AMIMUN'22

AMITY INTERNATIONAL MODEL UNITED NATIONS

PERSEVERANTIA OMNIA VINCIT

UNFCCC

BACKGROUND GUIDE

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AGENDA 1 - REVIEWING THE IMPLEMENTATION GAPS IN THE PARIS AGREEMENT WITH SPECIAL EMPHASIS ON FINANCIAL MECHANISMS

AGENDA 2 - DEVELOPING SUSTAINABLE AGRICULTURAL SYSTEMS IN THE FOOD INDUSTRY TO ACHIEVE SDG 13

LETTER FROM THE SECRETARIAT

Dear Delegates,

It gives us great pleasure to invite you all to the second e-Edition of the Amity International Model United Nations, a two-day conference scheduled for January 22nd and 23rd, 2022. AMIMUN has established a name for itself on the international stage, as indicated by its status as one of Asia's top MUNs. AMIMUN delegates obtain a better understanding of the UN's inner workings by engaging in diplomatic debates and broadening their awareness of global relations.

Model United Nations allows students to stand up for what they believe in and create a mark on the world. This platform assists delegates in developing into future pioneers who are certain, determined, and energetic. It is hardly an exaggeration to say that MUN has formed us into the people we are today. We are recognized by the United Nations as a conference, and our collaboration with various international and national bodies such as the United Nations Educational, Scientific, and Cultural Organization (UNESCO), the UN Global Compact Network India, Fridays for Future Delhi, Youth for Peace International, the United Nations Population Fund, and PETA India allows us to further enhance the learning experience of the individuals taking part in the Conference.

By adhering to the theme of AMIMUN'22, "***Perseverantia Omnia Vincit*: *Perseverance Conquers All***" the AMIMUN family hopes to inspire delegates from all over the world, to foster powerful discussions that result in solutions, solutions that are borne out of a steel-like determination and perseverance to lead each debate to its rightful conclusion, and to ensure that delegates can navigate the diplomatic complexities that come with representing the agendas and resolutions they have crafted. It is a platform for legislators to conceptualize their opinions in the midst of the COVID-19 pandemic. Whether you are new to Model United Nations or a seasoned veteran, we are confident that you will have a beneficial engagement in the environment of learning that permeates each part of AMIMUN'22.

Please do not hesitate to contact us if you have any inquiries.

Regards,

The Secretariat

AMIMUN 2022

LETTER FROM THE EXECUTIVE BOARD

Dear Delegates,

It gives us immense pleasure to welcome you to this simulation of the 26th session of the Conference of the Parties (COP 26) to the UNFCCC at the AMIMUN 2022. We look forward to an enriching and rewarding experience. The agendas for the session are; '***Reviewing the implementation gaps in the Paris Agreement with special emphasis on financial mechanisms***' and '***Developing Sustainable Agricultural Systems in the Food Industry to Achieve SDG13***'.

This study guide is by no means the end of the research, we would very much appreciate it if the members can find new realms in the agenda and bring them forth in the committee. Such research combined with good argumentation and a solid representation of facts is what makes an excellent performance.

In the session, the executive board will encourage you to speak as much as possible, because, for you, fluency, diction, or oratory skills have very little importance as opposed to the Content you deliver. So just research and speak and you are bound to make a lot of sense. We are certain that we will be learning from you immensely and we also hope that you all will have an equally enriching experience. In case of any queries feel free to contact us. We will try our best to answer the questions to the best of our abilities. We look forward to an exciting and interesting committee, which should certainly be helped by the all-pervasive nature of the issue.

Thank you and all the best,

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Agenda 1: *Reviewing the implementation gaps in the Paris Agreement with special emphasis on financial mechanisms*

Introduction

The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at the 21st session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC COP-21) on December 12, 2015 in Paris. The Agreement entered into force on November 4, 2016.

The goal of the Paris Agreement is to keep the increase in global average temperature well below 2 degrees Celsius above pre-industrial levels, while efforts are made to limit temperature rise to 1.5 degrees Celsius.

To fulfill this strategic goal, countries are striving to pass the peak of global greenhouse gas emissions as soon as possible to build a climate-neutral world by the middle of the 21st century. The Paris Agreement is a key element of the multilateral climate process. It is the first-ever legally binding instrument that unites countries in pursuit of a common goal of climate change mitigation and adaptation.

