

Forum : Environmental and sustainable development

Agenda : On measure to promote environmentally sustainable agricultural practice

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Introduction-

According to WWF, agriculture is the largest industry in the world. Employing more than a billion people and generating over 1.3 trillion dollars' worth of food annually. With pastures and croplands occupying 50% of the earth's habitable land. When sustainably managed, agriculture can help improve soil health, improve water quality, conserve critical habitats, etc. However, due to the rising demands of consumer for food, it shifted the focus of many farms to quantity over quality, causing unsustainable practices in the agriculture industry are still rampant and the need for sustainable practice is becoming more and more urgent. As agriculture is also one of the largest contributors to greenhouse emissions generating methane, nitrous oxide, carbon dioxide and many more.

According to a study published on the 8th of September of 2022, scientists find that 90%-99% of all deforestation in the tropics is driven or indirectly by agriculture. Revealing a much higher expected number than what was originally cited, which was 80% for the past decades. With deforestation coming at a rapid rate from 4.3 to 9.3 million hectares per year between 2011 and 2015. The consequences of deforestation are also detrimental, since deforestation often means clearing forested lands. It's simple, trees are carbon sink. Meaning that they absorb and store carbon, or more specifically 48 pounds of carbon dioxide each year for a matured tree. By cutting down trees, this will mean that we will release more carbon dioxide whilst having less trees to absorb it. Significantly contributing to global warming and also greatly increases the chance of forest fires as removing tree covers dries out forests. Examples such as the amazon rainforest fires with deforestation as one of its causes. Greatly impacting the biodiversity of the amazon rainforest and destroying many houses for indigenous tribes living inside the amazon rainforest.

Unsustainable agriculture practices also cause pollution in many countries, such as the use of pesticides, fertilizers, these toxic farm chemicals harm the environment around it, humans, and biodiversity. For humans, pesticides can cause short term adverse health effects as well as chronic adverse effects that can occur months or years after exposures. Some short-term adverse health effects

on humans are stinging eyes, nausea, rashes, blisters, blindness, and diarrhea. Examples of chronic effects which are more serious such as cancer, birth defects, neurological and developmental toxicity with children being much more vulnerable to pesticides. Other than harming people. Pesticides can also contaminate soil, water, turf and other vegetation, which in addition to only killing insects and weed, can also kill fishes, birds, beneficial insects and non-target plants with insecticide's being the most acutely toxic class of pesticides. According to USGS, at least 143 different pesticides and 21 transformation products has been found in ground water of more than 43 states, and in India, 58% of the drinking water was sampled and shown that 58% of drinking water samples were contaminated with Organo Chlorine pesticides.

Key terms-

Deforestation- Deforestation refers to the practice of purposefully clearing of forested land, normally to create space for agriculture and animal grazing, and to obtain wood for fuel, manufacturing, and constructing.

Greenhouse gas- Greenhouse gas is the atmosphere trap infrared radiation that keeps the earth warm, greenhouse gases emissions from human activities provide the majority of contribution towards global warming of 1.1 Celsius. The main 5 greenhouse gases are: Carbon dioxide, Methane, Nitrous oxide, Fluorinated gases, water vapor.

Pesticides- Pesticides refers to any toxic substances that are used to kill fungi's, animals' plants that cause economic damages to crop or ornamental plants or are hazardous to the health of humans or domestic animals.

Forest fires- Forest fires are uncontrolled, often time unplanned and unpredictable fires that spreads in an area with vegetation, majority of the times these disasters are often caused by combustion or heat from the surface, and sometimes even man made. They spread rapidly throughout the area.

Natural disasters- Natural disasters are any disaster occurrence that is caused by the effect of nature rather than human-drive, natural disasters cause great destruction to life, properties. Examples of natural disasters are Earthquakes, tsunamis, landslides, etc.

General overview-

Right now, in the modern age. Unsustainable practices are still found around the world and are not often emphasized. The agriculture industry right now is at a crossroad, it faces challenges to produce more to meet the demands whilst on shorter resources, whilst also needing to adapt to the impacts of climate change.

