Sustainable AI practices
October 2025

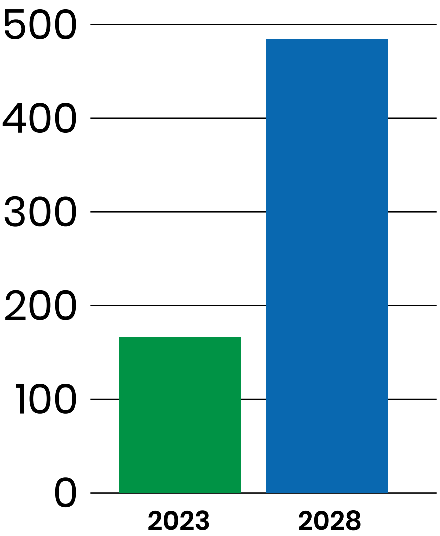
Artificial intelligence (AI) can accelerate sustainable development when used responsibly. UNDP helps countries build inclusive AI ecosystems that benefit both people and the planet. To unlock its full potential, UNDP AI projects must align with **UNDP's Social and Environmental Standards** - supporting clean energy access, lowering emissions, and avoiding deepening inequalities.

Internally, UNDP's **Digital Strategy** ensures AI is used in an ethical, inclusive, and sustainable way. While AI brings major benefits for workplace efficiency and advancing sustainability goals, it also results in substantial use of energy, water and natural resources such as rare minerals.

By making conscious, informed choices on how we use AI, we can ensure it delivers the greatest value for both people and planet.

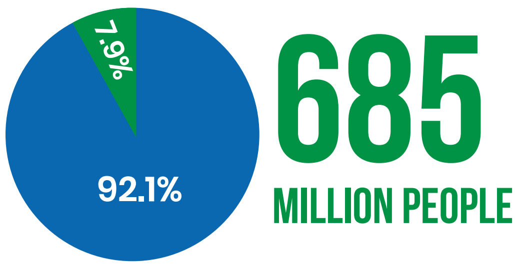
What are the environmental and social impacts of Artificial Intelligence?

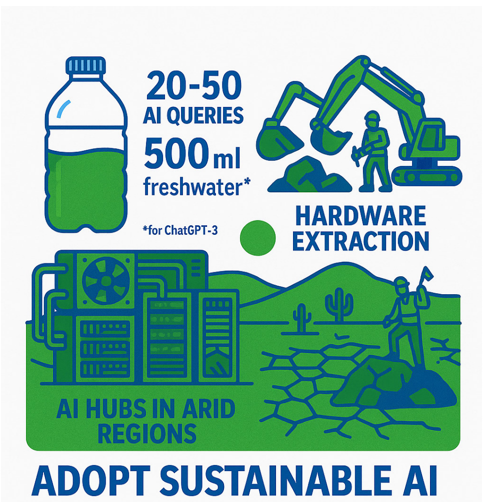
AI has a significant environmental impact due to its high demand for computing power and data storage, which are typically supported by energy-intensive data centres requiring substantial amount of water for cooling.



For instance in the United States, data centers consumed **176 terawatt-hours** of electricity in 2023, accounting for 4.4% of total national use. By 2028 AI energy use could **nearly triple** this demand, with additional energy needs reaching the equivalent of up to 50 new nuclear power plants.

This growing demand emerges as **685 million** people still live without electricity. In some regions, expanding AI infrastructure may compete with essential energy and **freshwater needs**, further straining communities already experiencing energy poverty.





AI systems require large amounts of freshwater for cooling and rely on hardware made from **critical minerals.** Just 20 to 50 AI queries can consume **500 ml of freshwater for Chat GPT3**, and Chat GPT4 uses up to 4 times more. In 2021, Google's U.S. datacenters used 12.7 billion liters of freshwater for cooling. Water cannot be replaced as a cooling medium, and reuse is limited. Placement of server farms and AI Hubs in arid regions contributes to water scarcity, poorly managed, resource extraction can degrade environments, exacerbate fuel instability, and threaten human rights, undermining the promise of a just and sustainable energy transition.

Together, we must adopt ways of using AI so that it delivers on promised opportunities while mitigating its environmental and social burdens.

What can I do to reduce the environmental impact of using AI?

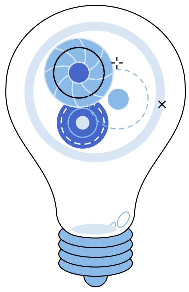
As individuals, we can take these actions:

Use AI thoughtfully and with purpose

AI can greatly enhance productivity and insight when applied in the right context. The key is to strike the right balance: making the most of AI where it adds value, while continuing to rely on our own skills, judgement, and collective knowledge.

Prompt smartly

Consolidate and refine your questions to reduce repetitive queries and computing load.



Use visuals wisely

AI images consume upto **100 times more energy than text.** Consider real photos, **UNDP's Asset Library,** simpler graphics instead of photo-realistic AI visuals.

Spread awareness

Help others understand AI's hidden environ-mental cost—small, mindful choices make a big difference.

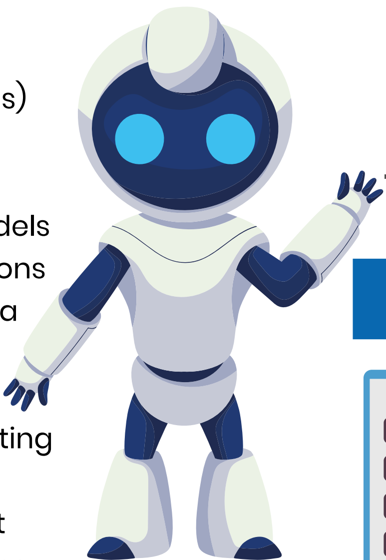
Disable default AI features

Turn off unnecessary tools like auto-transcripts unless genuinely needed.

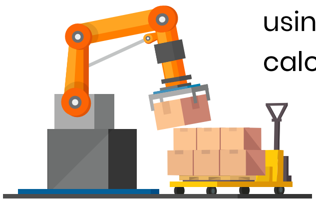
What to keep in mind when developing or procuring AI tools?

Prefer greener AI development approach

Select the appropriate use cases for AI, as sometimes large language models (LLMs) are not necessary for a solution. When AI is needed, consider also smaller AI models when viable. Ensure AI solutions are built on high-quality data and avoid overtraining by leveraging established AI instructions, thereby preventing duplicate training efforts. Choose cloud providers that support sustainable practices.

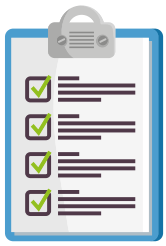


Compare Life cycle impact of AI models



using openly available carbon calculator during project design or procurement, Some publicly available tools include **Code Carbon, Green Algorithms, GenAI Impact and Ecologits**

Apply or promote good practices



such as **'Frugal AI'** approaches to applications used or developed. Consider including relevant requirements in Terms of Reference for vendor and consultancy contracts.

Stay tuned and learn more about this with us!