Implementation of the Paris Agreement requires economic and social transformation based on the best available scientific evidence. The agreement provides for a five-year cycle for countries to build ambitious targets to combat climate change. The document envisages sending countries to the UN Climate Secretariat until 2020 of their plans to combat climate change – Nationally Determined Contributions (NDCs).

To achieve the long-term goal of the Paris Agreement, the document calls on countries to develop and submit by 2020 to the UN Climate Secretariat Long-term development strategies with low greenhouse gas emissions.

The strategies contain details of long-term planning for NDCs. Unlike the development of the latter, the preparation of Strategies is not an obligation of the Parties. However, they build the NDCs into the context of national long-term planning and development priorities.

The Paris Agreement provides a framework for providing support to countries in need of financial and technological assistance, as well as assistance for capacity building. The Paris Agreement emphasizes that developed countries must play a leading role in mobilizing funds to support more vulnerable nations. At the same time, other countries are also encouraged to provide appropriate financial assistance. Climate finance is needed to mitigate the effects of climate change as large investments are required to significantly reduce emissions. Climate finance is also important in the context of adaptation, as adapting to a changing climate requires significant financial resources.

In the Paris Agreement, countries have provided for the creation of an Enhanced Accountability Framework (ERF). Under this Framework, starting in 2024, States will report on climate change action and progress in climate change mitigation, adaptation and support received or provided transparently. The agreement also provides for procedures for the consideration of the submitted reports with the participation of international experts.

The information generated by the PPO will underpin the Global Stocktaking, a process to assess collective progress towards long-term climate goals.

The result of this procedure will be the development of recommendations for states to set more ambitious goals in the course of their further revision.

- Between 1880 and 2012, the global average temperature rose by 0.85 degrees Celsius. Moreover, each increase in temperature by 1 degree leads to a decrease in the grain yield by about 5 percent. Between 1981 and 2002, global harvests of corn, wheat and other staple crops fell significantly by 40 megatons per year.
- Rising ocean temperatures and decreasing amounts of snow and ice have led to rising sea levels. Between 1901 and 2010, the world average sea level rose by 19 centimetres due to an increase in the amount of water in the oceans, caused by general warming and melting of glaciers. Every decade since 1979, the Arctic sea ice has shrunk by 1.07 million square kilometres.
- Unless the only possible scenario is met, given the current level of greenhouse gas concentrations in the atmosphere and continued emissions by the end of this century, the increase in global temperature is likely to exceed the 1.5 degrees Celsius mark set between 1850 and 1900. The temperature of the

oceans will rise and the glaciers will continue to melt. The average sea level is projected to rise by 24-30 centimetres by 2065, and by 40-63 centimetres by 2100. Most of the effects of climate change will persist for many centuries, even if emissions stop.[1]

- Since 1990, global carbon dioxide (CO2) emissions have increased by almost 50 percent.
- Emissions grew faster between 2000 and 2010 than in each of the three preceding decades.
- In the case of applying a wide range of technical measures and changing the behaviour model, it is still possible to keep the increase in the average world temperature at a level of 2 degrees Celsius higher than before the onset of the industrialization era.
- The most realistic prospects for avoiding global warming going beyond this framework appear when large-scale institutional and technological changes are carried out.

The Paris Agreement is ambitious, dynamic and universal. It covers all countries and all emissions, and its implementation is designed for years to come. This agreement has enduring historical value. It strengthens international cooperation to address the challenges of climate change. It determines the direction of further actions.

The Paris Agreement sends a strong signal to markets that it is time to invest in a low-emission economy and contains transparency mechanisms to build mutual trust and confidence.

It will serve as an important tool for mobilizing financial and technological support and capacity building for developing countries. In addition, it will also help scale up global efforts to address loss and damage from climate change.

A strong climate agreement, backed by local action, will help achieve the Sustainable Development Goals to end poverty everywhere, build stronger economies and build safer, healthier and more resilient societies. In addition to having a specific climate change goal, 12 of the 17 Sustainable Development Goals directly address climate change mitigation measures. The Paris Agreement has spurred new mitigation action statements that will demonstrate how civil society and the private sector are moving towards tackling climate change.

[1] https://www.un.org/sustainabledevelopment/ru/climate-change/

The Lima-Paris Agenda for Action, which has spawned hundreds of new commitments and initiatives, is proof that tackling climate change requires the same action as the implementation of the Agenda for Sustainable Development.

