

TOPIC A

FOOD WASTE IN HIGH
INCOME COUNTRIES VS.
FOOD SECURITY IN
MALNOURISHED REGIONS

TOPIC B

AGRICULTURAL
BIOTECHNOLOGY VS.
BIODIVERSITY AND
CLIMATE CHANGE

Dear Esteemed Delegates,

**”We strive to reach
excellence, and we
aim to achieve it.”**

On behalf of the Academic Training Committee, I welcome you all into our 2nd Annual Model United Nations Conference at NDU!

My dearest delegates, we live in a fallen world where the voice of reason is lost and the power of freedom is forgotten, where man is often seen to be poisoned by greed and blinded by misery and bloodshed, and where man can be the voice of change, but has failed to do so. But, you delegates, can be different. You have the power of change within you. So be courageous and stand up for what you believe in. Believe in yourself and believe in your country. But most importantly, believe that your voice will be heard.

In the conference, you will be representing a country that may not be your own. You will be representing the voice of a nation that you may not have heard of before. You will be the reason behind which a nation may stand or fall, and with that lies great responsibility. You will have to fight to make your voice heard, and I urge you delegates to keep fighting. Fight life the same way you will fight in that conference. For when you choose to create change, you will make your country proud, and you will make your school proud, because you chose to be THAT change.

I hope that, in return, you will leave the conference with more than just an award. You will leave the conference with everlasting memories, friendships that last a lifetime, and strong determination to handle life the same way you handled your conference.

Humbly Yours,
Stephanie Sleilati
Head of Academic Training

Esteemed Delegates,

It is with great honor & pleasure that I welcome you, as chair of the Food & Agriculture Organization committee, to NDU's second Model United Nations conference!

I am proud to say that you are about to participate in a life changing, challenging and enriching experience, starting in these background guides. We hope these well put-together documents familiarize you with diplomatic issues, conflict resolution strategies, diversity & many more characteristics that we, the NDUMUN team, strive to deliver! Nevertheless, the challenge lies in your will to innovate, demonstrate true diplomacy & work towards a solution. More importantly, I congratulate you on embarking on this empowering journey as a delegate, particularly in the FAO committee, & I felicitate you for investing your time in our program, and accepting to empower youth, make a change & transform lives.

*“Good habits formed at youth make all the difference”. – Aristotle
My dearest delegates, I am confident your participation in NDUMUN makes one remarkable difference.*

*Best Regards,
Joanne Keyrouz
Chair of the Food & Agriculture Organization Committee*

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General Overview

A. Introducing the Committee:

The Food and Agriculture Organization is the United Nations committee concerned with maintaining food security and providing the people with easy access to high-quality food, in order to lead healthy lives. It was founded in Quebec, Canada in 1945.

The Food and Agriculture Organization also engages in ending world hunger. FAO acts as a neutral forum where all nations, high income and low/middle income countries, meet as equals to come up with agreements and debate policies to modernize and progress agriculture, forestry, and fisheries, and to ensure good nutrition for all. FAO members include Argentina, Canada, Congo, Cote d'Ivoire, Iran, Japan, Jordan, Malaysia, New Zealand, Peru, Switzerland, and the United Kingdom.

Having over 194 member states, the UN's Food and Agriculture Organization operates in more than 130 countries. The FAO believes that all countries are potentially capable of playing a part in ending hunger.

B. Actions of the Committee:

The Food and Agriculture Organization in the UN has taken various actions in different directions, more specifically, different countries.

The Food and Agricultural Committee plans to eradicate the deadly livestock disease, create international standards that ensure food safety to provide pleasant food for everyone, maintain the largest and most comprehensive statistical database on food, and promote the Right to Food as an International Human Right to certify constitutions and framework for over 30 years.

Other countries in which FAO has played a vital role include Ukraine, Nicaragua, Benin, Philippines, Serbia and many others, from helping countries maintain their natural resources to improving their week food sectors.

