

Defining Integrated Landscape Management for Policy Makers

Integrated landscape management (ILM) is an increasingly popular approach to addressing development, climate change, food security and a host of other global issues. But what does it mean to take a landscape approach? Can we ensure policymakers and institutions aren't simply putting a new label on old ideas? By clearly defining key concepts while recognizing the diversity of perspectives we hope to ground ILM in a common foundation, so that conversations about landscape management are clear, productive, and support real innovation.

Everyone's talking about landscapes

Even five years ago the term 'landscape' was rarely used within the agricultural and rural development communities. Today, the term, and the management and policy approaches underlying it, are beginning to gain prominence as the limits of narrowly sectoral approaches become more apparent in our interconnected, crowded, resource-constrained and climate-chaotic world. A broad cross-section of influential organizations from the World Bank to the Rome-based agriculture and food security agencies, as well as some agribusinesses, have begun to incorporate integrated landscape management (ILM) into their investments and visions for the future. Many national governments are recognizing the importance of integrated landscape management for long-term economic, social and ecological sustainability. During the annual conference of parties of the UN Framework Convention on Climate Change Conference of Parties (COP19) in 2013, the agriculture and forestry communities united formerly distinct day-long events into the two-day Global Landscapes Forum. As momentum builds for landscape thinking, planning and management, clearly articulating core landscape terms and concepts is necessary to advance communication and understanding.

Landscape approaches to resource management are not new. For much of human history since the rise of agriculture¹, many rural communities have managed land at a landscape scale. That is to

say, their management of land and resources for agriculture, grazing, forest production, water and all other uses were closely interconnected. However, as modern agriculture developed, both farmers and policymakers focused largely on the farm, seeking mainly to maximize its productivity without regard for impacts on or from-surrounding land uses. While landscape approaches have been applied for several decades in forestry, watershed and biodiversity management, their focus has been outside main agricultural production areas. In Europe, multifunctional landscapes have been widely appreciated, but more for their cultural heritage and biodiversity values.² With the growing dominance of agriculture among land uses, particularly in the developing world³, a pressing challenge of landscape management is to link agricultural practices, institutions and policies with other landscape activities.

The rise of landscape terminology and action

Over the past decade, a variety of frameworks and terms have developed to describe a vision for the integration of agricultural, environmental and rural livelihood outcomes. Field-level innovations began to be implemented at landscape scale, while conservation-oriented landscape approaches began to incorporate production elements more systematically.

Each approach emphasizes different features and entry points. For example, some water-oriented efforts are called participatory watershed management⁴; biodiversity-focused efforts are biological corridors⁵; farmer-led collaborative action to restore degraded lands and waters prompted the Landcare⁶ movement. Proponents of technological innovation around agroforestry, agroecology, permaculture, and organic agriculture have begun advancing their work at a landscape scale. Strategies to link climate change, agriculture, and development goals have prompted concepts such as climate-smart agriculture⁷ and the green agricultural economy⁸.

Over time, as traditionally sector-focused communities of practice gain experience implementing action on the ground, many are

building on their original concepts to embrace integrated approaches to landscape management. There is increasingly a convergence of landscape actors and action strategies on the ground that recognize the value of supporting the multiple benefits provided by a landscape – food, rural livelihoods and well-being, energy, fiber and building materials, medicines, ecosystem services and biodiversity. The box on page 4 lists 80 different terms in English (or used by English speakers) that in current usage sometimes or always refer to integrated landscape management. Table 1 lists just a few of the communities of practice and initiatives that have arisen.

All of these approaches have begun to converge around what is increasingly referred to as ‘integrated landscape management.’ This term was endorsed in March 2012 by an international group of 150 ILM champions who met in Kenya at the Nairobi International Forum of the Landscapes for People, Food and Nature Initiative.⁹ They came from several dozen communities of practice, and sometimes took quite disparate views on the specifics, but agreed that their activities were indeed ‘a kind of ILM’.