With agriculture generating a large amount of carbon dioxide, it should normally be controlled, but however, due to agricultural expansion and the needs for wood. Deforestation happens, therefore releasing more carbon dioxide and having fewer trees to store it. With this factor, each year we see new heat record being broken, and experience droughts. Poor land use and unsustainable practice only make us less able to adapt to unexpected changes and events.

Scientists estimate that between 2001-2020 the amazon lost over 54.2 million acres of land, approximately 9% of its size. Or the size of France. With scientists calculating that in the span of 5 years, 23.7 million acres of land will be lost between 2021-2025. Losing up to half of what has already been lost in the past 20 years.

Federative Republic of Brazil -

Currently, the largest source of income for Brazil is exporting crops, beef, coco bean, sugar cane. Which means that agriculture is by far the largest when it comes to generating income for the entire country. With this, Brazil is notorious for practicing deforestation and other unsustainable practices in the agricultural field. With millions of lands cleared to grow crops such as soybeans and for cattle farming. Though the recent deforestation rate of Brazil has been declining, it still amounts to 2.6 acres of land which is roughly the size of Luxembourg. There are also other factors other than agriculture like creating new roads for illegal businesses such as smuggling wild animals and selling them and construction of hydroelectric infrastructures. With Brazil hosting the largest rainforest in the world that's home to 50% of the global biodiversity and 20 million people and 20% of freshwater, and even in fact 25% of all modern medicine that derives from the amazon rain forest are all under threat due to the rapid deforestation that is happening.

Republic of Peru- According to WWF, Peru holds the 10th most forested area of any country in the world, with over half of the country (260,000 square miles) is covered in trees. Since the Amazon rainforest also covers Peru, holding Peru as one of the 10's most biodiverse countries in the world. Over 330,000 people depend on the forest alone. The main culprits for this deforestation are mainly small scaled agriculture, commercial mining, roads, with roughly 1,100 square miles of Peru degraded because of illegal logging. Accounting for half its countries greenhouse emission and simultaneously damaging the biodiversity in the country. After 2011 when the Madre de Dios highway was completed, many flocked to the once isolated forest region and begun taking up mining jobs. Paying up to 5x more than farmers. But often times this economic development comes at the cost of the environment.

Australia- In Australia, it is said that an MCG sized patch of forest and bushland is bulldozed every two minutes, with an average acre lost in the past 5 years. Nearly 50% of its forest has already cleared. Australia right now is currently undergoing a hidden deforestation crisis on a global scale. Being listed amongst on the 24 global deforestation and being the only developed nations on the list, and alongside places such as the Amazon, the Congo and Borneo. The leading cause to the deforestation crisis of Australia can be accounted to livestock production, which takes up to 73% of the lands in Australia and is responsible for 54% of the land clearing. There are other factors such as urban infrastructures, mining, logging of native forest, and many more. With its diverse selection of biodiversity, currently of the 1250 plants and 390 terrestrial species labeled as threatened, 964 plants and 286 animals have deforestation that results in destroying their habitat. With this deforestation it also makes Australia struggle to meet climate target, with the agriculture industry accounting to almost a quarter of the world's human caused emissions. Which of these 45% were caused by deforestation. Making Australia by far one of the worst developed nations for deforestation.

Republic of Indonesia- In Indonesia, there is currently a deforestation crisis going on in the country,

which significantly impacts its environment, biodiversity such as orangutans, tigers, elephants and local communities that relies heavily on the forest for food, medicine and income. And also leads to soil erosion, reducing soil fertility. The deforestation can be caused by the expansion of agriculture, being the largest palm oil exporter which has rapidly expanded, leading to clearing massive acres of land to reach the demands, and other factors such as illegal logging, mining expansion, and other factors. Indonesia has lost 6 million hectares of forest from 2000-2012 according to data from the ministry of Environment and forestry. The issue is currently being solved by the Indonesian government which introduced policies and regulations to protect the forest and promote sustainable land use. However, this issue is far from being solved, with illegal logging and land clearing continuing, and the Indonesia government efforts to enforce regulations and hold companies accountable have been insufficient, with additionally Covid 19 leading to a surge of deforestation as government have relaxed the regulation to stimulate economic growth.