Our focus in this discussion is to identify the barriers in the implementation of the Paris Agreement especially financial problems and resolve them partially if not completely on the global, national and grassroots levels. With the impact of the covid 19 pandemic, the context has changed drastically to what it was a few years back and it has a huge significance on climate finance which brings us to the topic of what is climate finance.

Climate Finance

Climate finance refers to local, national or transnational financing—drawn from public, private and alternative sources of financing—that seeks to support mitigation and adaptation actions that will address climate change. The Convention, the Kyoto Protocol and the Paris Agreement calls for financial assistance from Parties with more financial resources to those that are less endowed and more vulnerable. This recognizes that the contribution of countries to climate change and their capacity to prevent it and cope with its consequences vary enormously. Climate finance is needed for mitigation because large-scale investments are required to significantly reduce emissions. Climate finance is equally important for adaptation, as significant financial resources are needed to adapt to the adverse effects and reduce the impacts of a changing climate.

Under the principle of "common but differentiated responsibility and respective capabilities" set out in the Convention, developed country Parties are to provide financial resources to assist developing country Parties in implementing the objectives of the UNFCCC. The Paris Agreement reaffirms the obligations of developed countries, while for the first time also encouraging voluntary contributions by other Parties. Developed country Parties should also continue to take the lead in mobilizing climate finance from a wide variety of sources, instruments and channels, noting the significant role of public funds, through a variety of actions, including supporting country-driven strategies, and taking into account the needs and priorities of developing country Parties. Such mobilization of climate finance should represent a progression beyond previous efforts. Read more about the basics of climate finance here

(https://unfccc.int/topics/climate-finance/the-big-picture/introduction-to-climate-finance) and research more about it in detail as it will be the backbone of any form of debate in committee.

There is currently a standing committee on finance which serves 4 specific functions:

- Assisting the COP in improving coherence and coordination in the delivery of climate change financing; assisting the COP in the rationalization of the financial mechanism of the UNFCCC;
- Supporting the COP in the mobilization of financial resources for climate financing; and supporting the COP in the measurement, reporting and verification of support provided to developing country Parties.
- The Committee is also tasked to organize an annual forum on climate finance, provide the COP with draft guidance for the operating entities, provide expert input into the conduct of the periodic reviews of the financial mechanism and prepare a biennial assessment and overview of climate finance flows.
- Furthermore, the SCF is designed to improve the linkages and to promote coordination with climate finance-related actors and initiatives both within and outside of the Convention. At the Paris Conference in 2015, Parties decided that the SCF shall also serve the Paris Agreement.

The scope of this committee and how it can be expanded or adjusted can play a vital role in formulating multiple viable solutions for the problems being faced by climate financing. The contribution of countries to climate change, and their capacity to prevent and cope with its consequences, varies enormously. Thus, it is the responsibility of larger nations to help guide the smaller nations into the future with investment and financing into sustainable technologies and not repeat the mistakes they made. This link should give you a basis of understanding on negotiations on climate financing: https://unfccc.int/topics/climate-finance/the-big-picture/climate-finance-in-the-negotiations

These are some important points to consider while researching and building arguments for debate:

- The hard-wiring of our economies to the use of fossil fuels means that the transition to low-emissions, climate-resilient development pathways will require broader, transformative change. Policy action needs to go beyond core climate policies to address policy misalignments and social

and distributional issues as well as implement the structural reforms needed to allow economies to adjust to the transformational changes that will be required.

- Achieving the goals of the Paris Agreement will require emission reductions beyond the industry and energy sectors. Globally, emissions from agriculture, forestry and other land use contribute around a quarter of total GHG emissions. Land sectors act as both a source of GHGs, for example, methane from livestock and rice, carbon dioxide from land-clearing, and nitrous oxide from fertilizer use, and as a sink for greenhouse gases (e.g. sustainable forestry). This means that land-use decisions have an important influence over the carbon budget remaining for energy and industry sectors.

- The world faces a huge challenge in meeting global food demand while mitigating and adapting to climate change and conserving biodiversity.18 Some forms of land-based mitigation actions such as monoculture plantations and using land to grow first-generation biofuels can negatively impact biodiversity, the availability and supply of food and water and ecosystem resilience. Other mitigation actions such as ecosystem-based approaches (e.g. agroforestry and ecosystem restoration) and climate-smart agriculture can have positive benefits for both biodiversity and human well-being while mitigating climate change and enhancing resilience.

