Responsible AI Strategy for the Environment – A Global and Multidisciplinary Approach

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The Evolving AI Legal and Policy Landscape: Some Examples

OECD

European Commission

IEEE

WORLD ECONOMIC FORUM

GPAI

Center for AI and Digital Policy

UNESCO

COUNCIL OF EUROPE   CONSEIL DE L'EUROPE

BSA.
BUSINESS SOFTWARE ALLIANCE

cdt
CENTER FOR DEMOCRACY & TECHNOLOGY

PARTNERSHIP ON AI

G-7 & G20

US – EU Trade & Tech Council

ISO & ITU
UN

OECD AI Principles (May 2019)

1 Inclusive growth, sustainable development and well-being

2 Human-centered values and fairness

3 Transparency and explainability

4 Making AI secure, robust and safe throughout life cycle

5 Accountability

AI and Climate Change: US AI Executive Order Initiatives

- AI-Enhanced Electric Grid Planning & Operations
  - Tools for Streamlining Environmental Reviews
    - AI Collaboration in Mitigating Climate Risks
    - Partnerships in AI for Science and Energy
      - Coordination Office for AI Technologies

GPAI / THE GLOBAL PARTNERSHIP ON ARTIFICIAL INTELLIGENCE

The GPAI is a **multi-stakeholder initiative** consisting of **29 Members** working together to advance the **responsible development and use of AI, grounded in human rights, inclusion, diversity, innovation, and economic growth.**

GPAI aims to **bridge the gap between theory and practice on AI** by supporting cutting-edge research and applied activities on AI-related priorities.

Argentina	Ireland	Serbia
Australia	Israel	Singapore
Belgium	Italy	Slovenia
Brazil	Japan	Spain
Canada	Republic of Korea	Sweden
Czech Republic	Mexico	Türkiye
Denmark	Netherlands	United Kingdom
France	New Zealand	United States
Germany	Poland	European Union
India	Senegal	

❖ Founded in 2020 with **15** Members, today GPAI has **29** Members

❖ 1 Secretariat hosted at OECD

❖ 127 Experts, 22 Observers

❖ 4 Expert Working Groups
  → Responsible AI
  → Data Governance
  → Innovation and Commercialisation
  → Future of Work

❖ 2 Expert Support Centres

ceimia   Inria

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The G7 Hiroshima AI Process (G7 Leaders Communiqué, May 20, 2023)

"

We support the **development of tools for trustworthy AI through multi-stakeholder international organizations**, and encourage the development and adoption of international technical standards in standards development organizations through multi-stakeholder processes.

We recognize the need to immediately take stock of the **opportunities and challenges of generative AI,** which is increasingly prominent across countries and sectors, and encourage international organizations such as the OECD to consider analysis on the impact of policy developments and **Global Partnership on AI (GPAI) to conduct practical projects.**

In this respect, we task relevant ministers to establish the Hiroshima AI process, through a G7 working group, in an inclusive manner and **in cooperation with the OECD and GPAI, for discussions on generative AI by the end of this year.**

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RAISE Objectives

1. Develop and implement a responsible AI adoption strategy for climate action and biodiversity preservation

2. Work with institutional partners to anchor AI for environmental action
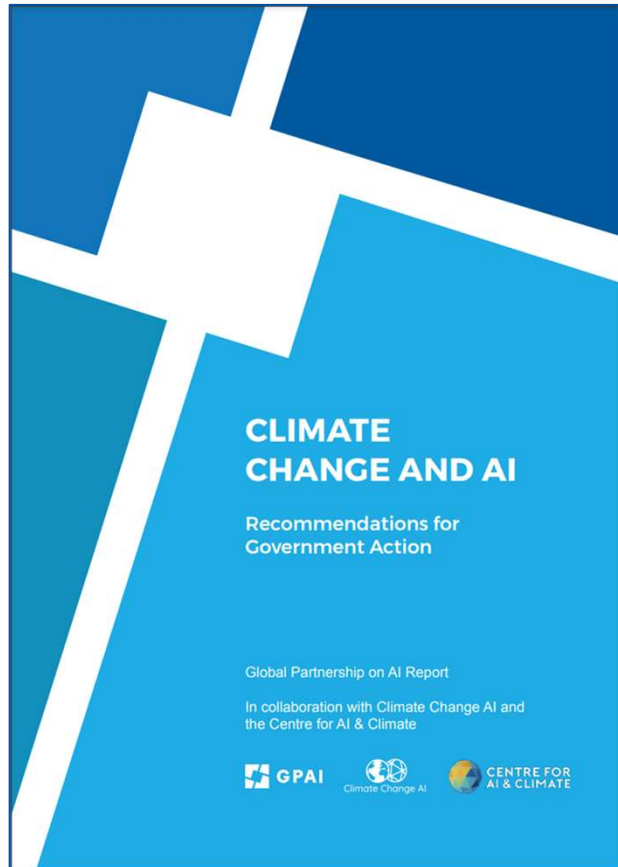
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Existing collaborations