The terminology challenge

The rise of these approaches and terms reflects the enormous innovation and creativity underway to integrate the management of food systems and ecosystems to meet the full range of growing demands on the world’s land and resources. However, as various communities of practices have moved forward independently, collaboration and knowledge exchange has often been difficult. People are talking about the same thing without realizing it. This can lead to

‘Ecoagriculture’ as an example term

The word *ecoagriculture* was coined by Jeff McNeely and Sara J. Scherr in the report *Common Ground, Common Future* (2001), which laid the foundations for an integrated approach to landscape management that seeks simultaneously to enhance human livelihoods and well-being, improve agricultural production, and conserve biodiversity and ecosystem health. A table in their 2003 book *Ecoagriculture* clarified the meaning of the term relative to the closest related terms at the time. Most of these terms referred either to sustainable approaches to farm management or to ecosystem or forest management practices on non-farmed lands. By contrast, *ecoagriculture* focused on landscape-scale sustainable, multi-functional management where agricultural production is an important land use or economic activity. While this was not a new concept in practice—many diverse examples were highlighted in the 2003 book—at that time, there was relatively little policy, investment, or research focused on such systems. *EcoAgriculture Partners* was established to study and promote these integrated approaches.

Table 1. Implementing Integrated Landscape Management

Selected International Networks and Initiatives

African Heartlands
Central American Strategy for Territorial Development (ECADERT)
Global Partnership for Forest and Landscape Restoration
Globally Important Agricultural Heritage Sites (GIAHS)
International Model Forest Network
International Partnership for Satoyama Initiative (IPSI)
Landcare International
TerrAfrica - Sustainable Land Management

fragmentation of knowledge, unnecessary re-invention of ideas and practices, and inability to mobilize action at scale. For policymakers, this rich diversity is often simply overwhelming: they receive confusing messages as to what an enabling policy environment to address the full set of landscape values would look like. The following section attempts to clarify the shared elements of integrated landscape management in hopes that this will facilitate collaboration and collective action.

Defining Integrated Landscape Management

Landscape as socio-ecological mosaic

A ‘landscape’ is a socio-ecological system that consists of a mosaic of natural and/or human-modified ecosystems, with a characteristic configuration of topography, vegetation, land use, and settlements that is influenced by the ecological, historical, economic and cultural processes and activities of the area. The mix of land cover and use types (landscape composition) usually includes agricultural lands, native vegetation, and human dwellings, villages and/or urban areas. The spatial arrangement of different land uses and cover types (landscape structure) and the norms and modalities of its governance contribute to the character of a landscape.

Depending on the management objectives of the stakeholders, landscape boundaries may be discrete or fuzzy, and may correspond to watershed boundaries, distinct land features, and/or jurisdictional boundaries, or cross-cut such demarcations. Because of this broad range of factors a landscape may encompass areas from hundreds to tens of thousands of square kilometers.

Integrated landscape management as long-term collaborative process

‘Integrated landscape management’ refers to long-term collaboration among different groups of land managers and stakeholders to achieve the multiple objectives required from the landscape. These typically include agricultural production, provision of ecosystem

services (such as water flow regulation and quality, pollination, climate change mitigation and adaptation, cultural values); protection of biodiversity, landscape beauty, identity and recreation value; and local livelihoods, human health and well-being. Stakeholders seek to solve shared problems or capitalize on new opportunities that reduce trade-offs and strengthen synergies among different landscape objectives. Because landscapes are coupled socio-ecological systems, complexity and change are inherent properties that require management.

As described above, there are many different approaches to integrated landscape management, with different entry points, processes and institutional arrangements, but most share features of broad stakeholder participation, negotiation around objectives and strategies, and adaptive management based on shared learning.