- Enhancing resilience will require capacity development and policy reforms. Current development patterns are often increasing countries' exposure to climate change impacts: for example, through the growth of low-lying coastal cities or the degradation of ecosystems and the services they provide. These patterns can lock in vulnerabilities to climate change that will be difficult and expensive to reverse in future. To prevent this, there needs to be sufficient awareness and data to understand climate risks. This needs to be combined with the capacity and tools for managing those risks given uncertainty about the future. Policies should address misalignments (such as inappropriate land-use planning) that increase exposure to climate risks.

- The transition to low emissions, climate-resilient development pathways needs to be inclusive. The transition of exposed businesses and households, particularly in vulnerable regions and communities, and early planning to avoid stranded assets in fossil-fuel-intensive industries and stranded communities alongside them are as essential to the transition as core climate policies and policy alignment across the economy. Vulnerability to climate change is closely linked to socio-economic

vulnerability: measures to reduce poverty and social exclusion will help vulnerable groups adapt to climate change.

- There are several priorities to increase countries' ability to adapt to adverse climate impacts and foster resilience given the diversity of climate vulnerabilities and uncertainty of projections of local and regional change. "Adaptation pathways" that identify path dependencies and critical decision points can shape near-term planning and policy decisions that reduce short-term and long-term risks. The idea is to create flexible, forward-looking approaches to decision-making by identifying a range of potential outcomes and anticipating a range of measures to respond to them. National and local adaptation plans can help identify entry points for integrating climate change adaptation measures across existing policy processes and decision cycles, and promote cross-sectoral coordination. Relevant tools for adaptation strategies include risk assessments, spatial planning to reduce infrastructure exposure to climate risk and facilitate ecosystem-based adaptation, decision-support tools for policy and project appraisals such as Strategic Environmental Assessments and Environmental Impact Assessments, and regulatory standards (e.g. building codes).

- Non-state actors continue to have a vital role to play in helping national governments overcome the barriers to more ambitious and urgent action. Such actors include mainstream business and financial organisations, cities and other sub-national governments, intergovernmental organisations and non-governmental organisations. For example, pension funds with long-term liabilities and assets exposed to climate risk are pioneering efforts to decarbonise their asset portfolios. Some sovereign wealth funds are also moving in this direction. Insurance companies are exposed to climate risks on both sides of their balance sheet – from ownership of fossil-intensive assets, and climate impacts on insured assets – and also need to take a lead role in the financial sector. As of mid-2015, over 80 insurers and organisations had adopted the UNEP FI Principles for Sustainable Insurance Initiative, including insurance companies representing about USD 14 trillion in assets under management. Businesses will also play a critical role in delivering the technology and innovation needed for a low-carbon transition. Further progress will depend on the ability of countries to effectively engage and work with sub-national governments and other non-state actors.

- Innovation will help drive the transition to low-emissions, climate-resilient development pathways. While much progress can and must be made now using currently available technologies, a full and

effective transition will require widespread innovation and deployment of new technologies (e.g. carbon capture and storage, negative emissions technologies and electricity storage). Governments can facilitate green innovation through structural reforms, and by improving business models for the financing of research and development in energy efficiency and low emission technologies. Public procurement can trigger industrial and business model innovation through the creation of lead markets, for example by introducing climate-related criteria to procurement decisions. Trade and investment are the main channels for diffusing low-emission technologies, underscoring the need for governments to remove policy obstacles that hinder trade in low-carbon goods and associated services.

Note from the EB: These are just a few areas of interest amongst a vast majority of points of discussion. Implications on every single aspect of the way we live and function will be expected. It needs to be understood very well that all factors of change will have a wide variety of implications that make the scope of this agenda enormous. However, the backbone of any drastic change as is required by the world right now needs a huge infusion of capital. These links should offer you a good starting point to this agenda :
https://www.oecd.org/mcm/documents/C-MIN-2018-12-EN.pdf
https://www.un.org/sites/un2.un.org/files/100_billion_climate_finance_report.pdf

This is where we limit the scope of this agenda and focus on the financial aspect of implementing the changes required in the world forum. Be smart and understand what is relevant and is of high priority. There is a structure currently existing in the world on the way forward. Understand the flaws and be innovative with your solutions. We have deliberately not gone into greater depth about the nitty-gritty of financing as we would like to see your research in this aspect and see how well you can apply it to resolve the issues at hand. We expect detailed and exhaustive research from every single delegate. Be collaborative and solution-oriented. Imbibe the spirit of the principle of the United Nations.

