



PAYMENTS FOR ECOSYSTEM SERVICES

DID YOU KNOW?

ENVIRONMENT



Healthy ecosystems provide a variety of vital goods and services that contribute directly or indirectly to human well-being. The food and agriculture sector provides multiple ecosystem services, including:

- Provisioning services such as food and energy resources;
- Regulating services vital to healthy ecosystems;
- Cultural services such as traditional land use, landscapes and recreation;
- Supporting services such as soil formation and nutrient recycling.

ECONOMY



These ecosystems services have an immense but under-estimated economic value, estimated to USD 16-54 trillion in 1997:

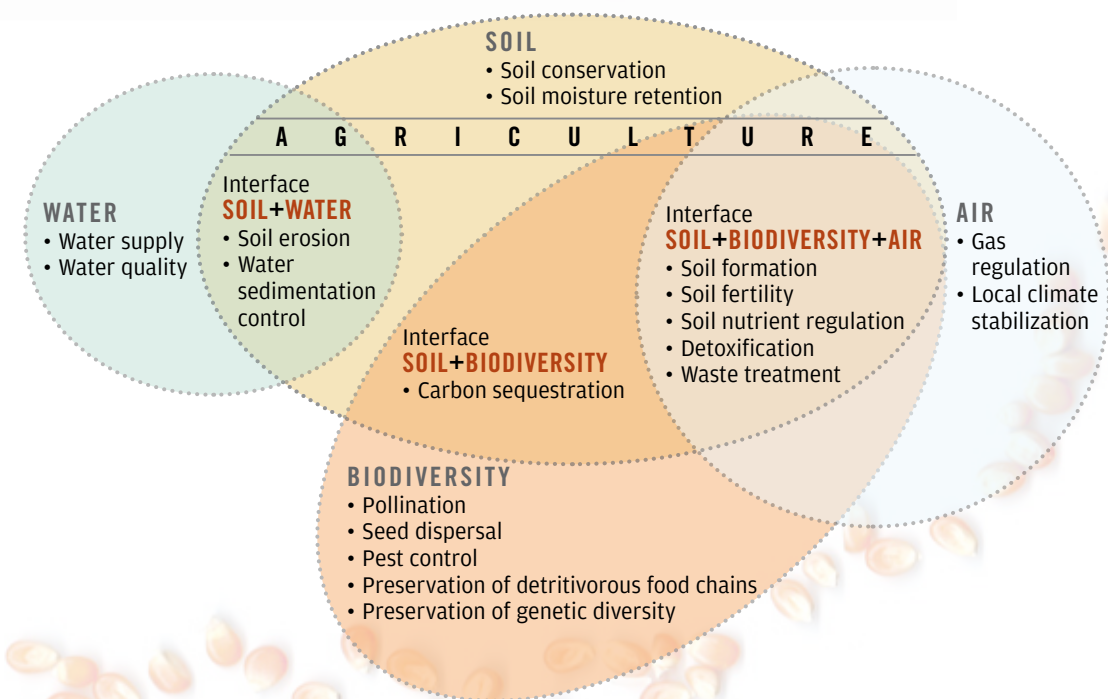
- USD 200 billion, or 9.5 percent of world agricultural output in 2005, is generated by insect pollination.
- USD 3.7 trillion of climate-induced damage could be avoided by halving deforestation rates by 2030.
- USD 50 billion is lost annually from global income derived from marine fisheries, compared to a more sustainable fishing, due to fish stocks over-exploitation.
- 47 to 89 percent of the total sources of livelihoods of rural and poor forest-dwellers in some large developing countries come from ecosystem services and other non-marketed natural goods.

SOCIAL



Greener landscapes and green purchasing choices are increasingly on demand by consumers and policy-makers, offering major business opportunities. The market size for organic products was already USD 60 billion in 2011.

SOME ECOSYSTEM SERVICES RENDERED BY AGRICULTURE





WHY DOES PES MATTER TO SUSTAINABILITY?

- Unsustainable land use caused irreversible biodiversity loss, affecting 15 of the 24 ecosystem services examined by the Millennium Ecosystem Assessment, with impacts on fresh water, capture fisheries, air and water purification, climate regulation, natural hazards and pest outbreaks.
- Understanding the full economic value of ecosystems and biodiversity to those who benefit from them can encourage investment in their protection and enhancement. Payments for Ecosystem Services (PES) value ecosystem services conservation and increase income generation in rural areas, food security and sustainable development.
- PES schemes can be found in all continents. Most PES schemes revolve around three groups of ecosystem services: water and soil-related services; climate stabilization; and biodiversity conservation. Although PES schemes may be focused on the enhancement of one ecosystem service, interventions have multiple benefits; reforestation may target carbon sequestration but it will also produce positive impacts on water quality and biodiversity. Thus, there is need to develop PES schemes that address bundled ecosystem services.