Putting integrated landscape management into practice

There is an important distinction between operating in a landscape or at a landscape scale, and doing so in a way that simultaneously meets multiple objectives for landscape management. Over the past decade, EcoAgriculture Partners has focused on the challenges of transitioning to a landscape approach that fully incorporates agricultural production and food security.⁴⁰ Based on this experience, we have begun to systematize how the concept is put into practice. So far, we have identified five critical elements for integrated landscape management, particularly where agriculture is an important land use.

Shared or agreed management for multiple objectives

There is an element of intentionality in landscapes that are managed to achieve the full range of goods and services, including food, fiber, and fuel production, livelihoods, and other ecosystem services. As such, landscape goals must be negotiated among and built on the experience, knowledge, and aspirations of those with a stake in the

landscape—farmers and their communities, businesses, civil society and government agencies. Defining near-term, accessible targets can initiate the process of multi-stakeholder collaboration, and allows for shared learning that builds the confidence and trust needed to tackle longer-term and more complex issues.

Field practices provide multiple benefits

Field, farm and forest practices are designed to contribute to multiple objectives, including human well-being, food and fiber production, climate change mitigation, and conservation of biodiversity and ecosystem services. Ecosystem-friendly and socially-appropriate production systems and practices are the building blocks for integrated landscape management. Sustainable practices at the farm/field level—such as tillage regimes, input application, crop rotations, agroforestry, harvesting methods, and animal management—confer multiple environmental and social benefits. They protect wild habitats, sustain land quality, efficiently use water and energy, and minimize pollution from nutrients, pest control, and waste.

Spatial arrangement of landscape features designed to maximize synergies

Ecological, social, and economic interactions among different parts of the landscape are managed to realize positive synergies among interests and actors or to mitigate negative trade-offs. Sustainable farming practices by themselves cannot provide the full complement of societal benefits expected from rural landscapes such as clean water, forest products, and climate regulation. Resource use efficiencies must be achieved not only at plot and farm level, but across entire landscapes. The composition and spatial arrangement of landscape features—such as the location of native vegetation patches within a surrounding production landscape matrix— influence the flow of goods and services, maintaining pollination or reducing downstream impacts of nutrient runoff into waterways. Heterogeneous landscapes harbor a variety of habitats and genetic resources that can reduce risks of losses to production and livelihood. Thus it



This multifunctional landscape in Costa Rica, the Volcanica Central Talamanca Biological Corridor (VCTBC), provides most of Costa Rica's vegetables, is home to hundreds of bird species, and produces 40% of the country's electricity. Photo credit : Fabrice DeClerck, Bioversity International.

Terms that refer to integrated landscape management

These terms are used by English-speakers sometimes or always to refer to types of land and resource management that integrate food security, agriculture, ecosystem, human well-being and other values at a landscape scale, though with different 'entry points'.

Ahu'pua'a" (original Hawaiian)	Ecological agriculture	Integrated management of territory	Satoyama landscape (original Japanese)
A permanent agriculture	Eco-farming	Integrated natural resource management	Smart landscape
Agricultural landscape mosaic	Ecofunctional intensification in agriculture	Integrated rural development	Socioecological landscape
Agricultural watershed management	Econutrition	Integrated sustainable solutions from the land	Sustainable agricultural land management
Agroecology	Ecoregional planning	Integrated territorial development	Sustainable agriculture
Agroforestry landscape	Ecosystem approach to agriculture	Integrated water resource management	Sustainable agri-culture
Agroecological landscape	Eco-territorial development	Integrated watershed management	Sustainable agriculture landscape
Biocultural landscape	Evergreen agriculture	Intelligent landscapes	Sustainable farming system
Biodiverse agricultural landscape	Evergreen revolution	Joined-together landscapes	Sustainable intensification
Biological corridor	Farming with nature	Landcare	Sustainable production landscape
Bioregional planning	Food sovereignty	Landscape restoration	Sustainable urban landscape
Climate-smart agricultural landscape	Forest farming	Living landscapes	Sustainable working landscape
Climate-smart territory	Forest management for food security	Model forest development	Systems approach to rural development
Commodity landscape	Forest landscape restoration	Multifunctional agriculture	Territorial development
Community-based agriculture and natural resource management	Green agricultural growth	Multifunctional agroecological landscape	Territorial management planning
Conservation agriculture	Green infrastructure	Multifunctional agroecosystem	Terroire (original French)
Diversified farming system	Greening agro-industrial corridor	Multifunctional landscape	Transboundary landscape approach
Doubly green revolution	Holistic land management	Organic agriculture	Transboundary ecosystem management approach
Ecoagriculture	Indigenous territorial development	Permaculture landscape	Urban eco-foodshed
Ecoagriculture landscape	Integrated agricultural landscape	Resilient biocultural landscape	Whole landscape approach



