

# Environmental Impact of AI

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UIS Summit 2025 - Sustainability in the Digital Age

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18.11.2025

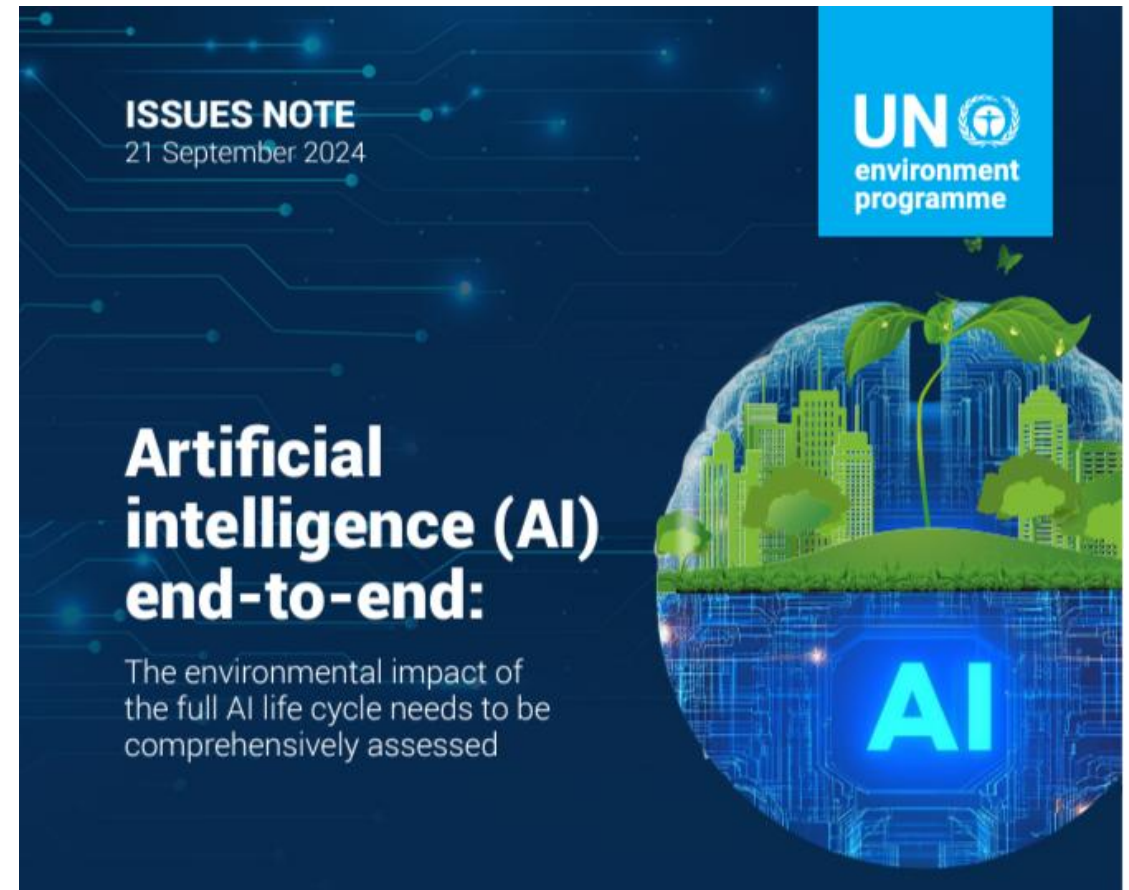
# AI's Environmental Impact: Key Considerations

## Issues Note

- Environmental impacts of AI go beyond energy consumption.
- Limited attention on AI's resource use, such as water and minerals.
- Insufficient data to support informed decision-making.
- Goal: **Highlight the need for comprehensive life cycle assessments of AI's environmental footprint. Elevate this need within the research community.**

### *Issues Note launched at UNGA 2024*

- **~19 000 downloads**
- **~450 000 views** on UNEP.org – most-read story ever on UNEP.org.

