Ecoagriculture: Agricultural landscapes for people, food and nature

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Age-old challenges for food security and agricultural development

- Increase yield for basic foods
- Ensure household food security and nutrition
- Sustain soil fertility
- Secure access to adequate and reliable water
- Manage pests and diseases
- Manage market risks and opportunities

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New challenges for agricultural communities in a changing environment

- Climate change and increased climatic variability
- Ecosystem degradation reducing production & increasing costs/risks
- Shifting supply chains and new market demands, with international markets, urbanization, agribusiness
- Demographic and non-agricultural pressures and claims on farm resources.

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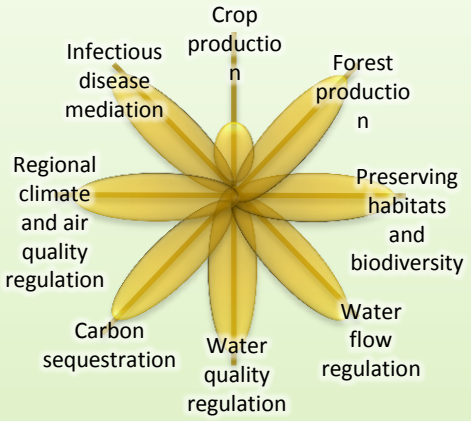
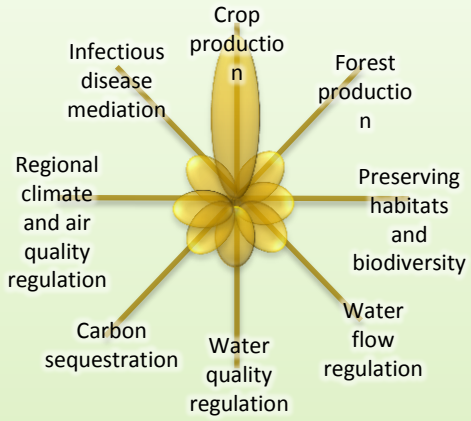
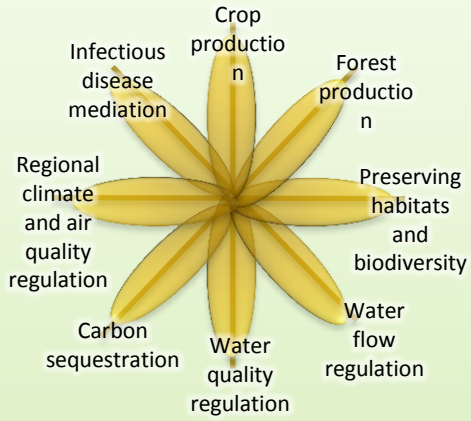
Multi-tasking the world's productive land base



Natural Ecosystem



Intensive cropland



Cropland with ecosystem service

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Ecosystem management at farm-scale for yield, profitability, sustainability

Agrobiodiversity
Diverse crop varieties & breeds, improved germplasm

Integrated pest management
Uses biodiversity for pest control, lowering synthetic input costs

Integrated water management
More efficient water use plus irrigation

Integrated soil conservation
Improved organic content and natural nutrient cycling lower synthetic input costs

Increase production &
Farm resource conservation

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Landscape- & regional-scale factors can undermine farm- & community-scale gains

Landscape scale conflicts over watershed management in the Nile Basin

Severe erosion in the Nyando watershed, Kenya

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Moving towards socio-ecological production landscapes (SEPLs)

Production landscapes managed to enhance **rural livelihoods** and **sustainable agricultural production** (of crops, livestock, fish and forest), while **conserving or restoring ecosystem services and biodiversity**.

Integrated landscape management goals

- Production landscapes managed to enhance rural livelihoods and sustainable agricultural production (of crops, livestock, fish and forest), while conserving or restoring ecosystem services and biodiversity

- Institutions managed to help realize the three desired outcomes through engagement and coordination of relevant stakeholders and supporters

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Potential synergies in integrated landscape activities

- Increase input efficiency
- Manage biological interactions to increase ecosystem services to agriculture
- Increase ecosystem services from production units
- Improve spatial organization of land use
- Realize economies of scale through collective action

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Potential benefits for farmers of engaging in integrated landscape activities

1. Increase profits (reduce production costs, increase yields, improve quality)
2. Conserve ecosystem services important for their livelihoods
3. Link with buyers who want products that protect biodiversity
4. Sell ecosystem services
5. Comply with environmental regulations
6. Protect rights to crop, graze, collect products from protected areas
7. Enhance local quality of life
8. Reduce conflicts with other groups
9. Protect cultural, spiritual values

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Defining landscapes

- Common challenges faced within a region (e.g. water scarcity, deforestation)
- Common ecosystem and shared resource base
- Natural geographic boundaries (e.g. mountain ridge, watershed, small island)
- Shared socio-cultural identity or ideals

Look for appropriate words and boundaries for landscapes for the countries and cultures you work in.

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Landscape approaches – coordinating the Who? What? Where? Why? How?

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San Luis Valley, Costa Rica

Maintaining ecosystem services in production landscape mosaics

In conservation areas

- Natural areas that benefit local farming communities
- Provide watershed protection, habitat connectivity thru non-farmed areas
- Reduce or reverse land conversion by increasing farm productivity
- Develop species conservation plans

In production areas

- Minimize agricultural pollution
- Manage water flow, use & infiltration--plot,farm,landscape
- Increase carbon storage in soils and vegetation
- Modify farming systems to mimic natural ecosystems
- Maintain diversity of crop species & varieties

Diverse landscape challenges require locally-adapted solutions

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Think globally, act locally
^ Plan regionally
Attributed to Richard T.T. Forman

Landscape approaches are complex: Is it worth it?

Demanded by biophysical realities:

- Agriculture coincides with existing protected areas & unique ecosystems
- Future expansion & intensification will exacerbate conflicts

Demanded by farmers:

- Resilient, risk-spreading approaches for smallholders
- Spatial planning for commercial agriculture

Demanded by the marketplace:

- Eco-standards, public & private procurement rules
- Farm units targeted for ecosystem management incentives

Driven by policies, programs, or public investments:

- Agriculture in NAMAs and NAPAs
- Donor-led programs, environmental and aid NGOs

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THANK YOU!

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