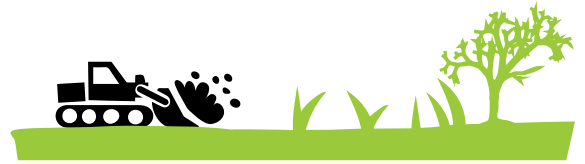


UnderMining Agriculture

How the extractive industries threaten our food systems



SUMMARY



UnderMining Agriculture looks at the real impact of mining – from prospecting and operations through to closure – on agriculture, food production, soil fertility, fresh water systems, the air that we breathe, and our already challenged climate. Without healthy ecosystems there can be no healthy food. Without water there can be no life.

The boom in mining and extractive industries continues to penetrate into the farthest reaches of our planet with devastating impacts. Mining is no longer taking place in isolated pockets of concentrated deposits. It has become so widespread that it threatens the integrity of ecosystems on our already fragile Earth.

This report highlights how the accumulative effects of the boom in mining are already evident. The extraction of minerals, metals and fossil fuels, pollutes areas far wider than the actual mining sites and for many years after the closure of operations. And yet, governments promote mining and provide incentives, arguing that it is in the “national interest” and “contributes to economic growth”, with little evidence of either. There is also scant recognition of the true costs to the conditions of life for present and future generations of all species, including our own.

We believe that enough minerals and metals have been mined already. If we use them responsibly – changing the way we design, make and sell products, closing the loop to ensure zero waste, and investing in a circular economy – we could supply enough energy for our needs, saving energy and using renewable energy, rather than subsidising the fossil fuel industry.

UnderMining Agriculture shows that national priorities need to be re-evaluated, and governments and citizens need to protect the conditions of life for food production now and for generations to come. Agricultural lands and the water systems they depend on should be recognised as “no-go areas” for mining and extraction and critical ecosystems should be protected – as a matter of urgency.

“UnderMining Agriculture is a clear call to action to bring the extractive industries under control, showing how they directly and indirectly threaten food sovereignty and the survival of entire ecosystems. This important report puts the pieces together for campaigners, students, and the general public and makes it clear that better rules or practices are not enough; the entire extractivist economic model has to be turned around.”

Jamie Kneen,
MiningWatch Canada

“Across Africa, communities are facing the two-pronged threat of the extractives industries and the industrial agriculture lobby. This report helps us to see the mounting pressure facing farming communities – the very people we depend on for our food.”

Fassil Gebeyehu,
African Biodiversity Network.

UnderMining Healthy Food for a Growing Population

Local, small-scale farmers grow 70% of the food we eat on less than one-third of the agricultural land available. These farmers grow and develop a diversity of nutritious crops, using less land and water than the large-scale industrial food system, while also building up healthy soils that absorb soil carbon (as opposed to contributing to climate change, as industrial agriculture has been shown to do). Despite efforts to make the public believe otherwise, it is these small farmers that feed the world. And yet it is precisely these farmers – their land, water, livelihoods and capacity to produce food – that are being *undermined* for the extraction of minerals, metals and fossil fuels.

Throughout **UnderMining Agriculture**, we use the term “mining” and “extractive industries” interchangeably to mean all types of extraction – minerals, metals and fossil fuels.

Examples and figures mentioned in this Summary are referenced in footnotes in the main report, **UnderMining Agriculture**, along with links and pointers for more information.



Soil, Water & Air Pollution

All types of mining and extraction, whether for metals, minerals, coal, shale gas or tar sands, use excessive amounts of water at each stage, such as processing, dust suppression, slurry transportation and waste disposal. This depletes local water sources and has serious impacts on the ability of communities to produce food. The processing of bitumen from the Tar Sands in Alberta, Canada, for example, uses between 2 and 4.5 barrels of water for every barrel of oil produced. The water is drawn from rivers and deltas, affecting fish and wildlife populations – which in turn affects the livelihoods and food security of the First Nations peoples in the area.

