

Agriculture and Land Pollution

“The history of Earth-abuse through agriculture has been horrendous. Essentially, all of nature’s ecosystems are perennial polycultures. Agriculture reversed that. Consequently, soil erosion became a problem. The wilderness has to become a standard against which we judge our agricultural and cultural practices.”

– Wes Jackson, co-founder, The Land Institute

Key Points

- The UN’s own Global Land Outlook Report highlights the urgency of this issue to our planet and future food security, with a third of our land already severely degraded.
- It is neither sustainable nor desirable to allow our current agricultural paradigm to continue as an “extractive industry,” with a short-term/high-yield approach that is based on monocultures and heavy chemical applications, polluting and degrading the land.
- There is a need to urgently introduce policies and programs that support the development of agro-ecological solutions, move society towards lower levels of meat consumption, and prevent environmental impacts (based on the precautionary principle).
- It is high time that agricultural corporations were held responsible for their environmental impacts, and action taken to ensure that products reflect the full costs of production, including disincentives/fees for any pollution and land degradation.

Background

On 12 September 2017, the UN Convention to Combat Desertification (UNCCD) launched its new flagship report, [the Global Land Outlook](#), which assessed the current and future state of the world’s land resources.ⁱ The report stated that a third of the planet’s land is severely degraded and fertile soil is being lost at the rate of 24 billion tons a year. It examined agriculture’s contribution to this, and called for a shift away from destructively intensive agriculture.ⁱⁱ Louise Baker, external relations head of the UN body, likened industrial agriculture to an “extractive industry,” and stressed that it was not sustainable – adding that the fact that a third of land is now degraded should prompt more urgent action to address the problem. The study noted that pressures will continue to grow unless changes are made.

In a series of [forecasts](#) on land use for 2050,ⁱⁱⁱ the authors note that sub-Saharan Africa, south Asia, the Middle East and north Africa will face the greatest challenges unless the world sees lower levels of meat consumption, better land regulation and improved farming efficiency. The report’s working paper on “Threats to Soils: Global Trends and Perspectives^{iv}” states that solutions need to be embedded in policies and programs that support the development of more sustainable agricultural systems.

Soil pollution due to human activities also took center stage at the 5th [Global Soil Partnership](#) Plenary Assembly held at the FAO’s headquarters in Rome in June 2017. The FAO stated that nitrogen and metals can strain farmable land by polluting soil, damaging plants, and, ultimately, posing risks to food security. They called for global collaboration and reliable scientific evidence to reduce knowledge gaps and promote sustainable soil management.^v

However, for thousands of years agricultural was a natural process that did not harm the land. In fact, farmers were able to pass down their land for many generations and it remained fertile. It is modern agricultural practices, particularly monocultures and industrial animal agriculture that have caused land pollution and degradation of ecosystems.^{vi}

Causes of agricultural land and soil pollution include:

- Pesticide and fertilizer residues.
- Livestock wastes.
- Contaminated water and rains containing organic compounds and heavy metals (which can come from the disposal or leaching of industrial and agricultural wastes).
- Soil erosion and sedimentation, from ineffective farming practices.
- “Pests” and weeds, especially from introduced monocultures.

Agricultural Sources of Soil Pollution

Intensive animal agriculture is a significant contributor to soil and land pollution. Most food produced for animals is grown using a combination of untreated animal waste and synthetic fertilizers, both of which contain excessive amounts of nitrogen, phosphorus and heavy metals (such as zinc, copper, chromium, arsenic, cadmium, and lead). Farmers may overuse these inputs to increase crop yields, and the remainder that cannot be absorbed by the soil degrades the soil’s water retention ability and fertility.^{vii}

Contribution of Monoculture Agriculture

Because of market forces, monocultures have allowed a small group of crops to take over the majority of the agricultural land across the globe. While this results in the production of large amounts of corn, soy and other livestock feed, this is an inefficient way to feed the world’s population and does not facilitate agro-ecological solutions. These impacts must be alleviated if the ecological systems of the earth are not to be irreversibly damaged.^{viii}

Monoculture agriculture has significant negative impacts and is at the heart of land pollution. As animal production intensifies, it is uncoupled from crop production, with the result that standard nutrient cycles between plants, soil, and animals are severely altered,^{ix} resulting in the use of large quantities of synthetic herbicides, insecticides, bactericides and fertilizers which contribute to the pollution of soil and water.

Besides the negative impact the overuse of chemical fertilizers has on the soil, monocultures are detrimental to soil health in other ways. Ground cover crops are eliminated, meaning there is no natural protection for the soil from erosion by wind and rain. Without plants to provide leaf litter mulch, topsoils are not replenished. These factors combine to continually degrade the soil, and in some cases the soil becomes unusable for agriculture. In some countries, this means that forests are then cleared to provide new agricultural land, starting the damaging cycle all over again.

References

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ⁱⁱ Jonathan Watts, The Guardian. Third of Earth's soil is acutely degraded due to agriculture. Tuesday 12 September 2017. <https://www.theguardian.com/environment/2017/sep/12/third-of-earths-soil-acutely-degraded-due-to-agriculture-study?platform=hootsuite>

ⁱⁱⁱ UNCCD. Global Land Outlook. Part 2: The Outlook. https://static1.squarespace.com/static/5694c48bd82d5e9597570999/t/5979f38ad2b857fc87921632/1501164439392/GLO_Part_2_Ch_6.pdf

^{iv} Global Land Outlook Working Paper
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^v UN News Centre. Country-level action 'new frontier' for tackling soil pollution – UN agriculture agency. June 23, 2017. <http://www.un.org/apps/news/story.asp?NewsID=57055#.WahF3siGM2w>

^{vi} Conserve Energy Future. <https://www.conserve-energy-future.com/causes-and-effects-of-agricultural-pollution.php>

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