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ELEMENTS OF LOCAL AGROECOLOGY

Farming with Nature, Not Against It



What is Agroecology

In simple terms, Agroecology is a way of farming that works with nature instead of against it. It is a sustainable approach to producing food that treats a farm like a natural ecosystem, balancing the needs of people, soil, plants, animals, and the environment.



Why Does Agroecology Matter

Helps us understand what deeply affects our farms, rural activities and farmer's lives.

Environment

Protects all living things, natural systems (soil, water-bodies, forests, grasslands) reduces pollution, protects the planet for future generations

Food Systems

Shows why safe, healthy local food matters—and how growing it protects nature, all living beings and the environment

Livelihoods

Helps farmers and all sections of rural communities sell their produce in local and outside markets.

Resilience

Helps farms and communities cope with problems due to erratic weather and resulting loss of income and work opportunities.

Elements of Local Agroecology for Farm and Rural Communities

FACILITATOR'S NOTE: As you explain these elements of Local Agroecology, ask the participants to share examples of each, based on their understanding, their experience or knowledge. Some examples are provided for reference. The Facilitator can add more and build on the participant's examples.

Diversity (Crop, Livestock and Local Ecosystems)

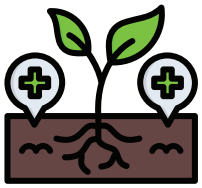
Protect biodiversity on and around your farm—local breeds, seeds and plant varieties. When you see native plants, grasses, trees, birds, and insects thriving, it's a sign the land and your farm are healthy.

Example: Native trees (Palash पलाश , Karanj करंज, Bael बैल), grasses (Durva दूर्वा, Khus or खस) and plants (Ghumchi or Chirmi घुमची or चिरमी, Gorakhbuti गोरखबूटी, Dronapushpi or Guma द्रोणपुष्पी or गुमा) keep soil rich, hold water, and stop erosion. They draw pollinating bees and insects, which attract birds that eat pests. Raising native breeds (cow, goat, poultry), maintaining a fish pond and growing mixed crops provides bio-inputs, fodder, mulch and compost that makes your farm more fertile without harming waterbodies, the soil and creatures around.

FACILITATOR'S NOTE: Explain – Biodiversity is the rich variety of all living things–plants, grasses, trees, animals, birds, bugs; creatures of the soil, water and air–working together to keep nature healthy. We too are a part of nature, not different from it, or above it! (Use experiences of people during Covid to reinforce this idea)

An ecosystem is a community where living things (plants, animals, people) and their surroundings (water, soil, air) all work together as a team to stay alive.

Soil Health Enhancement



Ensure farm soil stays living, humus-rich, and full of microorganisms, earthworms, and fungi by using compost, bio-inoculants, living roots, and shading it from harsh sunlight. Avoid chemicals and fertilizers for improving soil fertility.

Example: See how rich the forest soil is–without chemicals. Can we learn from it and make our farm soil the same, without using fertilizers or pesticides? How?

Recycling Nutrients



Keep "waste" nutrients working for you–reuse manure, crop leftovers, household and pond water, and other local resources to build healthy soil, make compost, natural fertilizers and pest control agents, to cut costs.

Example: Use cow dung and urine, crop waste, kitchen scraps, and pond water to make compost and plant tonics. Neem, garlic, and chilli-mixes help control pests. Crop waste as mulch keeps soil moist and builds fertility.

Biological Pest Management

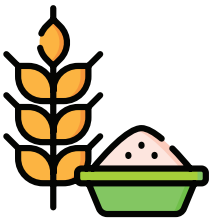


Rely on biological pest control–trap crops, homemade bio-pesticides, and natural enemies like birds and beneficial insects–to cut costs, boost crop nutrition, and protect your family, farm and water sources from harm.

Example: Create bird perches around or in the farm, maintain big old trees around your farm–they give owls (*ullu, ghuggu*- उल्लू, घुघु) and other birds a home. One pair of owls can kill 1,000–3,000+ rats or mice a year, saving huge amounts of grain[1], otherwise lost to rodents. In addition to owls, hawks, kestrels (तुत्तर, खरौंच, बाज़), coucals (महोख, भारद्वाज), hornbills (भात बलि, धनेश) and others prey on rodents. Similarly bats (चमगादड़) kill many disease-causing insects, mosquitoes. Working with nature saves you money, protects your family and crops from diseases due to pests.

[1]1000–3000 mice or rats will eat between 4,200 to 19,500 kg of grains per year. This can be roughly worked out from this FAO note on Rodent pests. Since they partially damage, urinate, and defecate, more grain becomes unfit for human use. Link: https://www.fao.org/4/x5065e/x5065E0j.htm

Seed Saving and Sovereignty



Saving your own seeds (and plant varieties) from this year's harvest to plant next year, rather than buying them from shops, and sharing them, along with knowledge about their use—keeps food in the community's control, free from dependence on loans, seed-companies, and reduces input costs.

