OPPORTUNITY #27

What if we achieved zero emissions?

MISSION ACCOMPLISHED

Technological breakthroughs and unprecedented global collaboration bring greenhouse gas emissions to zero[p], restoring ecosystems and creating new ones.

MEGATREND
Saving Ecosystems

TRENDS
Air Pollution
International Collaboration
Nanotechnology
Transforming Energy

SECTORS AFFECTED
Agriculture & Food
Materials & Biotechnology
Automotive, Aerospace & Aviation
Chemicals & Petrochemicals
Consumer Goods, Services & Retail
Energy, Oil & Gas & Renewables
Financial Services & Investment
Health & Healthcare
Infrastructure & Construction
Insurance & Reinsurance
Logistics, Shipping & Freight
Manufacturing
Metals & Mining
Travel & Tourism
Utilities
Government Services
Professional Service

p Close to zero.

WHY IT MATTERS TODAY

The cost of climate change continues to rise. Besides direct costs related to climate change mitigation and adaptation, damage to habitats and food chains as biodiversity and ecosystems break down[492] gives rise to additional economic burdens in the future.[493]

Eleven million hectares of tree cover were lost in the tropics in 2021. The loss of tropical primary forests in 2021 led to 2.5 gigatons of carbon dioxide emissions, which was equivalent to India's annual fossil fuel emissions.[494] Since 1970, the world has lost 35% of its global wetland area.[495]

The atmospheric concentrations of most greenhouse gases, including carbon dioxide, methane and nitrous oxide, continue to increase beyond optimal levels.[496] As a leading cause of warming temperatures,[497] with an increase in temperature of 1.5°C, 4% of mammals would lose half their habitat, whereas if temperatures rose by 2°C, this figure would rise to 8%. Similarly, at an increase of 1.5°C, 70 to 90% of coral reefs would disappear, whereas at 2°C, the percentage would increase to 99%.[498] The Mediterranean region is projected to be particularly affected by climate change,[499] and 80 to 90 million people in the Middle East and North Africa (MENA) region are expected to suffer water stress in some form by 2025.[500]

The loss of tropical primary forests in 2021 led to

2.5 GIGATONS

of **carbon dioxide emissions**, which was **equivalent to India's fossil fuel emissions**

THE OPPORTUNITY

A multi-pronged approach to capturing greenhouse gases from the atmosphere on a global scale could drive multilateral investment and cost-sharing. New fuels, materials and biochemicals could transform energy generation, transmission and efficiency. Zero-waste manufacturing,[501] green manufacturing[502] and advances in sustainable manufacturing could reduce industrial emissions to zero. Drawing on advanced machine intelligence and data-gathering capacity, global geoengineering solutions in space could modulate how much heat can enter the atmosphere, and areas of emissions could be targeted with nanocatalysts and other emissions-absorbing technologies. These developments could be supported by solutions on the ground to restore ice sheets and caps and to rewild vast stretches of land, restoring the planet's natural capacity to deflect and absorb heat.

While biodiversity loss[503] will be a negative consequence of climate change,[504] restored and new ecosystems that thrive on warmer temperatures[505] will also need to be protected as temperature increase continues, ensuring that natural carbon sinks do not become emitters.[506] Equally, restored and new ecosystems will need to be protected in the event temperatures reverse.

BENEFITS

New and restored ecosystems and biodiversity. Better health and well-being for humans and animals.

RISKS

Unintended consequences of geoengineering solutions. Breakdowns in collaboration. Irreversible acceleration of biodiversity loss.

Since 1970, the world has lost

35%

OF ITS GLOBAL WETLAND AREA