

64th Sessions of the United Nations Framework Convention on Climate Change (UNFCCC) Subsidiary Bodies

PAN International Policy Recommandations




Scaling Agroecology for Climate Action, Adaptation, Biodiversity Protection and Food Security

Scientific evidence indicates that chemical-intensive agriculture exacerbates climate change, contributes to greenhouse gas (GHG) emissions and depletes biodiversity, while also making our agricultural systems more vulnerable to the stresses brought on by the intersecting polycrises of climate, biodiversity and pollution.



Chemical pesticides contribute to GHG emissions throughout their lifecycle via their manufacturing, packaging, transportation, application, and even through environmental degradation and disposal¹. Fumigant pesticides, for example, have been shown to increase nitrous oxide production in soils seven to eight-fold. Many pesticides also lead to the production of ground-level ozone, a greenhouse gas harmful to both humans and plants. Some pesticides, such as sulfuryl fluoride, are themselves powerful greenhouse gases, having nearly 5,000 times the potency of carbon dioxide

 A farmer spraying fertilizer with a backpack in a vibrant green field in Bolpur, India

¹Pesticide Action & Agroecology Network North America (PANNA). 2023. Pesticides and Climate Change: a Vicious Cycle. <https://www.panna.org/resources/pesticides-and-climate-change-a-vicious-cycle/>

See also PANNA's 2025 scientific update here: <https://www.panna.org/resources/pesticides-climate-change-from-a-vicious-to-a-vivacious-cycle/>

Agroecology offers proven, practical and feasible solutions to today's crises of climate, biodiversity, pollution and health.

Policymakers attending the 64th Sessions of the UNFCCC Subsidiary Bodies have both the opportunity and responsibility to take decisive action in Bonn to support the transformation of local, national and global food systems away from pesticide dependencies and towards climate-resilient, biodiversity-protective agroecological farming.

Agroecology is a climate solution

Agroecology is a productive, ecologically resilient, economically robust and sustainable approach to farming that integrates cutting edge science with local and Indigenous knowledge, innovation and practice, and emphasizes farming in harmony with natural cycles and processes. Grounded in the principles of food sovereignty, collectivity and justice, agroecology provides both a vision and a foundation for the needed transformation of our food systems, and offers a multitude of pathways that farmers can adapt to their own circumstances.

The case studies highlighted below are excerpted from a series published by **Pesticide Action Network** that provides concrete evidence of the ability of agroecology to lead the way towards *biodiversity-protective and climate-resilient farming solutions*.

Africa



Agroecological pest management in Lake Ziway, Ethiopia, PAN UK & PAN Ethiopia

In 2018, PAN Ethiopia and PAN UK launched a field research and farmer training project in the Lake Ziway area of Oromia, Ethiopia, aiming to reduce the use of pesticides and their health and environmental impacts by promoting agroecological pest management methods among vegetable farmers. As a result of their training, many farmers significantly reduced their use of highly hazardous pesticides, with only 5.5% reporting acute health incidents, and 92% adopting at least one agroecological method.

Climate Resilience through agroecology: Fifteen years of community-led sustainable agricultural practice in Kenya, G-BiACK

When the Grow Biointensive Agriculture Centre of Kenya (G-BiACK) first started to document agricultural practices in central Kenya in 2009, production relied heavily on agrochemicals. Over the next 15 years, G-BiACK advocated for other methods that transformed the entire agricultural landscape. This case study provides a first-hand account of this transformation, based on conversations with farmers, visits to fields and observations of the gradual but profound changes that occurred when communities embraced agroecological principles.

Asia



Agroecological farming practices in Kerala, India, Thanal Trust

Since 2022, this project by Thanal Trust has supported and trained 26 women's farming groups (comprising 399 farmers) in transitioning to agroecology in Kerala, India. The project has resulted in benefits ranging from measurable outcomes in terms of climate adaptation and mitigation to improvements in gender equity and the scaling up of community farming, as described by Mrs Thankamani Suresh, a smallholder farmer living in Kolagappara village.

Latin America



An integrated agroecological wheat-pasture-livestock system: The Calderón family's transition from conventional agriculture to agroecology in the province of Buenos Aires.

The El Paraíso integrated farm-and-livestock system, located near Baigorrita in the General Viamonte district of the Province of Buenos Aires in Argentina, demonstrates how pasture can be cultivated using agroecological methods without the use of synthetic agrochemicals (fertilisers or pesticides), while managing livestock on a 90-hectare farm.