Example: In 2005, 20 women farmers in Surguja, Chhattisgarh came together to save a local aromatic rice variety with cumin-like grain, called *Jeera-Phool*. They officially applied for a geographical indication tag, which was approved on in March 2019 for 10 years, so only this *Jeera-Phool* grown in Surguja can be sold by that name. This shows how farmers can protect their own seeds. In Rajasthan too, farmers are bringing back local grains like *Moochwali. Bajri, Pili Bajri* and *Sulkhaniya Bajri* that have distinct properties, known for generations.



FACILITATOR'S NOTE: EXPLAIN — SEED SOVEREIGNTY in simple words, is a farmer's right to save, use, breed exchange or sell seeds (or plant varieties). Some seed companies prohibit such acts, since they want farmers to keep buying their seeds every year.

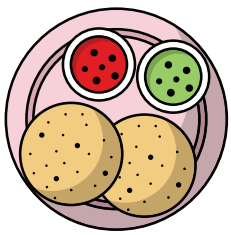
Co-creation of Knowledge



Learn and share with other farmers—about seeds, natural farming, saving water, and caring for the land and natural systems—with support from experts, consumer groups. Support participation of all groups, vulnerable sections——if nearby farms use chemicals, your farm will also be affected.

Example: The *Jeera-Phool* rice from Surguja, Chhattisgarh and local *Moochwali Bajri, Pili Bajri* and *Sulkhaniya Bajri* of Jodhpur were not created by one person. They resulted from many generations of farmers sharing seeds and knowledge. With help from the government, they registered these seeds and got a GI tag for the *Jeera-Phool* rice. Saving local seeds, natural systems and indigenous knowledge, requires everyone working together.

Social Values & Diets



Grow and share knowledge on producing, cooking local, traditional foods so everyone—even the poorest, most vulnerable, can access, eat fresh, healthy, and seasonal meals.

Example: Long ago, our ancestors mostly ate millets like jowar, bajra, and ragi. Rice and wheat were rare, and meals incorporated local, seasonal vegetables and fruits. Over time, in just 100-200 years, new crops like tomato, chilli, and potato came from foreign lands and became part of our food. This change happened because people shared seeds, farming, and cooking ideas. This must continue and all sections must be able to eat affordable, nutritious meals.

Practices Suited for Indian Context

Facilitator's Note: This section aims to show the audience that these practices are real and practical—farmers in India are already following them, and people can learn from them.

Zero Budget Natural Farming (ZBNF)



Zero Budget Natural Farming (ZBNF) is a way of farming without chemicals and with very low cost. It keeps the soil healthy using four steps: *Beejamrit* (for treating seeds), *Jeevamrita* (solution to grow good microbes that help crops), *Acchadana* (covering soil with mulch), and *Whapasa* (ensuring the right level of moisture is available for plants and micro-organisms within the soil). It uses local seeds, mixed crops, and no outside chemical inputs to keep the soil naturally fertile.

Close to 1 lakh farmers practice ZBNF in Himachal Pradesh, under the *Prakritik Kheti Khushal Kisan* scheme, a similar number follow it in Karnataka, Maharashtra, and smaller numbers in other states.

References: Learn about ZBNF from Shri Subash Palekar of Amravati, Maharastra, who created this model, at https://palekarzerobudgetspiritualfarming.org/contact.html. You can also watch YouTube videos by Shri Palekar and other practitioners.

Natural Farming

No chemical fertilizers or pesticides—use natural inputs only. Use bio-stimulants, plant extracts, trap crops, and birds and insects to manage pests. Encourage neighbouring farmers to join, which brings them relief from chemicals and avoids drift of chemical vapours, water to all neighbouring farms.

Healthy farming starts with living soil—rich in microbes, organisms and fungi. Use compost and crop waste, keep soil covered (mulch), and don't plough. Keep crops growing all year (365 Days Green Cover) so roots keep soil alive and moist.

Grow many crops together (15–20 crops). This gives food and income all year and makes farming safe in bad weather. Use Pre-Monsoon Dry Sowing (PMDS), along with 365-DGC, and A-Grade Model —coat seeds with *Bijamrit*, clay and ash and natural mixes, sow before rains, so crops grow early even with pre-monsoon showers at the end of summer.