Not only is the FA Organization involved in food/health related issues, but it has also, for example, been interested in unemployment related problems in the Central African Republic, and in intervening to help raise women's status and up poultry rearing in India, and so on.

Nevertheless, the FAO's duties and actions are limitless to just a single sector; more recently, the FAO comes face to face with biodiversity and climate change, as well as the progress of technology in the agriculture sector, such as genetically modified organisms.

Topic A

Food Waste in High Income Countries vs. Food Security in Malnourished Regions

I. Definition of Topic:

Hunger is one of the most pressing and extensive development challenges, yet the world, particularly high-income countries, is still producing more food than it actually needs.

Food with the intent to be consumed by humans but isn't is what we refer to as food waste. In addition to the absence of food consumption, the supply chain is also a way for food to be lost in; in the supply chain, food goes from the producer to the consumer directly. Food waste is mostly advanced in high income countries. According to the FAO statistical database in 2014-2016, around 795 million human beings around the world, most of which live in Asia and Africa, are malnourished, suffering from deficiencies, excesses, or imbalances in the consumption of macro and/or micronutrients. Through multiple programs that the FAO is leading, the undernourishment rate has seen a gradual decrease from 1992 up until 2016, from 43% in 1992 to 23.2% by the end of 2016. In other words, 167 million lives were improved with the assistance of high-income countries. According to its 2011 "The state of Insecurity in the World", the FAO explains how this reduction is compelling, knowing that the global population witnessed a growth of 1.9 billion since 1990.

Nevertheless, the efforts made in an attempt to reach the UN's food security targets have been restricted in some countries due to the challenging global economic conditions, political instability, and severe weather events. Haiti, Zambia and the Central African Republic suffer the most from undernourishment, according to statistics conducted by the World Bank.

Seven of the ten most malnourished countries in the world are located in Africa.

Both Zambia and Namibia have had a harsh increase in hunger mostly between the years 2000 and 2013. However, FAO notes how some food insecurity available in many countries has been made worse due to natural and human-induced catastrophes (Food Insecurity in the World, 2011).

II. Role of the Committee in Current Topic:

The Food and Agriculture Organization plays the role of a neutral and independent facilitator, especially being an intergovernmental organization. By collaborating with different UN agencies, FAO has the ability to coordinate the initiatives and activities on food loss and waste reduction on a global level. FAO can also work alongside other international organizations and worldwide stakeholders which in turn includes both the private sector and the civil society.

In 2011, FAO initialized a program in order to fight this food waste under the name of “SAVE FOOD” in cooperation with Messe Düsseldorf, a trade fair organizer founded and based in Dusseldorf, Germany, and the United Nations Environment Program (UNEP).

SAVE FOOD’s mission is to raise awareness and knowledge on food loss and waste reduction in order to create a more sustainable agricultural programs that satisfies the needs of the current population without compromising the needs of future generations. This initiative spreads awareness of how food waste reduction participates in more thriving economic, environmental and social dividends while contributing to food security and reducing greenhouse gas emissions.

The Global Forum on Food Security and Nutrition (FSN Forum) is an online community, founded by the FAO, for multi-stakeholder discussions on food security and nutrition to which the FAO’s Agricultural Development Economics Division (ESA) has paved the way. The mentioned forum helps its members and stakeholders participate in the creation of policies and comprehension of food security globally, more specifically in addressed geographic regions.

III. Case Studies and Sub-Topics:

1. Guatemala: A Severe Case of Malnourishment

Guatemala has been progressing significantly in stabilizing its economy but nevertheless, the country still suffers from extensive inequalities and poverty.

Guatemala finds it hard to move forward in achieving “zero hunger” with the recent 2015 Sustainable Development Goals program. Around half the Guatemalan population is not able to afford basic food, and the widespread of stunting in children under five remains one of the highest in the world.