Climate Change and AI Report [2021]

Provides **actionable recommendations as to how governments can support the responsible use of AI in the context of climate change**, spanning across three primary categories:

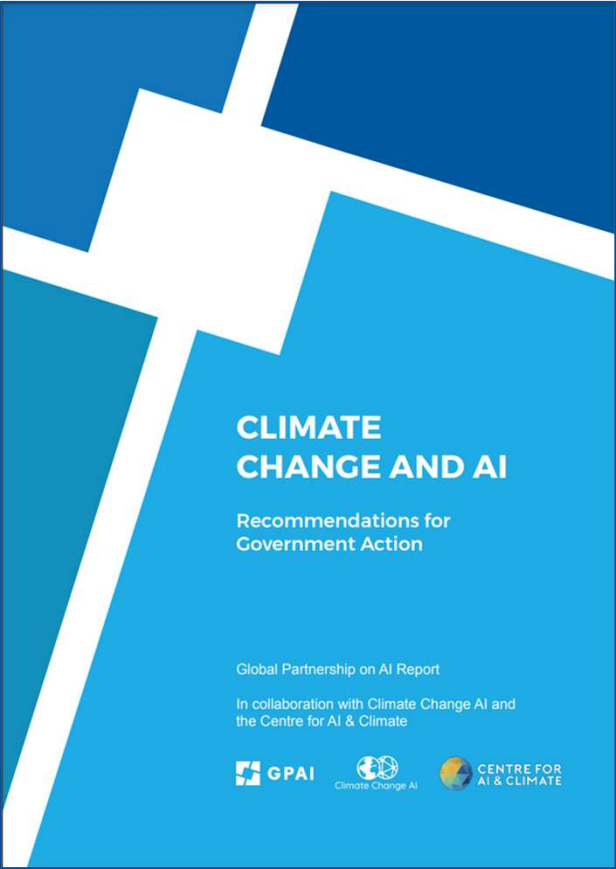**Supporting AI applications in climate change mitigation and adaptation**
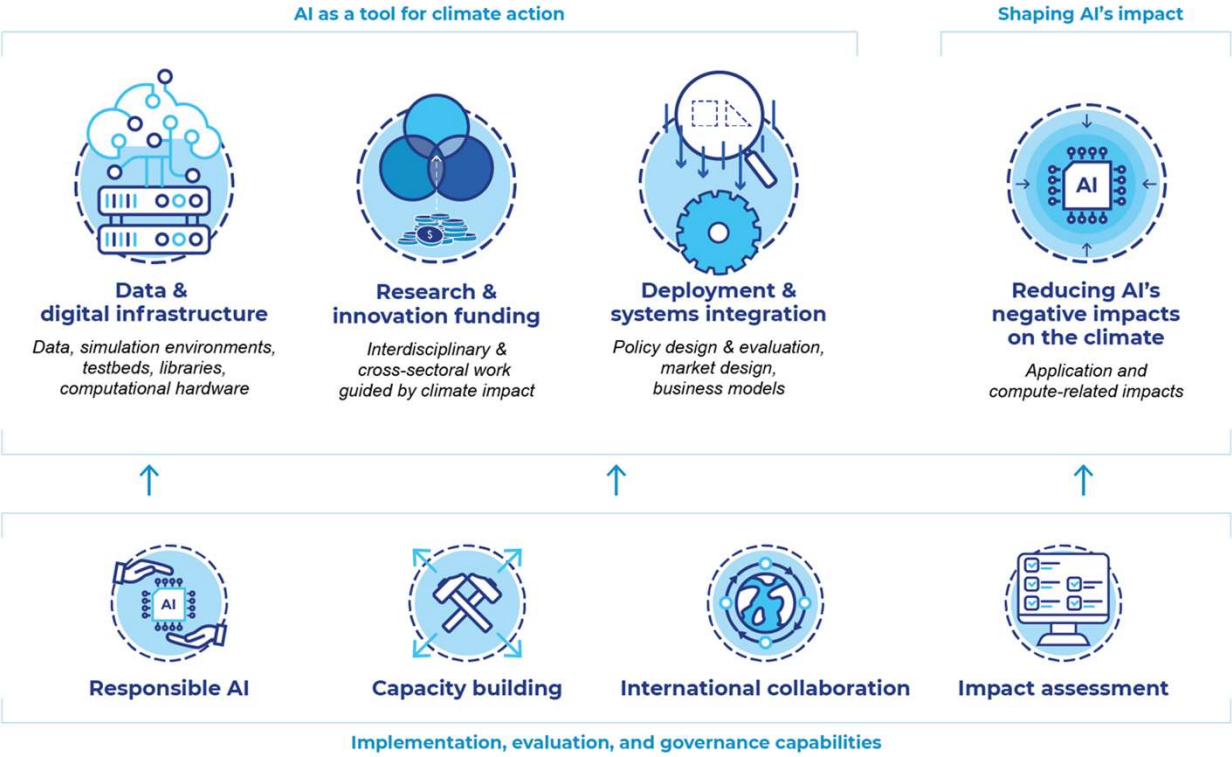
Reducing AI's negative impacts on the climate