FROM PES TO RPE

PES benefits go hand-in-hand with decent livelihoods of those who manage ecosystem services. In order to effectively bridge the environment-development divide, the PES concept has been expanded to also include social benefits arising from agricultural production activities that are often not taken into account in economic transactions, such as rural employment, community cohesion and avoidance of rural migration. Rethinking PES with specific and additional investment in socio-economic co-benefits is defined as Remuneration of Positive Externalities (RPE). Therefore, RPE moves beyond environmental concerns in the strict sense in order to cover all sustainability dimensions.

A SIMPLIFIED REPRESENTATION OF A PES SCHEME

Payment, often through intermediaries, by a public or private entity for the provision of ecosystem services





HIGHLIGHT

PES IN THE RUVU WATERSHED OF THE ULUGURU MOUNTAINS, TANZANIA

The Uluguru Mountains are a range in eastern Tanzania that blocks the moisture coming from the Indian Ocean. Consequently, they are characterized by wet slopes with overall annual precipitation exceeding 2 000 mm. Rainfall is captured in a complex network of streams that join to form the Ruvu River, which supplies water to over four million people in Dar-es-Salaam and to the major industries of Tanzania. About 150 000 people live in the Uluguru Mountains in about 50 villages situated on the edge of the forested areas.

In 2007, a hydrological assessment by CARE-WWF revealed an overall decrease of water quality with a dramatic increase in sediment loading into the river and significant fluctuations in the annual volume flow of the river. As a consequence, downstream water treatments are needed due to high level of siltation and often downstream water supply needs to be rationed. The restoration of the Ruvu's hydrologic services is mainly linked to improved upstream land use management, which is strictly linked to poverty alleviation and livelihood improvements of the people inhabiting this region with a very high population density.

A joint CARE-WWF Programme promoted a PES scheme between the downstream buyers (the industrial Water Supply and Sewerage Corporation [DAWASCO] and Coca Cola Kwanza Ltd.) and the upstream sellers from various villages. Farmers received payment for the adoption of agricultural practices aimed at controlling runoff and soil erosion, while improving their crop production.

A combined approach has been implemented that includes structural (bench terraces and fanya terraces), vegetative (reforestation, agroforestry and grass strips) and agronomic measures (intercropping crops with fruit trees, mulching and fertilizing with animal manure) to limit runoff, combat soil erosion, and increase soil moisture and productivity. Payments are allocated according to how many hectares of land are converted and the type of agricultural and/or land-use practices adopted.





PRODUCERS

- Adopt farming practices that increase soil fertility, water retention, biodiversity and enhance carbon sequestration or any other ecosystem service.
- Estimate the ecosystem services you are able to provide and engage with potential buyers of these services through a PES/RPE scheme.
- Share knowledge with other producers' organizations and help each other in implementing PES schemes.

CONSUMERS

- Encourage the involvement of local and national governments in PES/RPE programmes.
- Convince your community to initiate PES/RPE schemes.
- Choose, where possible, food products coming from producers involved in PES/RPE schemes.

HOW CAN YOU HELP?

FOOD INDUSTRY

- Engage in PES/RPE schemes, discussing with providers the payment of specific ecosystem services, supporting involved producers or buying their products.
- Ask your suppliers to enhance ecosystems services on their farms.
- Label your products as part of PES/RPE programmes.

POLICY MAKERS

- Create economic incentives that encourage PES/RPE schemes, including environmental taxes and subsidies, transferable discharge permits and environmental labeling.
- Develop specific PES/RPE projects with farmers, foresters and/or fisher folks in their region, or their watershed.
- Provide incentives for the private sector to engage in PES/RPE schemes.

RESEARCH REQUIREMENTS

- Analyze on-going PES projects and programmes in order to identify difficulties and bottlenecks with a particular attention to pro-poor systems.
- Consolidate a methodology for Rapid Appraisal of PES/RPE Feasibility to identify opportunities to establish payment agreements, including on how to engage private-sector.
- Development of the EX-ACT Model (Ex-Ante Appraisal Carbon-balance Tool) as a tool for preparation of new PES/RPE projects.



As a contribution to sustainable agriculture and rural development, FAO has launched a project on Remuneration of Positive Externalities in order to expand PES schemes and establish the basis for informed decision-making by public and private actors on ecosystem services and food security.

For more details: www.fao.org/nr/sustainability/ecosystem-services