Scholars suggest a definitive correlation between the lockdown measures and the ineffectiveness of ground-based monitoring of the biodiversity regulations and their enforcement. Also, due to the government enforcement focusing on the pandemic's contingency, biodiversity conservation measures are far from being prioritised—neglect of conservation initiatives has gravely accelerated the rate of biodiversity loss. This is especially the case in Less Economically Developed Countries (LEDCs), where biodiversity initiatives, already overlooked as they are, are especially disregarded during the pandemic. Furthermore, with existing ecotourism in national parks being suspended due to the lockdown, the revenues from wildlife tourism, which serves as the primary source of budget for conservative measures, have been decimated, making the situation worse.



Figure 5 - The satellite data showing the deforestation rate in Amazon rainforest, the biggest biodiversity hotspot in the world, Amazon Conservation, MAAP, 2020

Next, structural economic consequences are related to the advent of unsustainable economic progress during and after the pandemic. The surge in conversion of land usage in biodiversity hotspots, most notably deforestation, has demolished the environmental diversity within the region. Such increase in land usage is mainly due to the economic crisis in pandemic circumstances, with the increased financial burden that has pressured the Indigenous People and Local Communities (IPLCs) to best make use of the natural resources and to increase the land usage for agriculture and livestock. The economic pressures, from urban unemployment to increased poverty and food security rates, have led individuals and local communities to return to their roots in rural areas. This further accelerated the conversion of agricultural land usage in biodiversity hotspots. The situation is also stark across the biodiversity hotspots in African tropical regions, with deforestation rates increasing by 136 percent compared to pre-pandemic circumstances.

Therefore, delegates of UNEP must be well aware of how the pandemic era has complicated and deteriorated the loss of biodiversity in hotspot areas. Delegates must keep in mind that the well-being of all members inhabiting the biodiversity hotspots, whether humans or other living beings, should be thoroughly considered, and what matters above all, is to both satisfy the needs of the present and future generations of inhabitants on the lands of biodiversity hotspots.

Past Actions by Nations and Organisations

Aichi Biodiversity Targets

Developed by the United Nations Convention of Biological Diversity (CBD) in 2011, the Aichi Biodiversity Targets are a series of 20 targets for the conservation of worldwide biodiversity, set to be accomplished by 2020.

The Aichi targets, though started with great anticipation, resulted in one of the biggest failures in the history of intergovernmental efforts in nature conservation. The reasons for failure are mainly due to its lack of measurability, objectiveness and realisticness. Another

critical factor to failure was the absence of requirements to report the progress of achievement among the member-states. Without the need to report the progress, the Aichi targets have been neglected and has resulted in none of the targets being accomplished within a 10-year-plan.

Kunming-Montreal Global Biodiversity Framework

Set upon the remorse of the failure of Aichi targets, the Kunming-Montreal Global Biodiversity Framework shed light on the specific and realistic goals to accomplish in 2030 in regards to financial and technical support from the developed nations to the developing nations, specifying in Targets 18 to 19.

Furthermore, the framework is meaningful in that it has put great emphasis on recognizing the roles of IPLCs in conserving the biodiverse regions. As the IPLCs are the direct stakeholders and inhabitants of the land, the conservation measures directly affect the living of indigenous individuals. The framework also underlines the need to cooperate with the IPLCs, for they possess pivotal information in instigating these measures.

Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) is an international organisation dedicated to enhancing the interaction between science and policy in ecosystem services and biodiversity protection. Its goals include the long-term well-being of all living beings and sustainable growth, especially in the biodiverse regions of the globe.

IPBES formulated and consolidated the protection of biodiversity hotspots in multiple ways, such as leading the comprehensive assessment of the causes of biodiversity loss and ways of mitigating such problems and involvement in direct funding of the conservation processes of biodiversity hotspots.

The Amazon Summit

The Amazon Summit has been held among the leaders of the eight Amazon basin countries in hopes of implementing pathways to conserve the Amazon rainforest, the biggest

biodiversity hotspot on Earth. As a result of the summit, the Belém declaration has been signed by the nation-states, consisting of 113 principles upon cooperation. The declaration encompasses the agreements upon tackling resource management, the consequences of climate change and environmental crimes, and forging ways to implement sustainable infrastructure in the Amazon forest, to prevent the rainforest from excessive deforestation.

