



Food and Agriculture
Organization of the
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Incentives for Ecosystem Services: Supporting the transition to Sustainable Food Systems

To produce food into the future, we will increasingly need to adopt sustainable practices that lead to healthier agro-ecosystems. Part of this shift will require us to better protect the ecosystem services that make production systems resilient, protect rural livelihoods and ensure food security.

Ecosystem services underpin many production systems. For example, 75% of food crops worldwide depend, at least to some extent, on animal pollination. Yet markets rarely value them sufficiently; the environmental impacts of food production are rarely factored into prices. Ecosystem services are seen as free and continuous, rather than essential components of production systems that could cease if not properly managed.

The protection and enhancement of ecosystem services in agricultural landscapes requires farmers, foresters, fisher folk and livestock herders to switch to sustainable practices. But adopting new practices usually requires additional efforts or inputs, such as up-front financing, land and labour during their establishment, or new seeds and technology. It may also introduce risks, such as poor early performance of the new approach or higher labour and maintenance costs.

Food producers may have limited time and capital to overcome these technical and financial barriers. There may also be cultural reasons that discourage changing approach; for example, in some countries, a field with no vegetation is seen as well-tended.

As a result, producers often need an immediate reason or motivation to shift to new practices. **Incentives for Ecosystem Services** seeks to address this and ensure that producers remain stewards and become beneficiaries of better agro-ecosystems – managing their lands in ways that protect and enhance ecosystem services for all.



“We need to adopt a vision of sustainable agriculture that provides not only food supplies, but also ecosystem services and climate resilience”

FAO's Director-General, José Graziano da Silva



How Incentives for Ecosystem Services work

A mixture of different measures is needed to maximize the adoption of sustainable practices and address diverse needs. As a result, FAO promotes packages of Incentives for Ecosystem Services (IES), which support farmers and others in the adoption of practices that protect the environment and ensure long-term food security.

Packages can comprise both existing incentives (such as Payments for Ecosystem Services) and other public and private measures that support conservation, restoration, sustainable productivity enhancements and livelihood diversification. This mix brings about a new balance: environmental measures are no longer in competition with production, but rather form the basis for long-term food security. By packaging a range of incentives together, farmers and other land stewards are able to address the full range of challenges facing an ecosystem (Box 1).

What are ecosystem services?

Ecosystem services – including biodiversity, carbon, soils, water and landscapes – are essential to all life on our planet. They provide us with many goods and services, such as raw materials, fresh water, healthy soils, pollination and the regulation of pests and diseases.

Yet for too long, these services have not been valued or protected. For example, sustainable agriculture and forest protection together could deliver US\$2tn each year in economic benefits. Often, this neglect has disastrous consequences.

- Humans – specifically their vast and growing consumption of food and resources – have wiped out 60% of animal populations since 1970; this is an average, so the situation for some species and populations is far worse.
- Insect abundance has fallen by 75% over the last 27 years, as industrialized farming has seen pesticides and insecticides poured over the land, year after year.

We urgently need to adopt sustainable approaches that protect and enhance these services. Sustainable practices in agricultural landscapes include:

- soil conservation measures such as grass strips along contour lines
- water retention structures such as rainwater-harvesting ponds
- biological methods to control pests and diseases, such as integrated pest management.

Box 1. From deforestation to organic coffee: how Incentives for Ecosystem Services work in practice

The Alto Mayo forest reserve in the Peruvian Amazon was established to protect endemic species and maintain the water supply to Moyobamba city. But it was threatened by encroachment from farmers and loggers, and lacked the resources needed to manage the area effectively.

In 2007, Conservation International and SERNAMP began developing sustainable land management agreements with local communities. These included voluntary commitments to conserve the remaining forest by improving shade-coffee production with native trees and fruit trees, and/or developing other income-generating activities compatible with forest conservation, such as orchid production and bird watching.