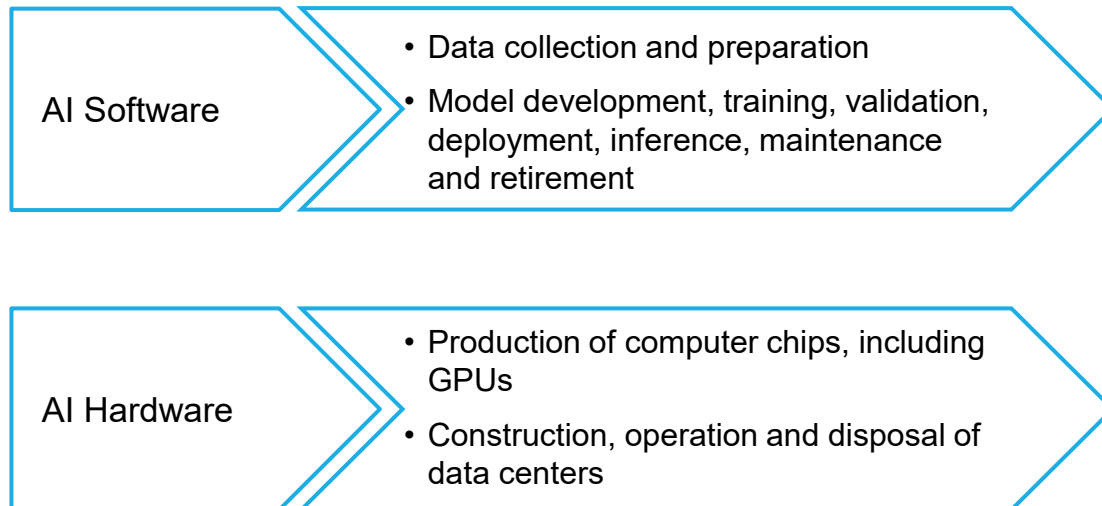


# Issues Note: Key Messages

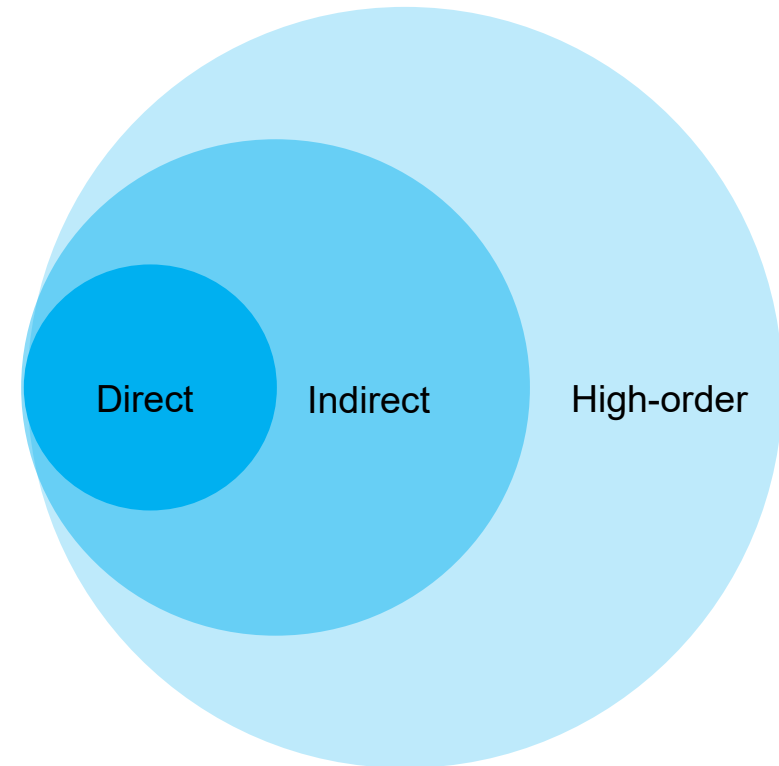
Understanding the full environmental impact of AI requires a comprehensive lifecycle approach