Many traditional rice paddy systems in southeast Asia are managed as integrated landscapes. Photo credit: Lee Gross, EcoAgriculture Partners

is important to actively monitor integrated metrics of not only biophysical factors such as carbon storage, water quantity and quality, and other ecosystem services, but also socioeconomic and cultural variables that can reduce conflict and encourage continued stakeholder engagement.

Collaborative community decision-making and action

Collaborative, community-engaged processes for dialogue, planning, negotiating and monitoring decisions and actions are in place. Involving all relevant stakeholders and actors who play a role in land management and planning processes over the long-term is a core principle of integrated landscape management. These collaborative actions often can address challenges and opportunities that one group alone could not, and confront head-on competing motivations for land development, wildlife conservation, and food production. Stakeholders in different sectors and at different scales must work together to coordinate action, align goals, or reduce tradeoffs, recognizing legitimate local, regional, national, and business interests. Therefore, improved methods and platforms for communication, negotiation, planning, and conflict management are essential. Involving multiple stakeholder groups also expands the network of partners able to share knowledge, offer technical assistance and professional training, and invest to develop and effectively implement successful landscape initiatives.

Policies and markets incentivize synergies

Markets and public policies are shaped to achieve the diverse set of landscape objectives and institutional requirements to support synergies and reduce tradeoffs. Decentralized governance is critical so that local stakeholders have control over key planning decisions and can incorporate local needs and priorities. With secure land rights and control of resources in the hands of local institutions and individuals, land managers have the incentive to invest time and money to transition management practices, particularly those that only yield benefits after a number of years. Cooperation between various government agencies (e.g. agriculture, health, and environment

ministries) at all scales is necessary to align sectoral policies, programs and regulations. Market systems and incentives for producers support sustainable production and sourcing in critical parts of the landscape. Investment priorities, financing and business sourcing policies and standards reflect landscape goals.

Common cause between diverse systems

Agreement on a single ‘best’ approach to integrated landscape management is neither likely nor desirable. These are still early days in the process of re-inventing (or re-discovering) productive, resilient, and equitable food and land management systems for the 21st century. Diverse, innovative approaches will be spurred by local needs and priorities. More rigorous assessment will help determine which approaches work best where.

Nonetheless, the threads unifying these approaches seem to be increasing, and the myriad communities of practice can profitably build from one another’s experiences. It should be helpful to recognize that all of the communities of practice reflected in the table on the previous page are part of a family of concepts for integrated landscape management. Through the Landscapes for People, Food and Nature Initiative, many groups are coming together to collaborate on strategies and tools to support more widespread implementation of ILM. Efforts like these to bring diverse actors together will be critical to improving communication, innovation and ultimately successful landscape management throughout the world.