With a national percentage of 46.5, according to the World Food Programme, the stunting rate reaches around 70% in some areas of Guatemala, peaking at 90% in some hard hit municipalities. Being one of the unequal countries in Latin America, around 80% of Guatemala’s population is deprived of basic nutrition, food security, and health.

2. India and Child Malnutrition

According to IndiaSpend's published article "The Mystery of India's Child Malnourishment Numbers" and the UN's World Health Organization (WHO), 43% of Indian children under the age of 5 are malnourished and underweight, which is far more than India's Millennium Development Goals (MDG) 2015 target, 26%.

According to the WHO, 1 of every 5 malnourished children in the world comes from India, keeping in mind that malnourishment is one of the leading elements of childhood death (50%).

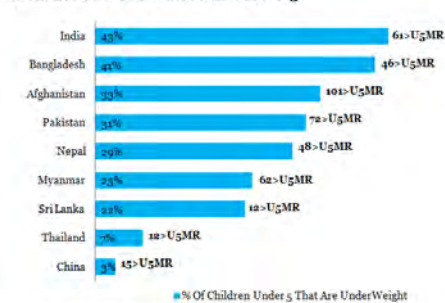
In regards to Indian children under five, India has 61 deaths in every 1000 live births.

India takes the lead in this adjacent graph showing malnutrition and death rates of India compared to its neighboring countries.

3. Consumer Waste in Europe and the European Union's Waste Reduction Actions

Europeans waste approximately 123 kg of food per capita yearly or 16% of all food that has reached consumers. Approximately 80% are preventable since they are food safe to eat. This concludes to 47 million tons of food that are not wasted by the EU citizens. The JRC (Joint Research Centre) whose job is to "support policies with independent scientific evidence" also computed the water and nitrogen resources related to the preventable food waste through the water and nitrogen footprint ideas. Europeans waste approximately 123 kg of food per capita yearly or 16% of all food that has reached consumers. Approximately 80% are preventable since they are food safe to eat. This concludes to 47 million tons of food that are not wasted by the EU citizens. The JRC (Joint Research Centre) whose job is to "support policies with independent scientific evidence" also computed the water and nitrogen resources related to the preventable food waste through the water and nitrogen footprint ideas.

India Vs Neighbouring Countries: Malnutrition & Death Rates For Children Under 5



U5MR: Under 5 Mortality Rate
Source: World Health Organisation

The European Commission has shown great seriousness in tackling the issue of food waste; it is an extensive part of the EC's Circular Economy Package, an EU action plan targeting Europe's circular economy and relevant legislative proposals concerning waste, containing new corrected and proposed instructions on waste. The European Union and other member states are committed in achieving the 2015 Sustainable Development Goals endorsed in September of 2015. These goals include halving per capita food waste by 2030 and focusing on waste reduction, more specifically in supply chains and food production.

4. Food Waste in South Korea

According to the United Nations, about one-third of the food manufactured for the consumption of people is either lost or wasted. However, South Korea executed a law that requires residents to part food waste from other garbage and forces fines "up to 1 million won" on people who do not follow the rule and recycle. South Korea was capable of decreasing food waste in amounts that other countries of the world weren't capable of accomplishing.

In Seoul alone, the amount of waste was reduced by 10%, or approximately more than 300 tons every day, compared to the amount wasted years ago. This goes back to a law implemented in Seoul back in 2013. This law is now implemented in 16 more cities in South Korea. All people living in these cities must pay bills according to the amount of food they waste which are then used for recycling.

IV. Additional information:

A. Reports and Analysis

i) *Global food losses and food waste extent: causes and prevention:*

By Jenny Gustavsson Christel Cederberg Ulf Sonesson Swedish Institute for Food and Biotechnology (SIK) Gothenburg, Sweden and Robert van Otterdijk Alexandre Meybeck FAO Rome, Italy

In this study, the writers stressed on the damages that occur alongside the food chain and made the right assessments of their magnitude level. It also highlights the causes of food waste and losses and possible solutions regarding this problem.