However, the Amazon Summit has been heavily criticised due to its lack of concrete and specific targets regarding deforestation, particularly the target date of achieving the goal. Such limitations imply the multifaceted dilemma between the need for continuous exploitation of the rainforest for economic growth and the imperative to preserve the forests among the Amazon basin countries.

Stances of Major Countries and Non-Governmental Organisations (NGOs)

United States of America

Although the United States of America is one of the four member-states that has not ratified the UN Convention on Biological Diversity (CBD), the US has made efforts in financial assistance to provide support to developing nations struggling to protect biodiversity hotspots. Around 60 nations are provided with economic assistance from the United States Agency for International Development (USAID) upon the protection of animals and important ecosystems. USAID provided \$319.5 million in 201 to support biodiversity conservation, reduce wildlife trafficking and other environmental crimes, and strengthen the capacity of IPLCs that depend on such biodiversity for survival.

Brazil

Brazil is home to a substantial segment of the world's biodiversity, the Amazon rainforest. The country's approach to the rainforest has been a topic of international concern, as Amazon comprises 40% of the world's rainforest areas, and a quarter of the terrestrial biodiversity worldwide. Recognizing the potential infliction of deforestation in Amazon upon the world ecosystem, Brazil has put tremendous effort to alleviate such consequences. One of the most notable feats of Brazil is the first adaptation of the National Biodiversity Strategy among South American nations. The strategy consists of specific targets and objectives to carry out the decisions in the UN Convention on Biological Diversity. The

National Biodiversity Commission of Brazil (Conocimiento y Uso de la Biodiversidad, CONABIO) also adopted a set of 51 national biodiversity objectives in 2006 after a participative process, with the targets to be implemented to be accomplished by 2010. As such, Brazil serves as one of modelling examples regarding developing nations which also strive to protect the biodiversity hotspots on domestic and international level.

Thailand

Thailand, located in the two major biogeographical regions, the Indochinese and the Sundiac region, hosts several biodiversity hotspots. However, Thailand demonstrates the dilemmas of developing nations in choosing between economic growth by increasing land use in biodiversity hotspots and preserving biodiversity. Biodiversity hotspots in Thailand are threatened by overgrazing and unsustainable agricultural practices. Most notable among these practices are slash-and-burn farming where farmers graze wild or forested land and burn out the existing flora to prepare for the fresh round of crop cultivation. Over half of forestation has been lost in Thailand due to agricultural practices since 1990. Thailand has adopted the National Biodiversity Policy upon the damage, shedding light on the protection, sustainable usage, and access of the biodiverse land. The Biodiversity Bureau within Thailand also prevents individuals from engaging in unsustainable acts of overexploitation by implementing legislative actions such as the Plant Varieties Act. Nevertheless, much intergovernmental assistance is needed regarding environmentally sound resource management in biodiversity hotspots in Thailand.

Critical Ecosystem Partnership Fund (CEPF)

Recognizing that the biodiversity hotspots are also inhabited by individuals and communities who depend on utilising natural resources, CEPF strives to find a way to satisfy the needs of IPLCs and preserve hotspot environments. CEPF not only engages in financial aid for the sustenance of biological hotspots but also focuses on empowering conservation communities by fostering active communication between the locals and the policymakers in biodiverse regions. Protecting biodiversity, fostering local conservation leadership, and promoting sustainable development are the objectives of CEPF, making efforts to create conservation strategies in an environmentally and ecologically sound and economically

feasible way. Such efforts include financial and technical grants, recognition and collection of TEKs, and sharing the success stories of biodiversity conservation from the IPLCs.

Possible Solutions

1. *Providing financial assistance*

As economic instability is a key factor that leads to neglect in domestic conservation measures in developing nations, and also triggers more land usage in biodiverse regions to mitigate such insecurities, financial support upon devising protective measures in biodiversity hotspots is needed in an intergovernmental scale.