Agenda 2: *Developing Sustainable Agricultural Systems in the Food Industry to Achieve SDG13*

Introduction

Greenhouse gas emissions associated with human activities have reached historic highs. Fueled by economic growth and population growth, climate change has widespread impacts on humans and natural systems in every country on every continent.

As air and ocean temperatures rise, the amount of snow and ice has decreased and sea levels have risen. According to available forecasts, during the 21st century, the temperature of the Earth's surface will continue to increase, and in the absence of effective measures, the increase in our century is likely to exceed 3 degrees Celsius.

As climate change has a significant impact on economic development, natural resources and poverty alleviation, overcoming this challenge has become an integral part of achieving sustainable development. Developing low-cost and scalable solutions to climate change will avoid destabilizing the gains of recent decades as a result of this phenomenon and will provide countries with healthy and resilient economies.

To be considered sustainable, agriculture must meet the needs of present and future generations, ensuring both profitability and environmental health and socio-economic equity. Sustainable food and agriculture (SFS) improves the four pillars of food security – availability, accessibility and use, and sustainability – across all three dimensions of sustainability: environmental, social and economic. FAO promotes the implementation of SFI principles to help countries around the world eradicate hunger and achieve the Sustainable Development Goals (SDGs).

Goal 13 responds to “Take urgent action to combat climate change and its impacts”. Food production threatens to be the root cause of climate change, but sustainable agriculture will help solve this problem. Climate change has profound implications for the living diversity of our planet and the lives of people.

The sea level is rising, the temperature of the oceans is rising. Longer and more severe droughts threaten freshwater supplies and crops, jeopardizing efforts to provide food to the world's growing population. If left unchecked, a changing climate will seriously undermine food production in countries and regions where food insecurity is already high. This will affect food accessibility through the declining crop, livestock and fisheries productivity and barriers to access to food, destroying the livelihoods of millions of rural people who derive their income from agriculture.

Tasks to which the UN calls on to achieve the goal:

1. To increase resilience and the ability to adapt to dangerous climatic events and natural disasters in all countries of the world.
2. Incorporate climate change responses into national policy and planning.
3. Improve the dissemination of information on the effects of climate change.
4. Developed countries that are parties to the United Nations Framework Convention on Climate Change should meet the commitment to raise $ 100 billion by 2020. These funds are for developing countries and should mitigate the effects of climate change.
5. Strengthen planning and management capacities for climate change in the least developed countries and small island developing States, with particular attention to vulnerable groups: women, youth and local communities.

In the global context of sustainable development, agriculture plays a leading role: The agro-industrial sector is the largest employer in the world and is often attracted to global land use. It endangers natural ecosystems and accounts for about a quarter of the world's greenhouse gas emissions. It is critical to global food security and vulnerable to climate change.

The agro-industrial sector and the food industry occupy a central place in the world economy, with particular importance for developing countries. This is why investment in agriculture has one of the best effects in promoting economic growth, improving food security and fighting poverty.

Growth in agricultural production proves to be significant: Despite a sharp decline in the number of farmers, especially in developed countries, production has grown significantly. This phenomenon is known as the "green revolution", led by Nobel laureate Norman Borlaug. His efforts were focused on fighting hunger, and

the key areas were highly productive varieties of seeds, irrigation, modern farm management, the use of mineral fertilizers and pesticides.

Although food production has increased, the overuse of nonrenewable resources or agrochemicals has harmed the environment. With in-depth knowledge, modern and updated farm management methods, farmers today can maintain high yields while protecting the environment.

Today it is already recognized that sustainable development of the agro-industrial sector is an important element of green growth.

Food-Supply Chains, Agriculture and Green-House Gas Emissions

Agriculture produces a substantial amount of greenhouse gas emissions, which contribute greatly to global warming and climate change. Stable and radioisotopes can be used to develop technology packages that assist the Member States to sustainably reduce these emissions, improve resource use efficiency and increase crop and animal productivity.