As a result, this study shows that a good portion of food production for the everyday consumption needs are wasted. This means that roughly large amounts of the resources that are used in food production and greenhouse emissions are useless in that case.

In medium and high-income countries, food is wasted when it is still in the early consumption phase, which means that it is rejected even when it is right for the human daily consumption. On the other hand, in low-income countries, food is wasted during the first and middle stages of the food supply chain meaning that less food is lost at the consumer level.

Financial managerial and technical limitations in harvesting techniques are mainly the major cause for food waste in the low-income countries, given that a lot of farmers in developing countries live on the edge of food insecurity. However, reducing the food losses can have a fast and significant impact on the farmers' lives.

Moreover, this study reveals that there is some major gaps around the topic of global food loss and waste and that it is urgent for a further dig in research in that area. This concern leads that food production must increase so it meets the future human demands of the increasing world population. Promoting the reduction of food loss that can increase the efficiency of the food chain is considered a major key to fight imbalances between the increase in consumption and the increase in production.

In our limited, world when it comes to natural resources or even cost-effective solutions, it is considered to produce enough healthy, safe, and nutritious food for everyone, not forgetting to put the reduction of food losses as a priority.

ii) *Conclusion of the report:*

The report studied and analyzed data concerned with levels and volumes of food loss and waste, in addition to ways in which food waste may be prevented in the food supply chain.

Nevertheless, the report highlights the lack of sufficient data, which lead to assumptions concerning the levels of food waste. Thus, the results studied in the report were reported with important caution.

The report urges further research, seeing as food security is an extensive concern in the developing world. The report also suggests improving harvest techniques, storage facilities, farmer education and cooling chains in low-income countries.

In regards to high-income countries, households of consumers should be informed of current issues in order to change their habits and behaviors in the current rise of levels of food waste.

As quoted from the report:

“The studies first reveal the major data gaps in available knowledge of global food waste, especially with regard to the quantification of food losses by individual cause, and the cost of food loss prevention. And when data are available, they are often accompanied with major uncertainties”.

B. Treaties and Conventions

- i) 1961 Working Group on Resource Productivity and Waste of the Organization for Economic Cooperation and Development (OECD)
1993 The International Food Security Treaty
- ii) 2011 SAVE FOOD: Global Initiative on Food Loss and Waste Reduction
- iii) 2015 G7 alliance on resource efficiency
- iv) 2015 Commission for Environmental Cooperation (CEC)'s North American Initiative on Food Waste Reduction and Recovery and the North American Initiative on Organic Waste Diversion and Processing

C. Resolutions and Agreements:

In September 2015, the UN Sustainable Development Summit was held in New York. During this summit, 193 countries pledged to end hunger in the next 15 years.

Two months later, 195 nations met for the climate change conference in Paris, where they adopted the Paris Agreement on Climate Change and recognized food security as a priority area for action.

End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.

- i) By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious, and sufficient food all year round.
- ii) By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant, and lactating women and older persons.
- iii) By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists, and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets, and opportunities for value addition and non-farm employment.
- iv) By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production that help maintain ecosystems and strengthens the capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.
- v) By 2020, maintain the genetic diversity of seeds, cultivated plants, and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional, and international levels, in addition to

- promoting access to (and equitable sharing of benefits arising from) the utilization of genetic resources and associated traditional knowledge, as internationally agreed.
- vi) Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development, and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries.
 - vii) Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round.
 - viii) Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility.