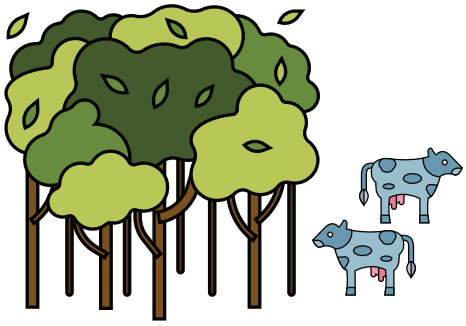
Models like ATM (Any Time Money) help dryland farmers grow up to 30 vegetables and fruits year-round on 0.02–0.03 acres and earn quickly. Drought-proofing, no-plough model revives long-uncultivated land. Around 5 to 7 seeds (cereals, pulses and oilseeds) are pelleted and sown in a circle one foot in diameter can bring dry, unused land back to life. Many tenant farming families with no fertile land have used it in arid regions to grow nutritious food for the household.

Keep animals, trees, and even fish ponds, water harvesting structures. Use local seeds, plants and animal breeds—they give good food and their waste helps your farm grow naturally. Start kitchen gardens or community gardens, to grow vegetables, fruits, herbs for home use at almost no cost. They provide nutritious food for the entire family.

References: In Andhra Pradesh, the APCNF program promotes natural farming through community resource persons and experts. Over 18 lakh farmers across 60 percent of AP's villages practice it on 20 lakh acres of farmland. Learn more at https://apcnf.in/ or watch APCNF videos on YouTube.

Agroforestry systems integrating natural systems

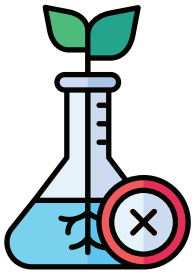
Agroforestry means growing crops, trees, and animals together on the same land. Grow crops between trees—later, grow fodder or shade-loving crops as the trees grow. Trees can give fruit, wood, and fodder, and also improve the soil. When trees and grass are grown for animals, it is called silvipasture. You can also rear animals, bees, or even maintain fish ponds with fruit trees, flowering plants or crops. This gives more food, more income, and keeps the farm healthy.



References: In Kerala, coconut, mango, and jackfruit are grown with crops, vegetables, pepper, spices, and medicinal plants in home gardens. In the North East, a seven-layer system is used to grow moringa, papaya, lemon, and ginger with other crops and vegetables. Get in touch with the ICAR-Central Agroforestry Research Institute (CAFRI), UP at https://cafri.res.in/ or the Forest College and Research Institute, TNAU at https://agritech.tnau.ac.in/forestry/forestry_contactus.html for more information. There are short videos of experiences of farmers from India, on YouTube.

Non-Chemical Farming or Non-Pesticidal Management (NPM)

Start small—try natural farming on a small patch. Don't use chemicals. Use desi cow dung, urine, and farm waste to grow crops and control pests. It cuts costs, avoids debt, and makes soil and crops healthier. You will learn a lot from this experience, even as you learn more about some of the practices mentioned earlier from others, and will prepare you to take the first steps.



Benefits for Farmers

Use what you have on the farm—no need to buy inputs, so costs stay low.

Soil becomes rich with humus and strong over time. You will notice it is "more alive" than that of a chemical farm.

Crops can handle dry, uncertain weather, droughts and even flooding, better. Many farmers report yields closer to that from chemical farming, but at much lower costs, which increases earnings.

The food made from your farm produce is clean and healthy and tastes better too.

No chemicals—better for your health and your family's health— important in times when healthcare or hospitalization expenses have become unaffordable.

Some Implementation Steps

Learn from experienced farmers and experts, and begin by learning from the resources provided, but you can also start on your own—together with other farmers in your village.



1

Understand your environment: Farmers should learn more about their land—wild plants, trees, insects, birds, animals, soil, rainfall, water sources, ways to save water, and the challenges—so they can make better decisions over time.



2

Start Small: Begin the transition from chemical farming on a small portion of the land to test techniques. Remember no chemicals, at all!



3

Community Management: Work with local women's self-help groups (SHGs) and farmer field schools or local agricultural officers for learning and support.



4

Seed Banks: Create community-managed seed banks to ensure easy access to local seeds.



5

Crop Rotation, Intercropping: Utilize local knowledge, ask elders and follow intercropping, crop rotation, to improve pest control and soil nutrition.



6

Local markets: Find ways to sell your produce in nearby towns, work with other farmers, and reach buyers like families, shops, and hotels who want good, natural food.

In closing, remember to start small, learn as you go, and to trust nature, and your farm will take care of you for years to come. Remember, Agroecology means farming that cares for nature, treats people fairly, and helps farmers earn well.

AGROECOLOGY = ECOLOGY + EQUITY + ECONOMY

A pathway to sustainable, resilient and holistic food systems.

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