Water use and pollution extends over a far greater area than the boundaries of the mine site, as do air and soil pollution. In Ghana, local farmers suffer crop losses of up to 40% due to gold mining – mostly from air pollution and nitrogen dioxide – on farmlands up to 20km away from the actual mining site. In addition, the phenomenon of “acid mine drainage” (AMD) can render water systems acidic and agricultural lands infertile for hundreds of years. Old gold mines in Johannesburg, South Africa, for example, threaten to pollute water supplies more than a century after the mines’ closure.

Land Grabbing & the Impact on Women

In many cases the land is grabbed from farming communities and converted into vast open cast pits (some of which are even visible from space). Huge heaps of waste rock are dumped on farmland, forests and grazing lands. These ecosystems and farmlands can never be restored to their original state; neither can the potential for communities to enjoy food sovereignty. So-called “compensation” packages add insult to injury, which is why land grabbing often escalates into violent conflict.

Women in agricultural communities are disproportionately affected by land grabbing. They are the main custodians of seed diversity and wild foods, whilst also being responsible for household nutrition. Mining activities deny them access to their land, water sources, food crops and wild biodiversity, and make women vulnerable and open to abuse from mining-associated activities such as road building, transportation and traders.

Rising Food Prices & Food Insecurity

Family nutrition is especially hard hit by mining in or near food growing areas. Loss of crops in South Africa due to coal mining, means that prices for maize meal (the staple diet for poorer communities) will increase. In Phulbari, the main rice-growing area for Bangladesh, coal mining is projected to affect the water supply, food production and livelihoods of 220,000 people. Olivier de Schutter, former UN special rapporteur on the Right to Food, has commented: “Nearly half the Bangladeshi population is food insecure, and nearly one quarter is severely food insecure. Local production should be strengthened, not sacrificed for industrial projects.”

Livelihoods Lost vs. Jobs Created

Mining may provide some jobs for a few decades, but its impacts can leave a landscape and community livelihoods ruined for hundreds of years. The Rosia Montana gold mine in Romania claimed it would create 900 jobs, but in fact mining operations (relying on 40 tonnes of cyanide per day, 13 times the total amount currently used across Europe), would destroy 20,000 jobs in agriculture, tourism and other services due to the effects on landscape, cultural heritage and biodiversity. In South Africa’s Limpopo province, coal production would drain and divert water sources and 11,000 people would lose their livelihoods.

“Peasant women in Africa produce anywhere from 60% to 80% of food consumed within rural households, and put on the rural table fruits, medicinal herbs and plants harvested from communal lands and forests. Threats to lands, forests and water supplies posed by the rapidly expanding and rapacious extractives industries and industrial agriculture are undermining the very survival of rural families, and placing food rights in jeopardy across the region.”

Samantha Hargreaves, International Alliance on Natural Resources in Africa (IANRA).

“Here in Uganda, oil mining threatens the livelihoods of fishing and farming communities. This is our reality. We will use this report to support these brave communities in their fight for justice, and to put pressure on the government to re-think their commitment to this ‘black gold’, which only serves to line corporate pockets far away, whilst the local people pay the true price.”

Frank Muramuzi, NAPE, Uganda.



UnderMining Agriculture

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EXPLORATION
1-3 YEARS

DEVELOPMENT
3-5 YEARS

OPERATION
5-25 YEARS

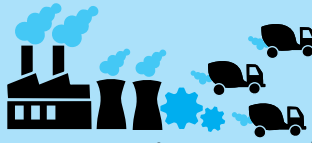
CLOSURE
UP TO 1000 YEARS

CLIMATE

AIR

WATER

LAND & ECOSYSTEMS



Co2 EMISSIONS from machinery



Some DEFORESTATION

In some areas FIRES may be set to clear forest for ease of access

DEFORESTATION



Digging up of soils & ecosystems releases Co2



LIMITED WATER available for agriculture & ability to adapt to climate change



Drillers, excavators, bulldozers, scrapers, diggers, trucks & other heavy machinery constantly running on diesel, PRODUCING Co2