The Five Elements of Integrated Landscape Management

1. Shared or agreed management objectives that encompass multiple benefits (the full range of goods and services needed) from the landscape
2. Field, farm and forest practices are designed to contribute to multiple objectives, including human well-being, food and fiber production, climate change mitigation, and conservation of biodiversity and ecosystem services
3. Ecological, social, and economic interactions among different parts of the landscape are managed to realize positive synergies among interests and actors or to mitigate negative trade-offs
4. Collaborative, community-engaged processes for dialogue, planning, negotiating and monitoring decisions are in place
5. Markets and public policies are shaped to achieve the diverse set of landscape objectives and institutional requirements

Endnotes

- 1 We use the FAO definition of 'agriculture' to include annual and perennial crop, livestock, and forest production.
- 2 The European Landscape Convention was adopted in October 2000 by the Council of Europe: "As a reflection of European identity and diversity, . . . our living natural and cultural heritage". http://www.coe.int/t/dg4/cultureheritage/heritage/Landscape/default_en.asp
- 3 An estimated 38 percent of global ice-free land area is occupied by agriculture, with a much larger area impacted by agricultural land uses. <http://sustainabledevelopment.un.org/content/documents/1124landuse.pdf>
- 4 see: www.fao.org/sd/ruralradio/common/ecg/24516_en_factsheet7_1.pdf
- 5 see: eearth.org/article/Biological_corridor?topic=58074
- 6 see: www.landcareinternational.net/
- 7 see: www.climatesmartagriculture.org
- 8 see: www.farmingfirst.org/green-economy/
- 9 see: landscapes.ecoagriculture.org
- 10 see: www.ecoagriculture.org

Further Reading

- Landscapes for People, Food and Nature Initiative [LPFN]. 2012.** Landscapes for People, Food and Nature: The Vision, the Evidence, and Next Steps. Washington, DC: EcoAgriculture Partners.
- McNeely, J. and S.J. Scherr. 2001.** Common ground, common future : how ecoagriculture can help feed the world and save wild biodiversity. Washington, DC: Future Harvest and IUCN.
- McNeely, J. and S.J. Scherr. 2003.** Ecoagriculture: Strategies to Feed the World and Save Wild Biodiversity. Washington, DC: Island Press.
- Milder, J.C., L.E. Buck, F.A.J DeClerck, and S.J. Scherr. 2012.** Landscape approaches to achieving food production, natural resource conservation, and the millennium development goals. In: Ingram, Jane Carter; DeClerck, Fabrice; Rumbaitis del Rio, Cristina (Eds.). Integrating Ecology and Poverty Reduction, p.77-108. Springer.
- Sayer, J., T. Sunderland, J. Ghazoul, J. Pfund, D. Sheil, E. Meijaard, M. Venter, A.K. Boedhihartono, M. Day, C. Garcia, C. van Oosten, and L.E. Buck. 2013.** Ten principles for a landscape approach to reconciling agriculture, conservation, and other competing land uses. PNAS 110(21): 8349-8356.
- Scherr, S.J., L.E. Buck, J.C. Milder, and L.W. Willemen. 2013 forthcoming.** Ecoagriculture: Integrated landscape management for people, food and nature. In: van Alfen, Neal (ed). Encyclopedia of Agriculture and Food Security. New York: Elsevier.
- Scherr, S.J. and Shames, S. 2012.** What we call "Landscapes for People, Food and Nature". Landscapes for People, Food and Nature Initiative Blog. Available at: <http://blog.ecoagriculture.org/2012/03/05/terminology/>
- Scherr, S.J., Shames, S. and Friedman, R. 2012.** From Climate-Smart Agriculture to Climate-Smart Landscapes. Agriculture and Food Security 1(12).
- UNEP [United Nations Environment Programme]. 2012.** Avoiding Future Famines: Strengthening the Ecological Foundation of Food Security through Sustainable Food Systems. Nairobi: UNEP.
- World Bank. 2012.** Landscapes – FAQ. Rio+20: A Framework for Action for Sustainable Development. Washington, DC: World Bank Group.

Authors

Sara J. Scherr, Seth Shames and Rachel Friedman, EcoAgriculture Partners.

Support

We appreciate the financial support provided for this work by the Hitz Family Foundation.

Ecoagriculture Policy Focus Series

The Policy Focus series, produced by EcoAgriculture Partners, highlights issues relevant to policy experts and decision makers in the fields of agriculture, conservation and rural development to promote integrative solutions.