V. Questions to Consider:

1. Is the country you are representing a malnourished country. If so, in what way?
2. What basic day-to-day steps can be taken towards reducing food waste? On the other hand, if the country you are representing is malnourished, how may this problem be tackled?
3. What are major national changes that can be taken towards reducing food waste?
4. How is the country you are representing contributing to the international efforts in waste reduction?
5. What is the role of SAVEFOOD and what is its importance? Is it accomplishing its goals? Is your country taking part in SAVEFOOD?
6. What are the dangers of food waste and how can it affect the environment, health, and other aspects?
7. How well is your country familiar with the efforts of the Sustainable Development Goals in reducing food waste?
8. What are the efforts/steps taken by regional organizations such as the European Union or the Arab League towards waste reduction?
9. How well is your country involved in the FAO's food security plans?

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Topic B

Agricultural Biotechnology vs. Biodiversity and Climate Change

I. Definition of the Topic:

According to the Biotechnology Innovation Organization, agricultural biotechnology is defined as the use of scientific methods to enhance the quality of plants, animals, and other organisms or microorganisms. Scientists acquired skills to move genes from one organism to another, and have named this process genetic modification, engineering or improvement. An example of biotechnology is the existence of genetically modified organisms, where scientists modify an organism's genes to fit their preferences and give ideal results.

Biodiversity is the variability among terrestrial or marine organisms and other ecosystems. This also involves the diversity among species (FAO Definition). With the ongoing decrease of biodiversity, the human race's adaptation to new challenges, like climate change or population growth, will be weakened.

A Large number of the poor rely on biodiversity to survive, and their lives would be the first to be affected in the loss of biodiversity.

Climate change refers to the change in regional weather, detected through the average annual rainfall, for example. It could also include the regional monthly or annual temperature.

Climate change includes the overall change in the Earth's climate, in regards to temperature or precipitation patterns. Predictions of climate change are not so reassuring. The increase in the Earth's temperature may lead to a rise in the global sea level, a change in precipitation patterns, and expose people to "vector-borne disease", noticeably malaria. The Intergovernmental Panel on Climate Change (IPCC) Working Group I (WGI) Fourth Assessment Report, from 1850 till 2005, detected an increase in the global temperature by about 0.76°C, and a rise in global mean sea level by 12 to 22 centimeters in the last century.

The political aspect and opinions concerning whether climate change is real or not have emerged in the United States, with Trump's public announcements denying the existence of climate change overall.

According to the *Millennium Ecosystem Assessment (the MA was to assess the consequences of ecosystem change for human well-being and the scientific basis for action needed to enhance the conservation and sustainable use of those systems and their contribution to human well-being)*, climate change is apparently one of the most extensive drivers of biodiversity loss; fast climate change makes it harder for ecosystems and species to adapt to that change, and thus result in biodiversity loss. It is already compelling biodiversity to cope with changing habitat, life cycles and other physical traits. For example, and

according to the Convention on Biological Diversity held in 2010, losing Arctic Sea ice in recent years is an extensive threat to biodiversity.

II. Role of Committee in Current Topic:

The Food and Agriculture Organization incorporates its own instruments of biodiversity to implement the Strategic Plan for Biodiversity 2011-2020, an overarching framework concerning biodiversity for the United Nations' entire system.

The FAO represents an important partner in the Implementation of the Convention on Biological Diversity, in addition to contributing to the implementation of the Strategic Plan for Biodiversity and its Aichi Targets in association with the UNDP, UNEP, UNESCO and CBD.

International treaty bodies, such as the International Plant Protection Convention (IPPC), a 1951 multilateral treaty located with the FAO, aims to control the spread of pests of plants in addition to plant products. Also, the Convention on Biological Diversity and the Cartagena Protocol on Biosafety is continuously engaged in building a suitably workable framework. More specific administrative tools involve the draft Code of Conduct on Biotechnology as it links back to Genetic Resources for Food and Agriculture, under development by countries through FAO.

In regards to Climate Change, the FAO aids countries in mitigating and adapting to the effects and aftermath of climate change, most noticeably in its efforts and mentioning of this issue in the 2030 agenda of the UN's Sustainable Development Goals.