Building implementation, evaluation, and governance capabilities

CLIMATE CHANGE AND AI

Recommendations for Government Action

Global Partnership on AI Report

In collaboration with Climate Change AI and the Centre for AI & Climate

GPAI   Climate Change AI   CENTRE FOR AI & CLIMATE

Climate Change and AI Report [2021]

Key Recommendations

Climate Change and AI Report [2021] - BOOKLET OF 20 Usecases

Validating AI for power system optimization: RTE

RTE'S COMPETITION SERIES PROVIDES AN INNOVATIVE PLATFORM TO VALIDATE THE POTENTIAL OF REINFORCEMENT LEARNING TO OPTIMIZE POWER GRIDS IN REAL TIME

Modeling urban microclimates: InFraReD

45%

IMPROVING URBAN DESIGN BY SIMULATING THE URBAN MICROCLIMATE IN SECONDS, INSTEAD OF HOURS, THANKS TO AI

Mapping floods with AI: The United Nations Satellite Centre

UNOSAT'S FLOODAI ENABLES HIGH-FREQUENCY FLOOD REPORTS THAT HAVE IMPROVED DISASTER RESPONSE IN ASIA AND AFRICA

Monitoring deforestation in the Amazon: MAAP

MAAP USES SATELLITE IMAGERY TO PROVIDE A REAL-TIME LOOK AT WHERE DEFORESTATION IS HAPPENING

Optimizing data center energy usage: DeepMind

DEEPMIND USES AI TO INCREASE DATA CENTER COOLING SYSTEM EFFICIENCY BY APPROXIMATELY 30-40%

Reducing the footprint of recyc Fero Labs

FERO LABS USES AI TO HELP STEEL MANUFACTURERS REDUCE THE USE OF MINED INGREDIENTS BY UP TO 34%, PREVENTING AN ESTIMATED 450,000 TONS OF CO_2 EMISSIONS PER YEAR.