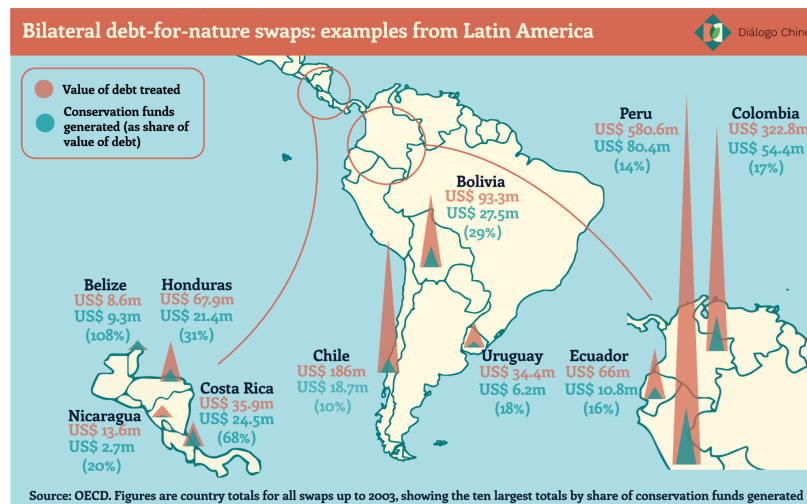


Figure #6 - Example of debt-for-nature swaps in biodiverse Latin American regions, Soutar, 2023

Debt-for-nature swaps, the exchange for a certain amount of a developing country's foreign debt for domestic investment in initiatives to safeguard the environment, are one way that financial support may be provided. Such measures would serve as an impetus upon developing nations with rich biodiversity to divert their attention towards preserving their ecosystems in more active and sustainable ways.

2. Instigating technical cooperation

Technical development in breaking the vicious cycle of human-induced diversity loss is critical for ceasing the causes and recovering the already damaged hotspot areas. Technical assistance on an intergovernmental scale, such as technology transfer from developed nations, is practical in diminishing the domination of IAS in ecosystems and restoring and purifying damaged soils and bodies of water due to overexploitation.

Not only cooperation between member-states but also domestic means of cooperation is crucial, especially in acquiring indigenous knowledge of the biodiversity hotspots from the IPLCs. It is estimated that only 5% of biodiversity loss in Amazon hotspots occurs in indigenous territories, regardless of the fact that the indigenous territory marks up more than half of the Amazon rainforest. As such, recognition of traditional ecological knowledge (TEK) accumulated by the IPLCs inhabiting the region for extended periods is as necessary as acquiring Western scientific knowledge. Technological cooperation with the indigenous communities to gather TEK is essential to forge ways to preserve the environment while equally considering the multifaceted needs of the stakeholders.

3. Examining the efficacy of prior measures and initiating reinforcements upon current measures

Recognizing that the efforts to slacken the exponential rate of biodiversity loss in hotspot areas have continued, an examination of the past measures in terms of feasibility has yet to be made in accordance with such efforts.

A thorough assessment of the failures and successes of prior resolutions is necessary. The assessment may take the form of devising a task force to examine the faults in these intergovernmental measures and to determine whether these past actions have been realistic and on point in protecting the biodiversity hotspots in an inclusive manner.

Devising measures to instigate the reinforcement of existing cooperative decisions is also vital, for they lack the adequate binding force for member-states to comply with the agreed statements. Reflecting upon the failures of Aichi targets, requiring member states to submit a national progress report and active participation in peer reviews would be deemed effective in implementing more competent measures.

Questions to Consider

- Considering that biodiversity hotspots greatly overlap with the Least Developed Countries (LDCs), what measures should be taken to encourage domestic conservation measures in the hotspots in these countries?
- How can the efforts to conserve biodiversity hotspots satisfy the needs of the present and future inhabitants?
- What steps can be taken to tackle the direct causes of biodiversity loss, such as the intrusion of IACs and the increase in illegal poaching?
- What steps can be taken to resolve the indirect factors that perpetuate the loss of biodiversity in these hotspots, such as the socio-economic instability in hotspot areas?
- How can the lack of measurable, specific targets that have led to the prior efforts on the conservation of biodiversity be resolved?
- How can the TEK gathered from IPLCs help foster a more environmentally sound development and accurately reflect the needs of the inhabitants in biodiversity hotspots?

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