Agriculture is both a victim of and a contributor to climate change. On the one hand, agricultural activities contribute approximately 30 percent of total greenhouse gas emissions, mainly due to the use of chemical fertilizers, pesticides and animal wastes. This rate is bound to further rise as a result of an increase in the demand for food by a growing global population, the stronger demand for dairy and meat products, and the intensification of agricultural practices.

On the other hand, these greenhouse gases include nitrous oxide (N_2O), carbon dioxide (CO_2) and methane (CH_4), which all contribute to climate change and global warming and thereby have a profound impact on the sustainability of agricultural production systems. This does not yet take into account the greenhouse gas emissions associated with the use of pesticides, the environmental cost of which is largely unrecognized.

Measuring Greenhouse Gas Emissions using Nuclear Techniques

To reduce the emission of nitrous oxide, a greenhouse gas with a global warming potential 300 times larger than that of carbon dioxide, chemical fertilizers, pesticides and manure must be used conscientiously. Additionally, low-cost inhibitors that regulate nitrogen processes in soils should be implemented. All this requires detailed knowledge of the sources of greenhouse gas production through the various microbial processes in soil.

Nuclear techniques offer substantial advantages over conventional techniques for measuring the impact of climate change. Using the nitrogen-15 isotopic technique, scientists can identify the source of nitrous oxide production, which is important to find ways to reduce the emission of the gas.

The carbon-13 stable isotope technique, using the natural abundance of carbon-13 in the environment, allows researchers to evaluate soil quality and sources of carbon sequestered in the soil. This helps identify how various combinations of crop rotation, tillage and ground cover can enhance productivity and improve the efficiency with which increasingly scarce resources, such as water and chemical nutrients, are used.

Carbon sequestration – the capture and long-term storage of atmospheric carbon dioxide (CO_2) in soil – currently presents the best solution to counterbalance the increase of greenhouse gases. This includes enhancing biomass production; the application of low-cost plant growth regulators and bio-fertilizers; agricultural conservation practices (no-till, application of manure and biochar); nitrogen fixation by leguminous crops; reduced pesticide use; crop rotation; and mixed crop-livestock production. In addition, optimised animal feeding practices and manure management can reduce energy leakage and emissions.

To improve animal productivity and protect the environment from overgrazing, nuclear and related techniques can help formulate feed supplementation strategies. One way is to identify the combination of long-chain hydrocarbon and natural carbon-13 on plants eaten by ruminants and in their feces, which helps estimate their intake under grazing or grassland browsing conditions.

Agricultural practice, as the first link of the supply chain, plays a crucial role to meet the food demand of a growing global population. While food production tripled between 1960 and 2015 due to land expansion and

intensification, it has caused (severe) environmental impacts. Food production uses 70% of the freshwater withdrawals and about 40% of land and is responsible for about 23–33% of the global GHG emissions. Hence, the challenge remains on how to produce in a sustainable way—by enhancing resource-use efficiency (SDGs 6, 12, 14, 15) and mitigating/adapting to climate change (SDG 13)—in order to achieve global food security (SDG 2) and improve the livelihood and well-being of farmers (SDGs 1, 2, 3), especially of smallholders, who produce about 75% of all food.

In this regard, the FAO states the need to transform current agricultural systems towards more "holistic" food production systems, such as agroecology, climate-smart agriculture, and conservation agriculture. This transformation has multiple effects on the SDGs. For instance, Arouna et al.[2] reported higher yields for new varieties of rice, which increased the income (SDG 2; on average, USD 3.9 per year per capita) and reduced poverty (SDG 1; between 18% and 24%) of small-scale farmers in sub-Saharan Africa.

However, the level of adoption of changes in farming practices has been lower than the ones needed to achieve food security, according to Thornton et al., who evaluated the state of the changes in agricultural practices of 6300 smallholders in 21 countries. Technological improvements in agriculture also pave the way for ensuring food security associated with SDG 2, such as the design of a smart honey supply chain that improved food security and food safety, and reduced honey fraud. This smart agricultural system was based on blockchain technology.

Transforming farming systems is also crucial to take action on climate change (SDG 13). Food production is an important contributor to greenhouse gas (GHG) emissions, and enhancing its efficiency can reduce 40% of the GHG emissions per food produced. In addition, farmers must adapt to current changing climate effects such as variations in mean temperatures, global water cycles associated with modified precipitation patterns and the occurrence of extreme weather events. Climate change can reduce 70% of crop yields by 2030, and therefore, adapting to climate change is needed to enhance food security (SDG 2) and reduce poverty (SDG 1) among small-scale farmers.

