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## Conservation and farming must learn to live together

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*Agriculture and conservation are on collision course, and that has to change, says the UN Environment Programme director*

MILLIONS of people in Africa live in unremitting poverty and hunger. For the foreseeable future, the only way to alleviate their misery is through agricultural development. So it is heartening that the Food and Agriculture Organization and World Bank see great potential for expansion throughout the [Guinea Savannah Zone](#), an area larger than India that stretches across 25 countries from Senegal to Mozambique.

The prospect of development is to be welcomed, but its manner requires careful consideration to avoid threats to sustainability. For example, though Africa retains much of its biodiversity, certain trends are cause for concern. Agricultural expansion into sensitive areas could aggravate declines that are already taking place.



In balance? (Image: Andrzej Krauze)

The tension between agricultural development and conservation is not unique to Africa. Increased agricultural production is needed the world over. Between now and 2050, the global population is projected to grow from 6.9 billion to between 8.0 and 9.7 billion. Demand for cereal, oil and sugar crops is expected to double in this time as people consume more meat and calories, and governments set biofuel targets.

Meeting this demand will be challenging. Gains in yield are likely to be much harder to achieve than those during the green revolution of the 1960s, which was driven by large volumes of fertiliser and water. Higher yields will not be enough; large amounts of new agricultural land will also be required. Estimates of the extra land needed by 2050 relative to 2000 range from 6 to 17 million square kilometres. The higher figure equates to an area larger than Russia.

But land, water and fertilisers are already in short supply in many areas, and expansion of agricultural land will put further pressure on biodiversity, increase greenhouse gas emissions, and perhaps bring us closer to ecological tipping points that could strain the global life-support systems upon which agriculture itself depends.

New approaches are clearly needed if we are to address the needs of the billion people who go to bed hungry each night. Integrated action by conservation and agriculture is long overdue.

First and foremost we need a "new agriculture". The United Nations Environment Programme (UNEP), of which I am executive director, contends that for agriculture to meet our future needs sustainably, ecosystem services such as water provision, pollination and maintenance of soil fertility must be enhanced. At present, the value of these services is not built into the cost of food production. The result is that farmers are not rewarded for stewarding their land for future generations, and food production and distribution are often environmentally damaging.

We need to find ways to put a value on the full range of ecosystem services and implement monitoring and payment systems to reward those managing land sustainably - for example, by offering incentives for carbon sequestration or water catchment services. The environmental costs of production need to be factored into the price of goods and services.

It is not only agriculture that needs to change. A "new conservation" is also required that acknowledges the importance of agriculture.

Although agriculture sometimes leads to an increase in species richness, all too often it does the opposite. That is one reason why conservationists remain focused on establishing nature reserves and other protected areas. While these can be important, recent analyses have shown that they are not large or representative enough to encompass all threatened species. Moreover, protected areas are sometimes established at a cost to local people, which makes them socially and economically contentious.

Conservationists need to broaden their outlook and work with farmers, agricultural scientists and agribusiness to support the integration of biodiversity with agriculture. Together, conservationists and agriculturalists can move forwards.

There are signs of progress. In December 2010, the UN General Assembly created a body to do for biodiversity and ecosystem services what the IPCC does for the global climate. The [Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services](#) (IPBES) will be a forum to integrate agriculture and conservation knowledge, and translate it into policy.

On top of that, a huge international research project called [The Economics of Ecosystems and Biodiversity](#) is drawing attention to the economic benefits of ecosystem services and calculating the costs of biodiversity loss and ecosystem degradation. Thanks to TEEB, the multitrillion-dollar value of the world's nature-based assets is rapidly being made clear.

If we are to have any chance of handing on a healthy, productive planet upon which more than 8 billion of us can survive and thrive, agriculturalists and conservationists must reconcile their differences.

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