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## AI LIFECYCLE

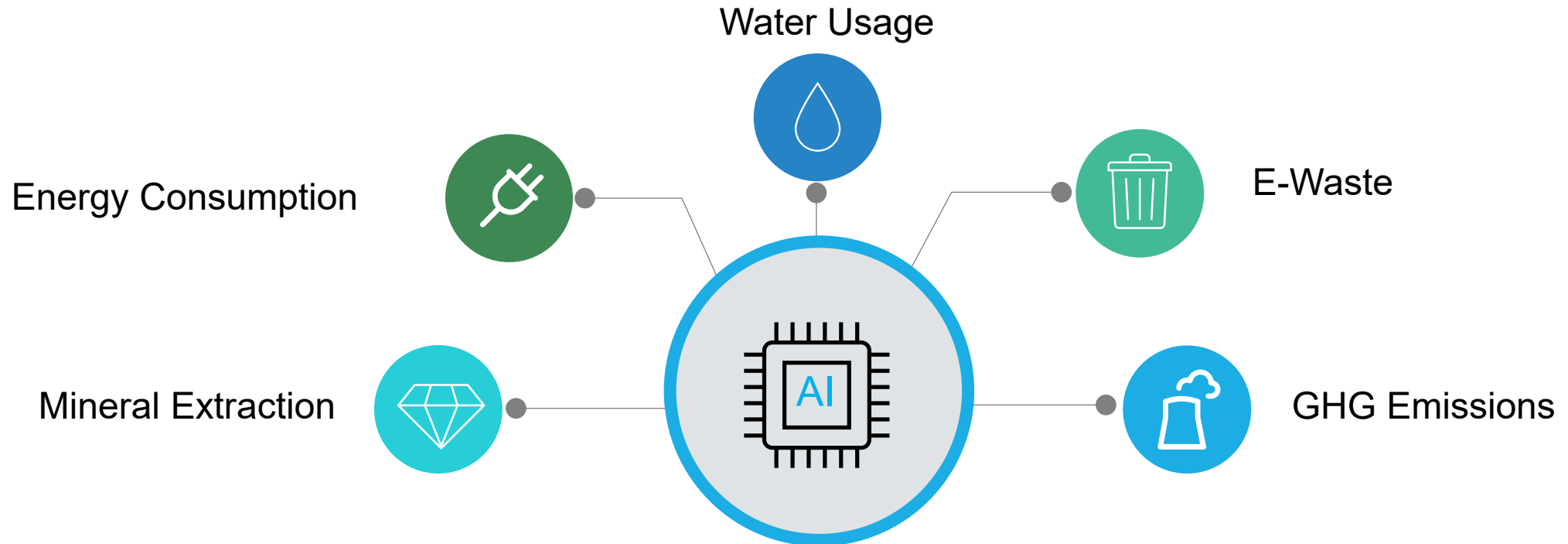


## LEVELS OF ENVIRONMENTAL IMPACT



# Direct Environmental Impacts of AI

5 key environmental areas affected by the AI



There is an urgent need for agreed-upon global methods to measure and track AI's environmental footprint, enabling consistent assessment of its direct impacts and supporting informed decision-making.

