Externalised costs of AI presentation

Artificial intelligence refers to technology which is built to do tasks that normally require human cognitive efforts such as learning, reasoning and decision making. This technology is the epitome of the 4th industrial revolution, signified by humanoid robots and ChatGPT.

But AI does not simply exist as a clean and abstract state of programming, nor does it exist as a harmless collection of 1s and 0s shifting through digital space. Before lines of code can execute, AI requires a physical infrastructure made from hardware, factories, powerlines and wires. The financial and physical creation of these networks involve externalised costs, these are the hidden environmental, social and economic burdens shifted onto everyday society instead of being accounted for by AI companies and their users. While tech companies accumulate trillions of dollars in market capitalisation, communities across the globe pay with their lands, water, resources and mental health. In order to understand these hidden costs, we consulted the critical zine raw minerals of AI by the AI+ planetary justice alliance. According to this piece AI begins with:

- Copper (Element 29) known for its exceptional conductivity of heat and electricity, this mineral is used in wiring and power systems linking servers together.
- It requires Silicon (element 14) a foundational semiconductor used to make microchips, central processing units and graphic processing units.
- Aluminium (element 13) for lightweight structure support and heat sinking for heavy computer frames.
- With noble metals Gold (element 79) and silver (element 47) ensuring corrosion free high speed electrical contracts.
- The infrastructure also depends on rare earth minerals such as neodymium (element 60) and dysprosium (element 66) which create powerful magnets for hard drivers and cooling fans.
- Finally, tantalum (element 73) enables high-performance capacitators whilst cobalt (element 27) and lithium (element 3) form the core batteries.
- Backed up by gallium (element 31) and germanium (element 32) used in optoelectronics and laser components.

The process of extracting these minerals damages local ecosystems and often fuels violent conflicts and geopolitical instability. For example, the global race for cobalt has fuelled corruption and severe human rights abuses linked to the war in Congo. Similarly, the scramble for gold has helped fund armed factions during the war in Sudan.

Beyond conflicts, mining companies use millions of litters of water to separate minerals from rock, causing severe water shortages in arid areas. The chemical mixture used

during processing leaks out leaving toxic runoffs that poison water tables, rivers and agricultural soils.

In response the CSOs 4 tailings justice alongside Earthworks, Mining watch Canada and London mining networks are fighting back by proposing aggressive amendments to existing state frameworks. They are demanding a Safety-first approach that places public safety, genuine community consultation and zero ecological harm ahead of corporate speed.

Once these minerals are made into hardware, they are housed in massive data centres which operate at a parasitic level, directly competing with households for basic resources. A single hyperscale data centre can consume up to 19 million litres of water per day just to cool its servers and draw enough electricity to power 10 000 homes. This structural greed is especially damaging in countries like South Africa where we face a reality marked by water shortages and power outages. Introducing power hungry, water guzzling data centres to our grid prioritises tech automations over human survival.

These externalised costs also involve an immense toll on human labour. In a webinar with a Kenyan digital rights activist Joan Kinyua, she exposed the exploitative conditions of global AI data workers who operate in environments similar to industrial sweatshops doing tedious work for little money and they are not even permitted to unionise. She in turn developed Post traumatic stress disorder (PTSD) as a result of high pressure and relentless conditions.

Compounding this human exploitation is a severe absence of legal regulation. Because tech companies operate ahead of government framework, AI tools are often weaponised to generate non-consensual paraphilic deepfakes, causing psychological harm and enabling abusers to escape scot-free. And historical efforts have not been taken seriously. This was shown in April 2026 when the South African government was forced to withdraw its draft national AI policy 16 days after its release, because it had bogus citations. Exposing that the very AI policy meant to regulate AI had been lazily generated by AI tools without meaningful human input or basic proofreading. This proves that government protect society from externalised threats when their officials fail to exercise human oversight and cognitive engagement.

So, what does this tell us? The true cost of a single AI prompt is not measured in cents or seconds. It is paid for in mineral rich lands polluted by toxic tailings, communities stripped of water and power and traumatized data workers.

Crucially there is a global injustice at the heart of this, Ai is driven by western powers, yet the raw components that are mined are found in the global South, yet we share no profits but bear the impacts of a technology we do not benefit from. Until AI companies are forced to internalise these environmental, social and cultural costs, the expansion of AI remains an unequal trade that profits a small elite at the expense of our planet.