Biodiversity and AI Report [2022]
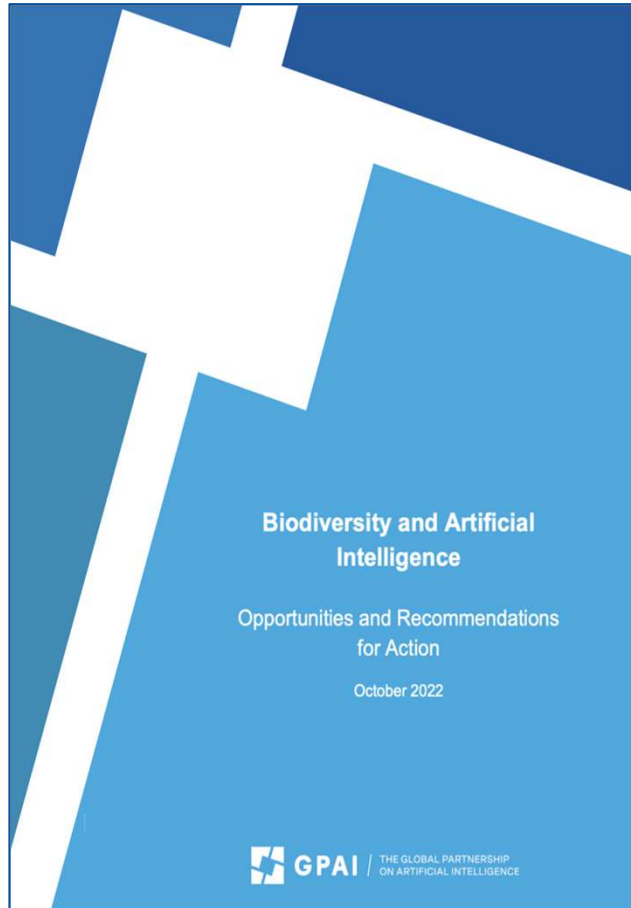
Provides **actionable recommendations for how governments, NGOs, researchers, and companies can use AI to support biodiversity conservation**, broken down into the following sections:

Assessment of the Current Landscape
- ➔ AI for biodiversity and biodiversity loss
- ➔ AI for drivers of biodiversity loss
- ➔ AI for policy action on biodiversity
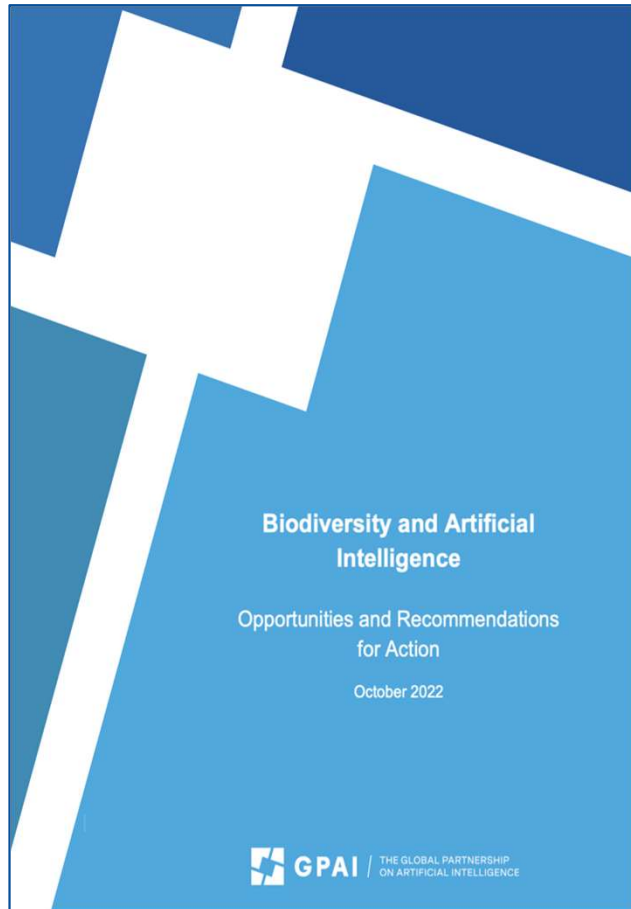- ➔ AI for optimising action on biodiversity

Risks to Responsible AI adoption for Biodiversity

Common Challenges

Recommendations Roadmap

Biodiversity and Artificial Intelligence

Opportunities and Recommendations for Action

October 2022

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Biodiversity and AI Report [2022]

Biodiversity and Artificial Intelligence

Opportunities and Recommendations for Action

October 2022

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Common Challenges

Data

- Data collection in biodiversity hotspots which could be deemed to be undermining local communities' data usage rights
- Limited geographical and species spread, primarily in the Global North and with more charismatic ecosystems and species; lack of biodiversity driver data

Funding

- Most funding is also targeted at developing new technologies and startups, not at scaling-up of AI for biodiversity projects
- Philanthropic funding, the most common for AI and biodiversity projects, tends not to allow unsolicited applications, thereby limiting access to those with networks surrounding the fund.