Agroecological alternatives for crop management without use of highly hazardous pesticides in Costa Rica, IRET

This case study by Instituto Regional de Estudios en Sustancias Tóxicas (IRET) tells the story of 'Los Sukias' farm, which has become a leading example of large-scale organic agricultural production in Bebedero, Guanacaste. Since 2012, the farm has transitioned from a conventional model to a regenerative system, eliminating the use of agrochemicals entirely and adopting certified agroecological practices under the 'EcoArroz' brand. The 'Los Sukias' experience demonstrates that it is possible to produce food sustainably, profitably and ethically and constitutes a replicable model that positions agroecology as a climate solution and a viable alternative for agricultural production in Costa Rica.

*The full collection of case studies showcasing the experiences, knowledge and expertise of farmers from Argentina, Benin, Burkina Faso, Costa Rica, Ethiopia, India and Kenya is available [here](#).

Policy Recommendations

Many of the structural challenges locking farmers into chemical pesticide dependencies and inhibiting national transition to climate-resilient agroecological farming can be overcome through adoption of appropriate policy measures, programs and initiatives, support of non-market solutions including agroecology, and investment in ecologically-based climate solutions.

Parties to the UNFCCC 64th Session of the Subsidiary Bodies have the opportunity to achieve meaningful progress towards real climate solutions through these policy actions:

- 1. Recommend that the Sharm el-Sheikh Joint Work on Implementation Framework of Climate Action on Agriculture and Food Security to recognises and explicitly promotes mention “agroecological practices”** among implementation pathways, thus unblocking finance pathways for such transition;
- 2. Highlight agroecology practices and languages within the Global Goal on Adaptation,** particularly in resilience indicators and monitoring frameworks;
- 3. Improve access to Climate Finance and dedicate funding for mechanisms including but not limited to the GCF** to support agroecology-based projects through different frameworks such as climate adaptation, non- market approaches etc;
- 4. Request that spaces and platforms for knowledge sharing and capacity building on climate, agriculture and food continue** after the conclusion of the Sharm el-Sheikh Joint Work in 2026;
- 5. Prioritize and center farmers, communities and Indigenous knowledge particularly women farmers, fishers and indigenous women in public** policies, programs and initiatives and funding;
- 6. Recommend that parties take measures as part of their climate action under the UNFCCC to ensure companies and other entities undertaking agri-business activities are required to reduce the risk to biodiversity from pesticides and to phase out highly hazardous pesticides (HHPs),** including under explicit mandates in complementary international policy frameworks like the Global Biodiversity Framework and the Global Framework on Chemicals.

PAN urges Parties to approach the 64th sessions of the Subsidiary Bodies as a genuine opportunity to identify and overcome the barriers to implementation and hold one another accountable for the commitments made at COP28 in the UAE Declaration on Sustainable Agriculture, Resilient Food Systems and Climate Action². Parties must also build on the political momentum emerging from COP30, as well as the ongoing work in other international multilateral environmental agreements, such as the Global Framework on Chemicals, the Global Alliance on HHPs and the Global Biodiversity Framework, in order to take the necessary measures to transform food and agriculture systems for a course correction before the window for 1.5°C-aligned action closes.

¹<https://www.cop28.com/en/food-and-agriculture>

Agroecological practices, as locally adapted solutions, are the key to climate resilience and adaptation, food security, and food systems transformation.

More resources on agroecology, climate and pesticides

- » [Pesticides & Climate Change: From a Vicious to a Vivacious Cycle](#), PAN North-America, October 2025
- » [Case studies: Agroecology is a Climate Solution](#), PAN International, October 2025
- » [Cultivating Coherent Climate Action: Why agroecology and pesticides reforms should underpin action on agriculture and food systems in support of the Paris Agreement](#), PAN International, November 2024
- » [Pesticides and Climate Change: A Vicious Cycle](#), PAN North-America, August 2023



Pesticide Action Network International (PAN) is a global coalition of over 600 participating non-governmental organizations, institutions and individuals in 90 countries, working to replace hazardous pesticides with ecologically sound and socially just alternatives. Founded in 1982, PAN works to end reliance on hazardous pesticides and achieve health, resilience and justice in food and farming. PAN advocates for agroecology as a powerful solution to the negative effects of chemical-intensive agriculture and the converging planetary and societal crises of climate chaos, biodiversity loss, pollution and failing public health. PAN situates its work within a rights-based approach that prioritizes agroecology, food sovereignty and climate justice.