Criteria Agroecology

Link Infopool

FAO 10 elements of AE	Description FAO elements	Gliessman Level	Inclusion Criteria / practice
Efficiency	Increase resource-use efficiency, produce more using less external resources, rely on the use of natural resources that are renewable, abundant and free, reduce dependancy on external inputs	Level 1: Increase efficiency of industrial inputs	**Reduced/more efficient water use:** Reduced water consumption through, *e.g. drip irrigation, improved monitoring, precision agriculture, improved varietals, reduced waste water, zai holes, half moon, …* **Reduced pesticide:** Reduced application of herbicides, fungicides, insecticides, or fumigants through, *e.g. improved monitoring, precision agriculture, or improved plant varietal...* This subcategory includes general integrated pest management (IPM) programs or references to general pest research when no other specific practices are mentioned. **Reduced application of synthetic fertilizer:** reduce nitrogen leakage through e.g. *improved monitoring, precision agriculture, improved varietals, etc…* **Reduced energy use:** Reduced fuel consumption or reduced fossil energy use from farming through e.g. *improved technology and equipment or through renewables, low-carbon energy sources…* **Reduced seed use:** more efficient storage & use of planting materials, resulting in better crop establishment and less early mortality. **Reduced waste:** Increased net yield through prevention of losses at harvesting, processing, or storage through improved technologies and equipment, *e.g. reduced post-harvest waste, storage facilities/bags, etc.* **Measuring enhanced efficiency/more than just single crop yield:** *e.g. Land Equivalent Ratio(LER), TEEB-Ag…*
Recycling	Support biological processes that drive the recycling of nutrients, biomass and water within production systems. Close cycles and reuse waste, at both farm-scale and within landscapes	Level 2: Substitute alternative practices and inputs	**Recycling of waste water:** recycling of waste water for agricultural use, agricultural water reuse. **Increase nutrient use efficiency through closing nutrient cycles:** *e.g. through alternate amendments such as compost, manure* **Biological Nitrogen fixation:** *e.g. green manure, nitrogen-fixing crops (legumes/pulses), (substitute synthetic N- fertilizers).* **Other practices that improve recycling of biomass/org. matter:** *e.g. recycling of crop residues…* **Use of biomass waste for energy generation:** *e.g. biogas from organic waste --> important that WASTE/RESIDUES are used (3rd generation biofuels)*
((Regulation/ Balance))	Optimize the biophysical mechanisms and interactions at play within farming systems so as to boost natural regulation processes and tempered disturbance through alternative practices that substitute toxic inputs	Level 2: Substitute alternative practices and inputs	**Biological pest management:** Pest management through biological control methods, *e.g. by importing, promoting , or conserving pest enemies/antagonists (animal, plants, microorganisms, bacteria)* **Cover crops for pest management:** *Planting cover crops specifically for weed control.* **Other pest management***: Non-chemical pest management practices that treat rather than prevent pest problems, including the use of steam, UV treatments, or LED lighting.* **Cover crops for soil health:** Planting over crops specifically to reduce erosion, increase soil organic matter, improve general soil condition. **Perennials:** Specific and intentional adoption of perennial plant species. **Reduced tillage:** Adoption of conservation tillage or no-till practices. **Adoption of organic and low-input farming:** incl. improved varietals for this purpose. **Domesticated pollinators:** improved pollination through the introduction of domesticated pollinators. **Other Level 2 systems:** systems that integrated more sustainable practices to reduce negative impacts but are not captured by any other subcategory (general/fish/meat, erosion control, combat windfall/windbreaks).