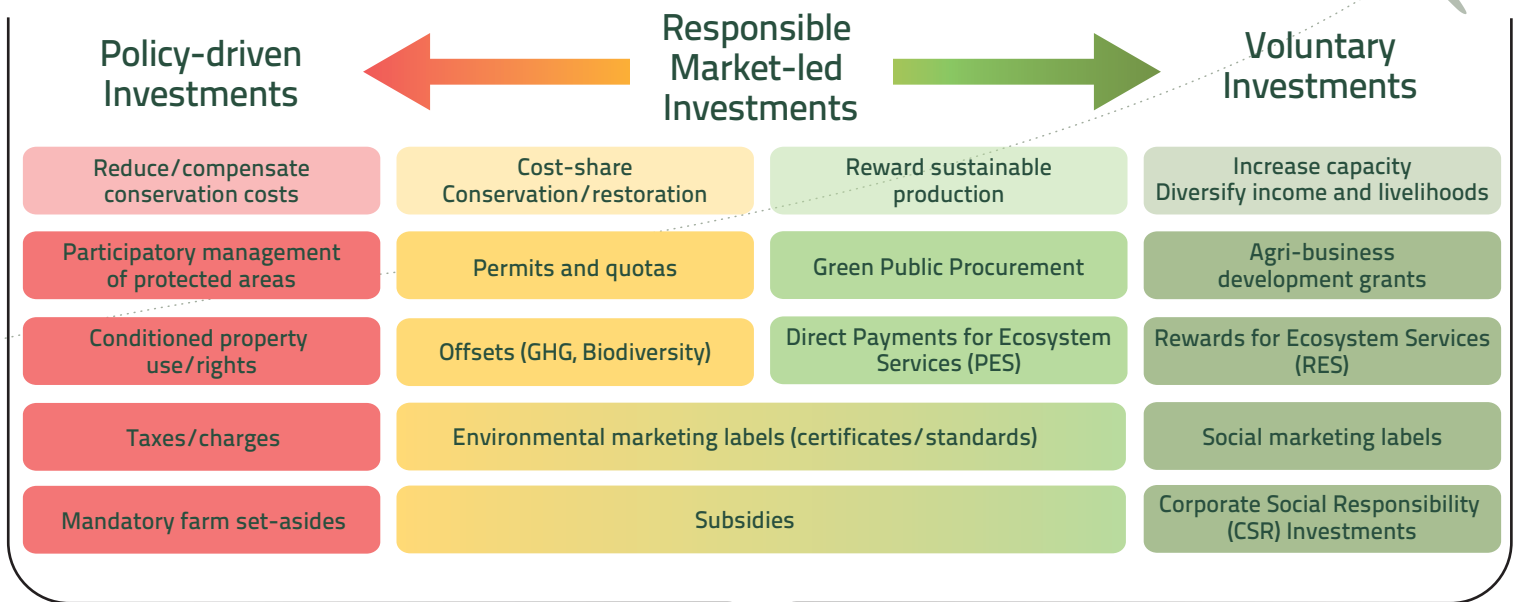


Types of incentive

A variety of actors can offer incentives for making this transition to sustainable agriculture (Figure 1). In response to the call from the Convention on Biological Diversity to blend private and public sector approaches, these range from policy-driven investments that fulfil mandatory regulations (e.g. taxes, user charges) to private, market-driven strategies that reduce production costs (e.g. water quality programmes). Other instruments focus on opening up access to new markets (e.g. certificates and standards), while voluntary investments can provide social and livelihood benefits (e.g. corporate social responsibility programmes).

These incentives are often applied in isolation but, if packaged together under an IES approach, they can increase policy coherence and align investments, leading to greater support for the sustainable management of agro-ecosystems. Combining incentives from private, public and civil society sources can also be mutually reinforcing, creating a greater overall larger impact to support a common goal.

Figure 1. The spectrum of incentives to improve productivity and enhance ecosystem services



Convention on Biological Diversity

Responding to CBD COP 13 Decision #3; 32 Biodiversity Mainstreaming in Agriculture through a mix of regulatory and incentive measures

Incentives in these agreements include, among others, technological packages (e.g. coffee seeds of varieties resistance to disease, materials to produce organic compost) and equipment to recover old coffee plantations. These activities were packaged as a REDD+ project, and Disney's Climate Solutions Fund purchased the carbon benefits of this avoided deforestation, investing US\$4m until 2028.

This is supporting farmers to switch to more sustainable and higher-value coffee production methods. They have become certified as organic and fair trade, and have started exporting to the EU and the USA. The reserve hosts the first organic coffee cooperative within a protected area, and the improved production capacity and access to services is reducing the pressure to convert forest to coffee production.



Table 1. How types of incentives for ecosystem services can be packaged together

Regulations		Incentives
<ul style="list-style-type: none"> ▪ Land tenure, including indigenous and traditional territories ▪ Land use planning considering economic, ecological and social goals 	Combined with	<ul style="list-style-type: none"> ▪ A land-tax system that rewards sustainable use and discourages harmful environmental practices ▪ Tax incentives for: <ul style="list-style-type: none"> - the rehabilitation of degraded areas - protecting soil and water resources - marketing agro-environmental products ▪ Environmental certification mechanisms
<ul style="list-style-type: none"> ▪ Eliminate tax incentives for practices that do not comply with agro-environmental principles 		<ul style="list-style-type: none"> ▪ Improved credit lines, conditional on adopting agro-environmental principles ▪ Increased levels of agro-environmental products in government procurement ▪ Encourage local markets for agro-environmental products
<ul style="list-style-type: none"> ▪ Research into production systems and sustainable use ▪ Improved environmental licensing systems, along with enforcement measures 		<ul style="list-style-type: none"> ▪ Intensified campaigns about food education ▪ Measures to promote the organization of agro-industries and the economic organization of producers (e.g. associations and cooperatives) ▪ Public programmes of technical assistance

The role of the private sector

While many sustainable agricultural practices offer long-term productivity gains and other economic benefits, the initial investment costs – such as training, equipment and clarifying use rights – often stop smallholders from making the shift. The private sector can be a major player here, for example providing new sources of initial funding and helping to create markets for environmentally sustainable goods in the longer term.

