13 CLIMATE ACTION

Urgent Action to combat climate change

Artificial Intelligence for ClimateAction

SDG 13 shows limited progress, with 2 out of 5 targets advancing moderately. This lack of progress could lead to 2.5°C degree warming by 2100, posing a direct threat to all other SDGs. For example, climate change cost the economy an average of US$803 billion between 2019 and 2020, impacting SDG 8, and increasing mortality rates in vulnerable regions, affecting progress towards SDG 3.

The relationship between AI and SDG 13 is well-documented, with numerous use cases highlighted in various UN repositories: 7 use cases out of 40 in AI for Good: Innovate for Impact, and around 110 use cases out of 408 in the UN Activities on AI. Similar, to other environmental SDGs, **the synergy between AI and SDG 13 is a paradox. On one side, numerous use cases can enhance climate actions by using AI, while on the other side, the energy usage and increase in consumption behaviors from AI put the entire relationship at risk.**

Interesting use cases from AI include the optimization of logistics such as freight roads to minimize CO2 emissions, where the road used is for example the least carbon-intensive. This is a valuable reduction, as transport accounts for around one-fifth of global CO2 emissions. Additionally, AI can be used to drive CO2 measurement and can give additional visibility to the causes and effects of climate change to governments. It can also help governments better monitor their climate impact and make informed decisions around it. Moreover, AI can also be used to provide improved forecasting abilities on weather events, to help governments and organizations better prepare for adverse climate events, and also better prepare the regions to support such catastrophes. Additional AI use cases for the climate include mapping melting behaviors of icebergs, helping communities at risk to better mitigate climate impact or supporting organizations in finding pathways to decarbonize.

AI can give the right tools to governments to better predict and plan the challenges that climate change will generate. The rise of AI use cases, however, can also be problematic for SDG 13 as AI consumes important energy, which does not only originate from renewable energy, and lead to the creation of 0.01% of the GHG emissions currently. The question arises with the socialization of AI to see if this number is going to rise, as the demand for AI rises by 30% - 40% annually. Developing new efficient models could be a pathway to minimize any growth impact of AI. Another problem could regard the rise of new use cases such as marketing-driven cases that push for consumerism, and thus for the purchase of new products and services that would generate more GHG emissions.

Key Considerations for Stakeholders

- **Impact assessment:** Aligning AI use case development and incentives with OECD AI principles to maximize sustainable value creation. The objective is to prioritize governmental tools for AI use cases related to the SDGs.

- **Technology improvement:** Reducing energy consumption is imperative to support the development of SDG 13, hence technologies with less energy requirements should be prioritized.

Impact

AI could act as an (positive) enabler for 80% of the SDG 13 targets and act as an inhibitor (negative) for 20% of the targets.

Use case 1

Using AI to optimize the CO2 emissions of organizations from transport, distribution and logistics.

Use case 2

Leveraging AI to assess the new frontiers of climate science and provide a better understanding of our climate and climate change.

Use case 3

Implementing AI forecasting solutions for weather events to better prepare communities for adverse weather events and the risks associated.

GOALS

2025

SDG 13: CLIMATE ACTION

Take urgent action to combat climate change and its impacts

13 CLIMATE ACTION

📊 FACTS AND FIGURES

- The number of **disaster-related deaths and missing persons** per 100,000 population (excluding deaths from COVID-19) has **nearly halved,** from 1.62 during the period 2005–2014 to 0.82 during the period 2013–2022.

- The number of persons **affected by disasters** per 100,000 population has **increased by over two thirds,** from 1,169 during the period 2005–2014 to 1,980 during the period 2013–2022.

- In **LDCs,** the disaster-affected population per 100,000 people is **20% higher than the global average**, and **the mortality rate is 170% higher**, demonstrating that the catastrophic impact of disasters is much greater in these countries.

- In 2023, **129 countries** reported having national long-term risk reduction strategies and plans and **104 countries** reported having effective multi-hazard early warning systems.

- In 2023, **106 countries** cumulatively reported having local disaster risk reduction strategies in place and in line with national strategies. On average, **72% of local governments in reporting countries** specified having local disaster risk reduction strategies.

- According to the World Meteorological Organization (WMO), record global temperatures hit **approximately 1.45°C above pre-industrial levels in 2023**. The **10 warmest years in the 174 years with records** have all occurred during **the last decade.**

- In 2022, global greenhouse gas emissions reached **a new record of 57.4 gigatons of CO2 equivalent**. About **two thirds** of emissions comprised CO2 from fossil fuel combustion and industrial processes.

- According to the WMO, concentrations of greenhouse gases reached **record high levels in 2022,** and real-time data from 2023 show a continuing increase. Carbon dioxide levels are **150 per cent above pre-industrial levels.**

- **Fossil fuel subsidies** reached a **record high of $1.53 trillion in 2022,** driven by rising energy prices post-pandemic and the impact of the Russian Federation's invasion of Ukraine, which disrupted global energy markets.

- A 2023 study of more than 530 ninth-grade science and social science curricula found that **69% did not mention climate change and 66% omitted sustainability.**

- The Organisation for Economic Co-operation and Development (OECD) reports that developed countries mobilized **$115.9 billion in climate finance for developing countries in 2022**, reaching the $100 billion target for the first time.

🔍 WHERE WE STAND

- **Climate records were shattered in 2023** as the climate crisis accelerated in real time. Temperatures and global greenhouse gas emissions continue to climb.

- **Current national policies set the world on track for warming of 3°C** according to the United Nations Environment Programme.

- **Nationally determined contributions (NDCs) in 2025 must include increased ambition** to close implementation gaps, cover entire economies and all greenhouse gases, and align with the target of halting warming at 1.5°C.

- The roadmap to avoid the worst of climate chaos is clear but **cannot afford any delays or half measures** by the global community. Drastic reductions in global greenhouse gas emissions must take place by 2030 and reach net zero by 2050.
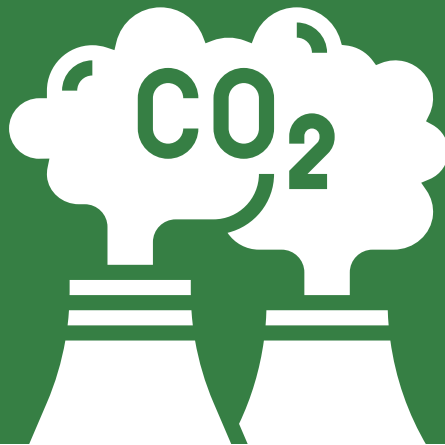
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