Concerning biotechnology, the FAO acknowledges the safe and right way of using biotechnology for it to be of significant assistance. The FAO provides biotechnology users, such as Bangladesh, Paraguay, Sri Lanka, with technical advice to develop their own national biotechnology procedures and policies.

In addition, the FAO provides biotechnology users with modern and balanced scientific information through newsletters, articles, email conferences, and forums to discuss policies and technical difficulties.

III. Case Studies and Sub-Topics:

1. Serum Institute of India

Located in Pune (India), Serum Institute of India Limited is an immunity-manufacturing company. Known for its reputation of vaccine production against Tetanus, Hepatitis B, Measles and so much more, about 65% of the world's children receive at least one vaccine from this company per year (Serum Institute of India, About). This company produces its vaccines using cell based technologies, under the more common term of biotechnology. This company is ranked as India's No.1 biotechnology company, and made its first international acquisition by garnering Bilthoven Biologicals (a bioengineering and pharmaceutical company) in the Netherlands in 2012. This acquirement assures access to technology and professionals for making IPV (Injectable Polio Vaccine, Salk).

This attainment increases Serum's offerings in the field of pediatric vaccines, and Serum aims to massively contribute to the destruction of Polio worldwide, which shows how biotechnology has been carefully and efficiently put to use in the case of India's institute.

2. Climate Change: Effects on Patuakhali

Changes in Bangladesh's climate have increased its temperatures, and sea levels. The most affected areas include the coastal ones. Patuakhali, a coastal region in Bangladesh includes a population mainly dependent on its agricultural sector, and for climate change followed by gradual agricultural collapse, Patuakhali experiences pressure on food security. The prominent crops in this coastal region include the International Rice Research Institute IRRI.

The contribution of the IRRI was much more abundant 10 years ago. Moreover, in Patuakhali, increasing trends in culture fishing is experienced. Followed by the effect of climate change, the production of capture fishing is declining, and for this reason, people resort to cultural fishing to fulfill their protein demand. Extinction of marine and river fish species are being observed, and breeding is also restrained due to low rainfall. Livestock in Kalapara (a site of Patuakhali) include hen and duck (the major 80%, according to the Journal of Earth Science and Climatic Change), cow and sheep, etc. These livestock were seen in much higher levels the past ten years. Rearing livestock has declined and citizens blame it on the spread of disease. This might, however, be part of the result of climate change which leads to poor breeding circumstances.

In this case of Bangladesh, it is clear how big of an impact the change in climate in a certain area has on that same area's biodiversity.

3. Climate Change in Thailand

Throughout the world, countries feel the need to protect their people and living creatures from the consequences of recent changes in climate. Thailand presents one of the most significant cases of climate change. Thailand currently begun carrying out important and interesting strategies in adapting to climate change, to lessen its effects and protect farmlands and cities. Being the largest exporter of rice in the world, Thailand employs 49% of its population in agriculture (Climate Institute, 2008). Noticeably, climate change impacts the three most extensive sectors in Thailand's economy: Trade, tourism and most importantly agriculture. Thailand's CO₂ emission has doubled between 1991 and 2002, thus contributing to global warming. The effects of these changes in climate include an erratic weather resulting in droughts and floods, and in events such as the 2004 devastating tsunami (Climate Institute, 2008).

4. Biospain

Spain is considered one of the countries with the most advanced and expanding biotechnology. In 2014, the Spanish biotech involved 2,742 companies of biotechnological activities, and 628 companies mainly focused on biotechnology. According to the National Statistics Institute 2014 Survey on Technological Innovation in Companies, these Spanish biotechnology companies invoiced €7,591 million.

The growth of these types of companies in Spain can be related to the transverse nature of biotechnology, where different sectors are increasingly involving biotechnology in the activities, services and products.