There are many reasons for companies to get involved. Responsible investments in sustainable practices are good for business: they can help to guarantee long-term quality and quantity of production along supply chains; reduce environmental and social impacts and risks that threaten their supply chains; and improve a company's reputation.

Ultimately, however, sustainable agricultural practices must be competitive: private sector investment will often depend on expected returns of investment and the amount of risk that companies are willing to accept. This can be supported through a strong enabling environment, which the IES approach helps to foster. Policies can be aligned that enable different institutions to cooperate and engage more with the private sector. Building a supportive and collaborative institutional framework can help to coordinate investments from private, public and civic sources, which can mitigate risk and ensure that incentives reach the target beneficiaries. It can also bring about co-benefits through mutually reinforcing incentive measures and avoid undermining investments.





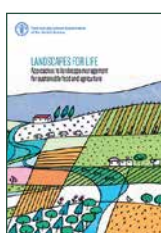
Private sector commitment to watershed management in Lake Naivasha

Lake Naivasha in Kenya provides water for agricultural irrigation, freshwater for the towns of Nakuru and Naivasha, and supports the local tourism and recreation industry. Many people also rely on this natural resource for their livelihoods, including over 50 large-scale horticultural farms (which mainly export their produce) and over 30,000 smallholder farms (mainly for subsistence and local markets).

After a serious drought in 2009, horticultural production declined due to irregular water quantities. In response, the Lake Naivasha Water User Association (LANAWRUA) collaborated with WWF and private sector actors (e.g. international supermarket chains and local horticulture enterprises) to provide important incentives for soil and water conservation to upstream farmers. These included training and material for creating terraces, grass strips and tree nurseries, among other environmental measures.

These private sector investments complemented existing public and civil society programmes, leading to improvements in the efficiency of livestock and pasture management, the provision of drought-tolerant crop varieties (e.g. banana, rice and cassava) and training in alternative livelihoods such as bee-keeping. While modest in scale, this agreement has already begun to reduce soil erosion on farms upstream, and improve communication between the communities living above the lake and the businesses along its margins.

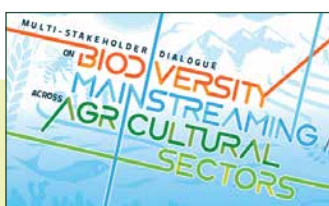
Further information and resources



Landscapes for Life: Approaches to Landscape Management for Sustainable Food and Agriculture. FAO (2017) Available at: www.fao.org/3/i8324en/i8324en.pdf



Transforming Food and Agriculture to Achieve the SDGs: 20 interconnected actions to guide decision-makers. Technical Reference Document. FAO (2018) Available at: www.fao.org/3/CA1647EN/ca1647en.pdf



Multi-stakeholder Dialogue on Biodiversity Mainstreaming Across Agriculture Sectors:

www.fao.org/about/meetings/multi-stakeholder-dialogue-on-biodiversity/about-the-platform/en/



How FAO promotes Incentives for Ecosystem Services

FAO supports the development of efficient IES packages for sustainable agro-ecosystem management practices in a number of ways. For example, we:

- map the existing incentives available, from policy-driven programmes linked to conservation priorities to private investments linked to sustainable market alternatives
- support policy dialogue at the country level to improve institutional coordination in public programmes, and facilitate compatible and responsible private sector investment
- conduct case study analyses to identify and describe the conditions behind successful IES packages: this helps with understanding farmers' and others' motivations, private sector commitments, and the enabling legal and institutional frameworks that allow IES packages to work
- provide a web toolkit to guide decision-makers and practitioners looking to successfully implement IES
- Identify and analyse situations where IES could be applied successfully
- organize forums and dialogues on IES packages to provide global, regional and national-level opportunities for cross-fertilization between geographies, and the development of locally adapted IES packages and policies
- support focus countries to develop an enabling policy framework for IES, one that facilitates their transition towards a more sustainable agricultural sector, including the removal or mitigation of perverse incentives and improvements to the design of regulations.

FAO can provide assistance with fundraising. For example, the latest GEF funding cycle is now open and, as the implementing arm of the CBD, it has biodiversity mainstreaming goals that are consistent with the IES approach, such as 'Improving and changing production practices to be more biodiversity-positive' and 'Developing policy and regulatory frameworks that remove perverse subsidies and provide incentives for biodiversity-positive land and resource use that remains productive but that does not degrade biodiversity.'

An initiative
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For more visit our project website at <http://www.fao.org/in-action/incentives-for-ecosystem-services/en/>
or contact us at IES-info@fao.org