# Issues Note: UNEP Recommendations

## Advancing sustainable AI

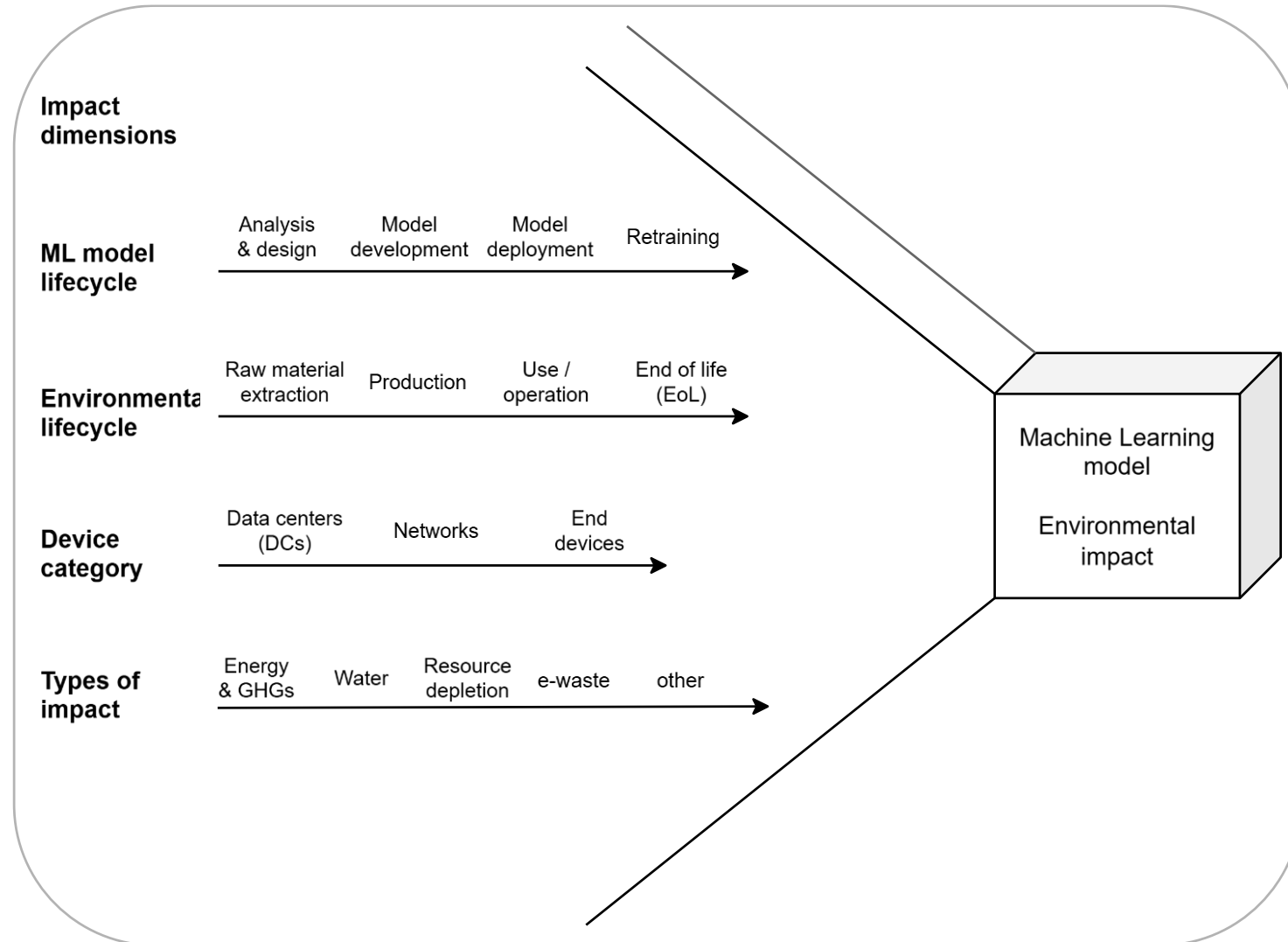
- **Reporting:** Establish mandatory reporting on AI's environmental impacts.
- **Transparency:** Make impact data accessible to guide sustainable choices.
- **Energy Efficiency:** Optimize AI algorithms for energy savings.
- **Green Infrastructure:** Promote green data centers and renewable energy.
- **Sustainable Policies:** Integrate sustainability into AI strategies.
- **Expand Research:** Investigate AI's wider environmental impacts, including potential overconsumption.

There is growing interest in AI's environmental footprint — and it is crucial that **scientific methods and credible evidence guide this debate** so that actions are grounded in facts, not assumptions.