Capacity and Awareness

- AI capacity and awareness is low across most organisations involved in conservation efforts.

Biodiversity and AI Report [2022]
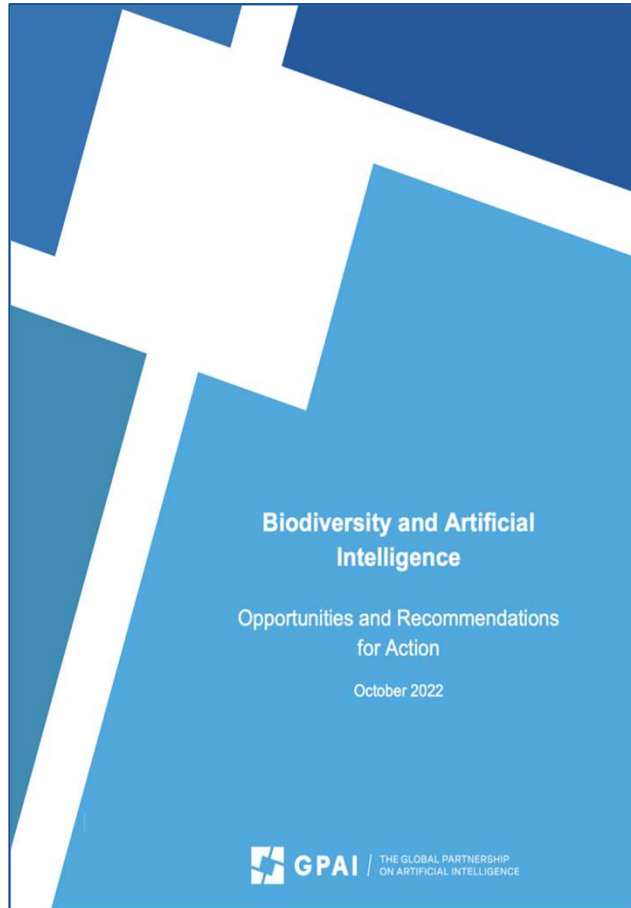
Key Recommendations

Data

- Governments and industry to support biodiversity data openness and availability
- Establish an international data taskforce on drivers of biodiversity loss
- Prioritise outreach to local communities and seek to deploy privacy enhancing technologies to protect data privacy

Funding

- Governments, multilateral funds should increase funding for both applications and cross cutting digital infrastructure

Capacity and Awareness

- Develop AI for biodiversity training and specialist talent development and hold regular events to bring together the conservation and AI communities

AI Compute Report, in collaboration with the OECD [2022]

OECD publishing

MEASURING THE ENVIRONMENTAL IMPACTS OF ARTIFICIAL INTELLIGENCE COMPUTE AND APPLICATIONS
THE AI FOOTPRINT

OECD DIGITAL ECONOMY PAPERS
November 2022 No. 341

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BETTER POLICIES FOR BETTER LIVES

Aims to **improve understanding of the environmental impacts of AI**, and help measure and decrease AI's negative effects while enabling it to accelerate action for the good of the planet.

➔ Defines AI Compute

➔ Reviews existing and emerging data and measurement frameworks (direct, indirect, and dual impacts)

➔ Notes measurement gaps with policy implications

Environmental impacts of AI compute and applications should be further measured and understood

Direct environmental impacts AI compute resources lifecycle

Production	Transport	Operations	End-of-life
• Raw material extraction • Assembly • Manufacturing	• Distribution • Freight transportation • Handling & storage	• Energy consumption • Water consumption • Carbon footprint	• Collection & shipping • Dismantling & recycling • Waste disposal

Indirect environmental impacts AI compute applications

Positive impacts	Negative impacts
• Beneficial sectoral applications • Climate mitigation and adaptation • Environmental modelling and forecasting	• Harmful sectoral applications • Carbon leakage (net increase in emissions) • Consumption patterns and rebound effects

Sources: OECD.AI Expert Group on AI and Climate, literature review, expert interviews. Based on Berkhout and Hertin (OECD, 2001), ITU Standard ITU-T L.1410 and Kaack et. al (2022)