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GLOBAL WARMING: CAUSES, CONSEQUENCES AND SOLUTIONS

Introduction. Global Warming is the process of an increase in the average air_temperatures near the surface of the Earth over the past one to two centuries.[2] Scientists' observations of temperatures, ocean currents. the atmosphere's chemical composition and other weather phenomena show that the climate of the Earth has changed over time and that the influence of human activities from the beginning of the Industrial Revolution to the present day has been main reason of climate change.

Causes of Global Warming. There are many reasons for increasing carbon dioxide levels. The main ones are [1]:

- burning coal, oil and gas produces CO_2 and nitrous oxide;
- large volumes of deforestation. Trees absorb CO_2 from the atmosphere and release oxygen. So when they are cut down, that beneficial effect is lost and the carbon stored in the trees is released into the atmosphere, adding to the greenhouse effect;
- increasing livestock farming. Cows and sheep produce large amounts of methane when they digest their food.
- fertilisers containing nitrogen produce nitrous oxide emissions;
- fluorinated gases produce a very strong warming effect, up to 23,000 times greater than CO_2.

Consequences of Global warming. The World Meteorological Organization (WMO) and the United Nations Environment Program (UNEP) formed the Intergovernmental Panel on Climate Change (IPCC) in 1988. According to the report of IPCC global average surface temperature increased by approximately 0.9 °C (1.5 °F) during the period between 1880 and 2012.

It predicted that the global mean surface temperature would increase between 3 and 4 °C (5.4 and 7.2 °F) by 2100 relative to the 1986–2005 average should carbon emissions continue at their current rate. Scientists also noted that should carbon emissions continue at the same pace, the increase in average near-surface air temperatures would reach 1.5 °C by 2052.

It has been estimated that at the beginning of the industrial age in the mid-18th century, carbon dioxide concentrations in the atmosphere were roughly 280 parts per million (ppm). By the middle of 2018 they had risen to 406 ppm, and, if fossil fuels continue to be burned at the same rate, they are projected to reach 550 ppm by the mid-21st century— which means a doubling of carbon dioxide concentrations in 300 years [2].

Solutions. By 2015, most governments were concerned about the current environmental situation and began the process of developing a plan of carbon reduction into the atmosphere as a part of the Paris Agreement. This is a treaty designed to keep the temperature to 1.5 °C (2.7 °F) above preindustrial levels which is necessary in order to avoid a serious environmental threat on a global scale.

The main ways to combat Global Warming are [3]:

- Boosting energy efficiency. The main source of CO_2 emission into the atmosphere is energy that we use in everyday life and in general production. We would be able to get a constant level of comfort and production with less energy using energy-efficient technologies.

- Greening transportation. Carbon dioxide emissions have grown most rapidly in the transportation sector in comparison with other sectors of the economy over the past decade. Solutions to this problem include improving efficiency (miles per gallon) in all modes of transport, switching to low-carbon fuels, and reducing vehicle miles traveled through smart growth and more efficient mass transportation systems.

- Revving up renewables: Renewable energy sources such as solar, wind, geothermal and bioenergy are available around the world. The main advantages are that renewable technologies can be deployed quite quickly and they are more cost-effective in contrast to traditional energy generation methods, and create workplaces while reducing pollution.

- Managing forests and agriculture: Taken together, tropical deforestation and emissions from agriculture represent nearly 30 percent of the world's heat-trapping emissions. In this cases we can combat Global Warming by fighting mass deforestation and renewing forest cover and by modernizing food production technologies making them more sustainable.

- Developing and deploying new low-carbon and zero-carbon technologies:. Currently, research is being conducted in battery technology, new materials for solar cells, harnessing energy from novel sources like bacteria and algae, and other innovative areas which could provide important breakthroughs.

- Ensuring sustainable development: Rich countries must help poor countries to move to low-carbon development pathways and also help them adapt to active climate change.

Conclusions. Global Warming has become one of the most serious problems of humanity. Currently, scientists and governments are debating the extent and severity of surface temperature increases, the possible effects of warming on the lives of people and economies, the need to take measures to reduce CO emissions into the atmosphere and eliminate its consequences.

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MODERN CONCEPTS OF SOIL CONSERVATION

Approaches to soil conservation are in constant evolution and improvement. This article summarizes some of the modern approaches, ranging from no tillage to conservation agriculture (CA) to sustainable land management (SLM). These approaches are not separate, but components of a continuum of conservation approaches applicable at different levels and different scales. No tillage is important at the detailed, farm level, while CA and SLM are important at the farming systems and corporate levels. The successes achieved with no tillage in Argentina (also Brazil, Paraguay, Uruguay, Mexico, Canada, Australia, and others) illustrate how these concepts relate to each other [1].

Introduction. Soil is a central component of terrestrial ecosystems, and a fundamental constituent in sustaining life on earth. The degradation of soil represents a loss in ecosystem services and a loss of natural capital assets. The health of terrestrial ecosystems, defined as ecosystem integrity, depends on the ecosystem components and the synergy of processes among them. Land degradation reduces the soil's short and long term production capacity, and these are serious concerns considering the food production requirements of growing global populations and a global GDP which is expected to triple by 2050.

Modern concepts of soil conservation

No tillage. Under no-tillage, soil disturbance is virtually eliminated. Only a tiny slot (or a small hole in hand held planters) is made during the planting operation so that the seed (and eventually starter fertilizers) can be placed in intimate contact with the soil, promoting germination. Only the grains are harvested, while the rest of the plant (plant material other than grains) are left on the surface. Gradually, an organic mulch is developed on the soil surface, which is eventually converted to stable soil organic matter. The increase in organic matter results from the combination of eliminating soil disturbance, reducing oxidation of soil organic materials (stubble), increased biomass production from improved crop yields, and greater diversity of organic materials from increased rotation and cover crops, and reduced erosion. Commonly, surface soil temperatures are slightly depressed, while soil water holding capacity is increased. These conditions are particularly important in the tropical and semi-tropical areas. No tillage can be practised on both large and small farming systems.

No tillage also promotes the environmental integrity of the soil systems and the maintenance of environmental services, enhances sequestration of atmospheric carbon, and contributes to mitigation of climate change. Soil carbon sinks are enriched, due to higher yields and increased biomass, as well as by reducing organic carbon losses from soil erosion. Also, fuel use and tractor hours are reduced by up to 75%, with further reductions in greenhouse gas emissions. Other environmental benefits include reduced siltation, eutrophication and pesticide contamination of rivers and dams.

Conservation Agriculture. In deference to other approaches, CA does not promote a specific technology but rather a series of principles and general practices to achieve conservation objectives. CA is not a prescription or a standard technology, but an approach based on concepts of minimal soil disturbance, permanent soil cover, and crop rotation or association. This is in recognition of the fact that global agriculture is practiced in many