[2] Arouna, A.; Lokossou, J.; Wopereis, M.; Bruce-Oliver, S.; Roy-Macauley, H. *Contribution of improved rice varieties to poverty reduction and food security in sub-Saharan Africa - ScienceDirect*, Glob. Food Secur. **2017**, *14*, 54–60

Role of Food Traders in Food Systems for Achieving SDG 13

Food traders play a key role in ensuring that safe and healthy food is accessible and affordable (SDGs 2, 3). Considering the fact that more than 50 million people will be undernourished by 2050 due to climate change (SDG 13), the present international food trade practice needs to be modified. Climate change directly influences regions and food production modifying trade patterns. Although climate change increases the role of trade in reducing the risk of hunger (SDG 2), it does not always provide optimal options in terms of types of food traded.

Therefore, the promotion of changing (reducing) tariffs and all kinds of institutional and infrastructural barriers may decrease the negative impact to over 20 million undernourished. Climate change also has an impact on transportation systems, causing delays, rerouting and re-scheduling, reduced speed, pressure on tires, stress on infrastructure/vehicles, road/railway closures and vehicle instability.

Connection of food transportation and climate change highlights the need for reducing GHG emissions from vehicles as well as the promotion of low carbon fuels (SDG 7) striving towards climate-friendly transportation policies. This may be connected with SDG 9, highlighting the need for building sustainable infrastructure as well as combating climate change (SDG 13).

Some food commodities require cold chains associated with maintaining optimal time/temperature ratio during transportation involving specific trucks and refrigerants. Climate change impact linked with food trade is associated with the use of refrigerants needed in cold chains as this is important for achieving prescribed food safety levels. These impacts clearly identify a need for climate action (SDG 13) associated with GHG emissions and ozone layer depletion linked with storage/retail.

One approach is shifting from hydrofluorocarbon refrigeration systems to systems with lower impact on climate change, in line with the EU legislation. In addition, a simulation of sustainability of perishable food supply chains revealed that perishability of food may increase various environmental impacts up to 120%. However, good storage practices in terms of industry innovation (SDG 9) have the potential in combating climate change (SDG 13). Internet of Things as a concept (SDG 9) enables better transportation traceability and monitoring as well as optimizing energy consumption (SDG 7) and GHG emissions (SDG 13).

In all of them, there are four common goals:

1. They provide information that consumers otherwise might not have;
2. They provide information in a format that is understandable and quickly comprehensible for most consumers;
3. Its use and the verification system behind it foster the trust of consumers; and
4. They empower consumers. The labels allow consumers to express their individual value perception of product characteristics. Consumers can compare different product quality attributes and which characteristics they prefer.

In this sense, it is worth mentioning a couple of recent labels that have appeared in the European market: Nutri-Score, combining nutritional and health issues, and Eco-Score, showing the environmental impact of food (SDG 6, 7, 13); both of them bring added values to food choices (SDG 12).

Conclusion

Food systems are crucial in achieving the UN SDGs, and previous studies mostly focused on the contribution of food systems to SDG2. In this regard, this background guide aims to give attention to the key stakeholders and discuss their influence on the achievement of all SDGs, directly or indirectly. In addition, the interlinkage between the different actors is based on strengthening partnerships for the goals (SDG 17). Considering all actors, a system should tackle all SDGs, but the most prevailing goals that need to be tackled simultaneously are the SDGs 2 and 12. This is not unexpected, since they are the two key food-related SDGs that are relevant to combatting climate change and SDG 13.

NOTE from the EB:

A key challenge that this committee would need to address is the lack of data on the level of achievement of the SDGs, and most importantly, relating the data with different stakeholders. Further investigation is needed to assess the current impact of stakeholders on SDGs, as well as the potential effect when implementing innovations in any step of the food supply chain. The following links may be helpful to the committee in understanding and broadening the scope of their research: -

- Special Report on Climate Change and Land — IPCC site
- Options for keeping the food system within environmental limits | Nature
- Improved climate action on food systems can deliver 20 percent of global emissions reductions needed by 2050 (unep.org)