51.55% consider biotechnology as secondary in business, 41.4% find it necessary in production 7.04% represent dedicated biotechnological companies. (Biospain, 2016)

IV. Additional information:

A. Reports and Analysis

i) *Impacts of Climate Change on the Future of Biodiversity*

By Céline Bellard, Cleo Bertelsmeier, Paul Leadley, Wilfried Thuiller, and Franck Courchamp.

Many studies in recent years have investigated the effects of climate change on the future of biodiversity.

This report examined the different possible effects of climate change upon individuals, populations, species, communities, ecosystems and biome scales, showing that all of these aspects can respond to climate change challenges respecting time (e.g., phenology), space (e.g., range) and self (e.g., physiology).

Following that, the report also presented the main specificities and cautions of the most common approaches used to estimate future biodiversity at global and sub-continental levels.

Finally, this report emphasized numerous challenges for future research both in theoretical and applied realms.

By all that, it shows that current estimates are very adjustable, depending on the method, taxonomic group, biodiversity loss metrics, spatial scales and time periods considered. Yet, the majority of models indicate alarming costs for biodiversity, with the worst-case scenarios leading to the disappearance in rates that would qualify as the sixth mass extinction in the history of the earth.

As a conclusion from this report, ecosystems and species are being studied by ecologists to develop a better understanding if these mechanisms can be impacted by climate change.

Over the past decades, some of this understanding has been effectively translated into mathematical models most of them indicate, alarming consequences for biodiversity in major situations leading to extension rates to rise making history.

Also the lack of keys in some mechanisms in these models may lead to either very large underestimations or overestimations of risks for biodiversity.

Moreover, it is very important to improve the understanding of the vulnerability of biodiversity to climate change.

Quoting from the derived conclusion from this report:

“Crucially, the diversity of approaches, methods, scales and underlying hypotheses used has led to an ensemble of global quantitative predictions that can seldom be compared. Consequently, we are left with a mosaic of information that cannot provide a quantitative, coherent picture of future biodiversity loss. Yet, standardization of future studies (of taxonomic groups, methods, time horizon, scale, etc...), which might help decrease uncertainty, would do so at the expense of the breath of knowledge and of a much needed innovation in this field. In this regard, a solution may come from a collective effort in conducting large meta-studies that would encompass many components of variability (biodiversity, time and space scale, models, ...) in order to both infer similarities and assess sources of inconsistency.”

A major near-term target to substantially improve our understanding, predictive capacity and reactive potential will be to contribute to this new IPCC-like assessment for biodiversity and ecosystem services.

B. Treaties and Conventions

- i) 1983 Statutes of the International Centre for Genetic Engineering and Biotechnology, Madrid
- ii) 1992 Convention on Biological Diversity. Rio de Janeiro
- iii) 2004 International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)
- iv) 2010 Agricultural Biotechnologies in Developing Countries (ABDC-10), Guadalajara, Mexico
- v) 2012 Cartagena Protocol on Biosafety
- vi) The Commission on Genetic Resources for Food and Agriculture (CGRFA)
- vii) International Plant Protection Convention (IPPC)
- viii) Codex Alimentarius Commission (Joint between FAO/WHO)

C. Resolutions and Agreements:

- i) The EU Platform of Food Losses and Food Waste
- ii) The 2030 Agenda and the Paris Agreement to reduce food waste and end world hunger
- iii) Consumer Goods Forum (GCF) Resolution on Food Waste

V. Questions to Consider:

1. How is climate change involved in politics and what is your country's stance concerning that involvement?
2. How is climate change affecting your country?
3. Is climate change the same as global warming?
4. Is biotechnology allowed in your country?
5. What are Genetically Modified Organisms (GMOs)?
6. How advanced is biotechnology in the world and how frequent is it?
7. What is the relation between climate change and biodiversity?
8. How does biotechnology and climate change affect health?
9. What is the current case of biodiversity in your country and how is your country maintaining it?
10. How is climate change in your country affecting its biodiversity?
11. How are the 2015 Sustainable Development Goals impacting the efforts of reducing climate change?

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