Synergies	Optimize biological synergies that enhances key functions (competition, erosion...) across food systems by a careful design of diversified system and integration of elements in the system. Synchronize activities at the landscape scale	Level 3: Redesign whole agro-ecosystems	**Non-crop plants:** Incorporating non-crop plants in agroecological systems for ecological functions such as conservation, water quality, or pest management. **Rotational/regenerative grazing:** Improved grazing methods/management to improve soil quality and forage yield. **Integrated crop-livestock systems:** Diversified farming system including both crops and livestock (nitrogen synergies and others...), *e.g. fish-duck-rice system, milpa...* **Other selective combinations/integrations at the farm level to optimize (ecological) synergies:** *e.g. between and among livestock, aquatic animals, trees, soils, water and other components on farms.* **Integrated pest management by habitat manipulation:** *e.g. landscape planning (provide natural habitat) or habitat management as systemic precondition for biological pest control.* **Other synchronized landscape-level planning leading to improved agricultural ecosystem services:** *e.g. Reforestation/restoration/ preservation of natural habitats with clear benefits for agricultural production, e.g. through coordination on landscape/watershed level (e.g.* ***erosion management*** *control such as terraces, hedgerows,…)*
Resilience	Increase capacity to recover from disturbances including extreme weather events, maintain a functional balance, enhance ecological and socio-economic resilience	Level 3: Redesign whole agro-ecosystems	**Systemic resilience to extreme weather - excess of water (**heavy rain, floods, etc.) (caused by Climatic change or else - often framed as CC adaptation) **Systemic resilience to extreme weather - lack of water** (draught, false start of raining season, low water availablility, risk of fire, etc.) (caused by Climatic change or else - often framed as CC adaptation) **Systemic resilience/adaptive capacity to slowly changing environmental conditions (e.g. due to Climate Change)** **e.g.** *salinity, average temperatures, new emerging pests and diseases, breeding improved locally adapted varieties, varieties adapted system to future conditions…* **Livelihood Resilience (phyiscal):** Diversified production to be resilient against stress and shocks, e.g. *diversified production, nutrition improvement, access to weather information..* **Livelihood Resilience (economic):** Diversified income to be resilient against stress and shocks, e.g. *insurances, price monitoring, storage facitlites to not have to sell at lowest prices,…*
Diversity	Optimize the diversity of species and genetic resources (vertical, temporal, spatial diversity). Manage and conserve agro-biodiversity. Diversify local breeds adapted to specific environments. Diversified income and markets. Diversified diets and consumption	Level 3: Redesign whole agro-ecosystems	**Improved local seed/animal diversity:** Breeding and promotion of local, regional, organic, or otherwise improved agroecological systems; *e.g. seed banks, participatory breeding, seed fairs…* **Integrating locally adapted crops/races:** Incorporating native or locally/regionally adapted crops and animals. **2 Crop rotation:** Implementing a simple crop rotation with just two crops or where the number of crops included is unclear, but excluding cases where the second crop is specified to be a cover crop. **3+ Crop rotation**: Implementing a more complex crop rotation system with at least three crops. **Spatially diversified farms:** Introducing diversity over space by multi-, poly-, or inter-cropping (diversitification in time). **Agroforestry:** Diversified farming system integrating crop production and forests. **Biodiversity:** Specific attention to protect, or enhance fuctional agro-biodiversity.Natural pollinators: Specific attention to protect, or enhance natural pollinators (& their habitats) **Multi-habitat approach on landscape level:** increase land-use diversity or diversity.