Democratic Republic of Congo- From 2002 to 2023, the Democratic Republic of Congo is estimated to have lost 6.86 million hectares of land, equivalent to 9.9% of decrease in tree from 2000. And at the same time, total area of humid primary forest of DR Congo has dropped by 6.6%. Deforestation in the DR Congo is all caused by clearing for charcoal and fuelwood, urban expansion, mining, and finally subsistence agriculture mainly caused by poor farmers and villagers who rely on the forest land for agriculture and firewood collection, with slash and burn being the preferred method of deforestation. Though being the lowest of any major of forest in the world. The issue is still posing a number of threats to its residents and its environment and including its biodiversity.

People's Republic of China- Currently, China is ranked first in pesticide usages. Coming in at around 1.5 million tons in 2018 and 1.39 million tons in 2019. With no other country known to use over 400 million kg of pesticides, with the US being second with 380 million kg. The large use of pesticides is mainly due to agricultural purposes. One factor in role is due to how big China's population is with approximately 5x of the US. With this amount of population China is required to grow a lot more food. Furthermore, some parts of China are not yet developed which means that they may not have alternatives to pesticides for farming their crops. Right now, China is working to implement policies to reduce pesticide usage, which includes many basic policies such as banning highly toxic pesticides.

Major parties involved -

Food and agriculture organisation of the United Nations– The organisation acknowledges that in order to be sustainable, it will need to meet the needs of both the present and the future. Whilst ensuring profitability, factors such as environmental health and social and economic equality plus food and agriculture sustainability all contribute greatly to the four pillars of food security. The FOA helps sustainable food and agriculture to help countries worldwide to achieve zero hunger and sustainable development goals.

Collaborative partnerships on Forest (CPF)- The collaborative partnership of Forest or the CPF is currently made up of 15 international organisation, it is clear that forest has massive potential to alter the climate and so the effort to stop deforestation and unsustainable agriculture practices has to be accelerated. With this the organisation came up with different policies such as all types of forest to be sustainably managed

And to support this effort, the CPF will effectively coherence and synergy on forest related issues and values amongst its member organization and help shift from deforestation to restoration.

UN environmental assembly (UNEA)- The UN environmental assembly has called for action by 2035 to eliminate the use of the highly hazardous pesticides (HHP's) globally that is known to cause significant environmental damage and health issues. The call for this change were by African nations with Ethiopia as the leading nation.

Timeline of Events-

10,000 BC- Around the time when agriculture began widespread, so did the practice of deforestation

to simply clear lands for the usage of crops and livestock with the majority of the farmland on earth once forested. Agriculture enabled the huge growth of population but did not seriously impact the temperature like today.

Late 18th century- During the industrial revolution, the removal of forests continued even further, with population growth booming leading to more exploitation of the forest with advances such as the circular saw making it much easier to clear forests.

In central European Russia, over 67,000 square kilometers of forests were lost between the end of the century, and by the start of the 20th century the number of forests felled in North America reached to 460,000 square kilometers by the end of 1850. And by the end of 1910, the size number to 776,996 square kilometers

Modern age- Currently in the modern era, agriculture still drives deforestation at a rate that has not been precedent before, with trees in the tropics that are the most threatened as of right now. Since the 1950s, more than half of the world's rainforest have been lost. And today, two thirds of global forest loss occur in tropic region. The vast majority of deforestation is due to the conversion of land for beef, soy and palm oil products. In the past 50 years, 17% of the Amazon rainforest has been destroyed. If we continue at this current pace, then all of the world's rainforest will disappear by the end of the century.