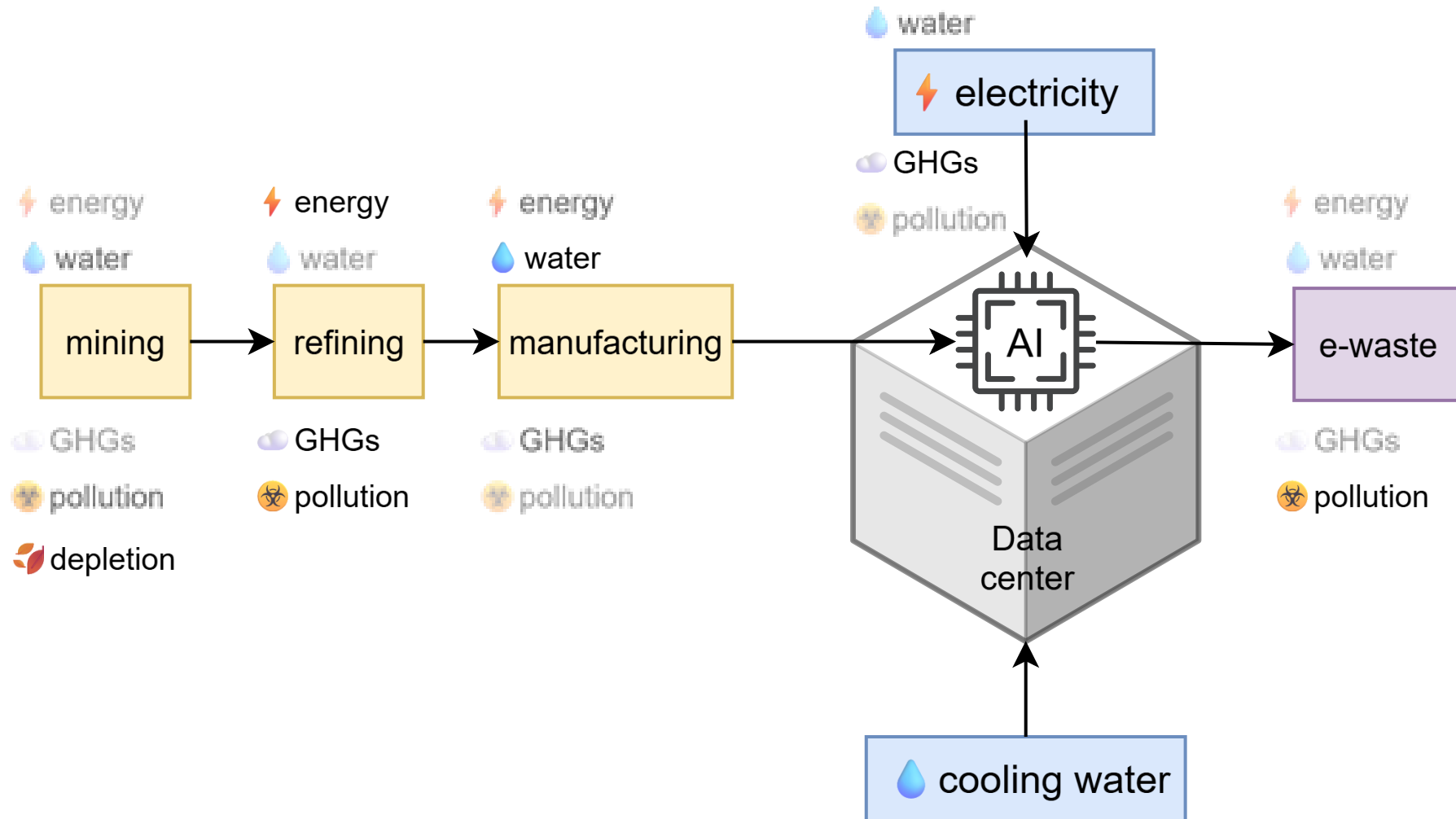
# Ongoing research: preliminary results

## Four main dimensions of the env impact of ML models



# Ongoing research: preliminary results

## Sources of environmental impact of AI



ISSUES NOTE

UN   
environment  
programme



# Artificial intelligence (AI) end-to-end:

The environmental impact of  
the full AI lifecycle needs to be  
comprehensively assessed



# Thank you

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