Circular and Solidarity Economy	Reconnect producers and consumers, prioritize local markets and short food circuit, support local economic development by creating virtuous cycles, create more equitable and sustainable markets	Level 4: Re-establish connections between growers and eaters, develop alternative food networks	**Business support 1: Reestablishing the connection between producers and consumers** by assisting in the development of local food systems & short value chains/webs through e.g. *community-supported agriculture (CSA), engagement of communities and businesses in sustainable operations, participatory guarantee schemes (PGS), local producer's markets/more traditional territorial markets)* **Business support 2:** *Strengthening connection between producers and consumers for longer value chains by assisting in the development, e.g. e-commerce schemes, certification (organic, fairtrade, etc.), denomination of origin labelling, true pricing,...* **Encourage and sensitize for seasonal and regional demand:** *e.g. through public procurement schemes, education/sensitization…re-localisation of food systems and markets within same territories* **Support regional value generation:** *e.g. through targeted investments (e.g. in regional infrastructure, warehouses, processing, etc.), education (e.g. marketing,…), enable access to finance to smallholders (saving groups, guarantees …)*
Culture and Food Traditions	Support healthy, diversified and culturally appropriate diets, re-balance tradition and modern food habits, promote healthy food production and consumption, support the right to adequate food, support cultural identity tied to landscapes and food systems	Level 4: Re-establish connections between growers and eaters, develop	**Support and protect cultural identity and values tied to food systems**; *e.g. through cooking or nutrition classes, revive old recipes, integrate chefs blend with modern trends…* **Promote local breeds/varieties/seeds** **Promote healthy food production and consumption** **Address the imbalances** in food systems: *e.g. subisdies for traditional/cultural perfomances, empower independence/autonomy of farmers…*
Co-Creation and Sharing of Knowledge	Promote innovation co-created through participatory processes and context-specific knowledge, blend traditional and indigenous knowledge, producers' and traders' practical knowledge, and global scientific knowledge. Promote formal and non-formal education, including bottom up models of technology transfer	Level 4: Rebuild the global food system so that it is sustainable and equitable for all	**Connect farmers amongst themselves to share knowledge**: *e.g. farmer to farmer programmes (campesino a campesino), farmer's groups to share experiences, bottom-up models of technology transfer (participatory ICT tools), social media groups…* **Promote participatory and multistakeholder approaches in extension:** *e.g. farmer field schools, climate field schools, participatory research designs, integrate producer's knowledge of agricultural biodiversity and management experience (to research)…* **Promote "production and food education" (formal and non-formal)** *e.g. accessible lessons on farming system for the public* **Promote innovation and creativity to address the challenges of sustainable food system (**e.g. youth education in breeding, competitions,…)
Human and Social Value	Protect and improve rural livelihoods, equity and social well-being (dignity, inclusion and justice), build autonomy and adaptive capacities, empower people and communities to overcome poverty, hunger and malnutrition, while promoting human rights (right to food, and stewardship of the environment), address gender and rural youth inequalities	Level 5: Rebuild the global food system so that it is sustainable and equitable for all	**Gender approach:** Empower & building knowledge of (rural) woman; *e.g. through collective action and creating opportunities for commercialization, participation in producer groups & education, developping higher levels of autonomy.* **Creating decent jobs for rural youth** based on agriculture. **Strengthen organisational capacities:** *e.g. self-organisation, associations, cooperatives, capacity to stand for labour rights, land rights,strenghten self-empowerment…* **Support Human rights: stewardship of the environment & right to food (sufficient, access, adequate):** the right for people to feed themselves in dignity, implying that sufficient food is available, that people have the means to access it, and that it adequately meets the individual's dietary needs. **Promote food sovereignty,** promote equity, dignity, inclusion and social well-being.
Responsible Governance	Promote responsible, effective, transparent, accountable and inclusive governance mechanisms at different scales – from local to national to global, improve land and natural resources governance that ensure equitable access to land and natural resources and protection of soil, biodiversity and ecosystem services, provide incentives for long-term investments in sustainable practice	Level 5: Rebuild the global food system so that it is sustainable and equitable for all	**Policy development on producer-consumer links:** Developing or informing policies to help reestablish the connection between producers and consumers, market regulations allowing for branding of differentiated agroecological produce. **Inclusive policy making**: *e.g. support multi-stakeholder policy dialogues (integrate CSO/farmer's organisations' demands), evidence-based policy planning, support/strengthen science-policy interfaces.* **Establishment of equitable governance and rights over natural resources:** support traditional and customary governance models, subsidies and incentives for ecosystem services; ensure and protect equitable land tenure system and secured access to natural resources. **National level legislation, policies and programmes that reward agricultural management that enhances biodiversity and the provision of ecosystem services:** *e.g. school feeding and public procurement programmes.*