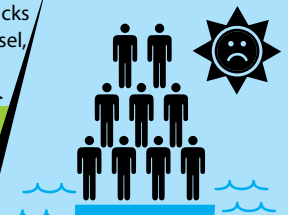
METHANE LEAKS from shale gas, oil & coal production



Transportation of vast amounts of ore RELEASES Co2



Burning FOSSIL FUELS for electricity generation



LESS LAND & WATER available for communities to adapt to climate change



DUST



DUST

DUST & METALS from blasting pollute air



DUST from dry tailings if not properly rehabilitated



Emissions from machinery operation POLLUTE AIR

Volatile organic BTEX compounds from oil & gas production POLLUTE AIR



Dust from mine dumps can continue to be a problem for DECADES



DRILLING: opens aquifers, contaminates or dries up wells & streams

Drilling mud CONTAMINATES water

STREAMS & RIVERS DIVERTED

MASSIVELY REDUCES WATER available for agriculture

WATER SYSTEMS CONTAMINATED by tailings leaks, Acid Mine Drainage, heavy metal leaching, frac fluid, methane or oil leaks, & radioactive fracking wastewater



ACID MINE DRAINAGE continues for hundreds of years, acidifying soil & water

HEAVY METAL LEACHING continues in water & soil systems

RADIOACTIVE WASTE e.g. from shale gas waste water takes hundreds of years to break down

Fuel spills CONTAMINATE water

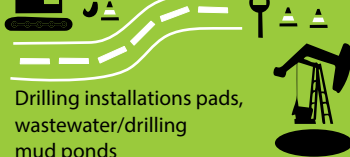


GROUNDWATER PUMPED OUT

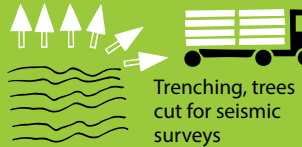
Toxic tailings & slurry DUMPED into rivers, lakes & sea

Landscape scarred & toxified by pits, tailing ponds & huge piles of acidic waste rock, ON WHICH NOTHING CAN GROW

ROADS BUILT



Drilling installations pads, wastewater/drilling mud ponds



Trenching, trees cut for seismic surveys

EXPLORATORY MINING



CONSTRUCTION of camps

LAND GRABBED from communities



DEFORESTATION



Digging up of soils & ECOSYSTEMS



POWER LINES BUILT



Further Roads built & construction of camps

Huge piles of overburden WASTE

Topsoil removed, mixed up with acidic rock so THAT NOTHING CAN GROW.

Toxic tailings dams threaten contamination, leakage & COLLAPSE

Abandoned pits, contaminated lands are a THREAT if not rehabilitated



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UnderMining Agriculture alerts us all to the impact that the extractive industries are having on our capacity to feed ourselves, our ecosystems and our already fragile planet.

Case studies from around the world, accompanied by a bold infographic, illustrate how mining – a major polluter of ecosystems, water and air, and a driver of climate change – is destroying the conditions necessary for healthy agriculture and food sovereignty. The mining industry promises job creation, economic growth and wellbeing whilst *undermining* sustainable, resilient and localised food production and livelihoods.

The full report and infographic can be downloaded at:
www.gaiafoundation.org/UnderMiningAgriculture



'*UnderMining Agriculture*' is the third in a trilogy of reports on the devastating impact of extractive industries on the Earth.

The first, '*Opening Pandora's Box*' (2012), highlights the converging factors that have led to a dramatic increase in the rate and scale of growth of the extractive industries. More communities and ecosystems are affected by mining than ever before, and mining activities are projected to triple worldwide by 2050 if we refuse to change course. '*Short Circuit*' (2013), the second report, zooms in on one of the major drivers of mining – electronic gadgets, smartphones and laptops. Their lifecycle – which sees land irreversibly scarred and communities displaced, whilst consumers are duped into a desperate chase for the latest model, is also the subject of our darkly comic 'Wake-Up Call' animation and growing campaign.