Un involvement, Relevant resolution, treaties and events-

Cop 26- On the second day of COP 26 climate negotiations in Glasgow, over 100 countries has pledged to halt and reverse deforestation and land degradation by 2030, in the plan many global leaders affirmed the role of forests in balancing greenhouse gas emissions, and removals and adapting

to the impact of climate change and maintain a healthy ecosystem. With the following speech from Rod Taylor, forest program global director.

“This announcement sends an undeniable message that forests are critical to meeting global climate goals. Ending deforestation is essential to reduce greenhouse gas emissions to keep global temperature rise to 1.5 degrees C. Recent analysis from WRI shows that the world’s forests can absorb [1.5 times more carbon](#) than the United States emits annually.

“Countries representing over 85% of the world’s forest signed onto the agreement – including Brazil, Indonesia and the Democratic Republic of Congo, which house the largest tracts of tropical forests, as well as the U.S. and China, the world’s two largest market economies.

And finally declare that in order to ensure real progress in keeping a sustainable environment, there must be a new way of dealing with business, including far more accountability. Eg: Countries need to insert concrete forest protection measures into trade agreements and national development plans.

Rod Taylor quoted saying: “We need more investment in forests, such as the \$9 billion [commitment from the U.S.](#), and \$1 billion from the public private [LEAF Coalition](#). The finance sector must stop financing deforestation, as [institutions managing over \\$8.7 trillion in global assets](#) have just vowed to do.”

Rotterdam convention- The rotterdam convention assist parties to reduce risk from hazardous pesticides in international trade and agriculture, the role of pesticides allows farmers to protect crops and food from excessive damage by pests or diseases, however, can damage health of farmers and consumers as well as the environment itself.

The issues addressed by the Rotterdam convention are:

- 73% of the chemicals covered by Rotterdam Convention are pesticides.
- 70% of the chemicals covered under the Stockholm Convention are pesticides.
- Some pesticides are so dangerous that they cannot be used safely under normal and affordable developing country conditions. Parties can report cases of pesticide poisoning

This convention assists parties to establish pilot projects on monitoring and reporting cases of pesticides poisoning, the convention also works in areas of:

- building institutional capacity to manage pesticides.
- decisions regarding future imports of pesticides.

- reducing risks of pesticide use.
- specific activities to establish monitoring and reporting systems on pesticide poisoning.

UN forum on forest- After 15 years of negotiations and discussions on a global approach to protect the world forest's, countries meeting at the United Nations headquarter in New York have adopted a landmark agreement on international forest policy and cooperation after two weeks of intense negotiations.

This new agreement, although not legally binding, sets a standard on forest management that is expected to have a major impact on international cooperation and national action to reduce deforestation, promote sustainability practices, etc.

Possible solutions-

Selective cutting- Selective cutting refers to the method of cutting trees that are mature or defective, or inferior kinds to encourage growth of other trees in a forest or wood, it is believed that this method has ecological benefits, including increase carbon sequestration, producing a more constant flow on marketable timber, etc. Selective cutting/logging can be good when the selected tree causes minimum damage to the remaining stand or ground, trees to be cut are selected with care and to meet the landowners long term goals, however, selective cutting also has it's cons such as it being expensive and also time consuming with some species of trees not being able to regenerate as fast.

Reforestation- Reforestation is the act of restoring trees in an area where their population has been reduced due to either natural causes or human interventions. Reforestation after a wildfire are examples of reforestation. Reforestation can bring a lot benefits such as restoring or improving air quality, enhancing biodiversity, restoring wildlife habitats, maintaining water cycle and water quality, etc.

Organic farming- Organic farming involves food that is grown without using synthetic fertilisers or pesticides, organic farming has been practiced in the US since the late 1940s, growing from experimental garden to large farms with surplus products sold under a special product.

More than 40 private organizations and state agencies (certifiers) certify organic food. But their standards for growing and labeling organic food may differ.

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Example: Please contact the person below with any questions regarding the speech or report and good

luck!

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