

# AFRICA'S RISKY GAMBLE

Well-managed plantations in Africa may, in principle, help mitigate the effects of a changing climate, both by boosting economies and providing alternative fuels. But as **Cheikh Mbow** points out, both the science and the politics underlying such an endeavour deserve closer scrutiny.

As Earth's climate continues to change, it is likely that the developing nations – many of which are in Africa – will bear the brunt of the consequences. Agricultural productivity, for example, could be affected substantially, putting the food security of such nations in jeopardy. At the same time, by participating in strategies to mitigate the effects of climate change, for example by contributing land to plantations that act as carbon sinks as well as biofuel sources, developing nations could earn much-needed ecosystem services or cash and contribute to the solution. Several African countries have large tracts of cultivable land, something that is

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at a premium in most developed nations. Millions of hectares of such land are now being leased on a long-term basis by nations as well as private corporations outside Africa. Ostensibly, this phenomenon could be viewed as a “new deal” being offered to the African continent: the cash from the leases could benefit local economies, whereas the plantations themselves will help sequester carbon or contribute to alternative energy. A closer look, however, reveals several potential problems with this perspective. The new deal could very well prove to be a risky gamble.

Africa has large “unused” lands and cheap labour, compared with emerging

economies (such as China and India) and oil-producing countries. As Figure 1 shows, the potential area for rainfed crops in Africa far exceeds the current area of arable land. A survey of studies cited in Cotula *et al.* (2009) suggests that the majority of the world's reserve agricultural land is in Africa and South America. Africa has thus become an attractive destination for the land-leasing business. In fact, some African countries – Egypt and Libya, for example – are themselves engaged in leasing land from other countries on the continent.

Of course, what constitutes available land is debatable; some of the land thus characterised may be used intermittently for grazing and shifting cultivation (Cotula *et al.*, 2009). The claims of vast tracts of available land in Africa may in some cases be exaggerated.

Although foreign corporations have been growing crops on African land for many years, what appears to be different today is the scale of the land rental business. A compilation from various sources (Table 1) suggests that Africa has leased at least 20 million hectares of its productive land during the past five years. Recently Ethiopia put 180,625 hectares of land on the rental market.

## The carbon dimension

Given the amount of potential arable land in Africa (Figure 1), it is worth exploring the extent to which plantations could serve to sequester carbon, and thereby provide economic benefits to the continent's people. Recent work shows that dryland forests can sequester as much carbon as their counterparts in wetter regions (see page 7 of this issue); countries throughout Africa (and not just those in the tropics) could therefore undertake afforestation measures. Such

activities can be carried out under the auspices of the Clean Development Mechanism (CDM), which allows industrialised nations to buy credits from developing nations that engage in activities that help offset emissions.

However, a recent analysis (Mbow 2009) suggests that even when the best price of carbon in the international market is considered, an individual three-decade-old tree from a savannah ecosystem would be worth only four USD. This is far less than the value that would accrue from the services – firewood, fruits and medicines – that the tree could provide to its local population. But unless the monetary incentives to use African land for carbon sequestration are substantial

and stable, it is difficult to see how local populations can be encouraged to invest in plantations and sustainable land-use. Indeed, there is little evidence for land acquisitions overtly motivated by the carbon market (Cotula *et al.*, 2009).

Many nations are contemplating a shift towards biofuels, a trend that has as much to do with securing long-term supplies of fuel as it has to do with reducing greenhouse-gas emissions. The European Union, for example, has set itself a target of using 10 percent biofuels by 2020. Such fuels can be produced from several plants, including maize, oil palm (*Elaeis guineensis*) and *Jatropha curcas* seeds. Although it is generally agreed that large areas of land will be required to satisfy the global

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biofuel demand, the estimates vary substantially.

Based on the projected growth of biofuels until 2030, the International Energy Agency (IEA 2006) estimates that over 30 million of hectares of land will be needed. But calculations by Field *et al.* (2008) suggest that achieving even modest greenhouse-gas reductions by the year 2050 would entail bringing 1500 million hectares of land under cultivation of biofuel crops: this is equivalent to the total area currently under cultivation globally. This estimate is in agreement with that of Melillo *et al.* (2009), whose calculations show that biofuel crops would be grown on 1600–2000 million hectares by the year 2100, assuming that most fuel demand would be met by

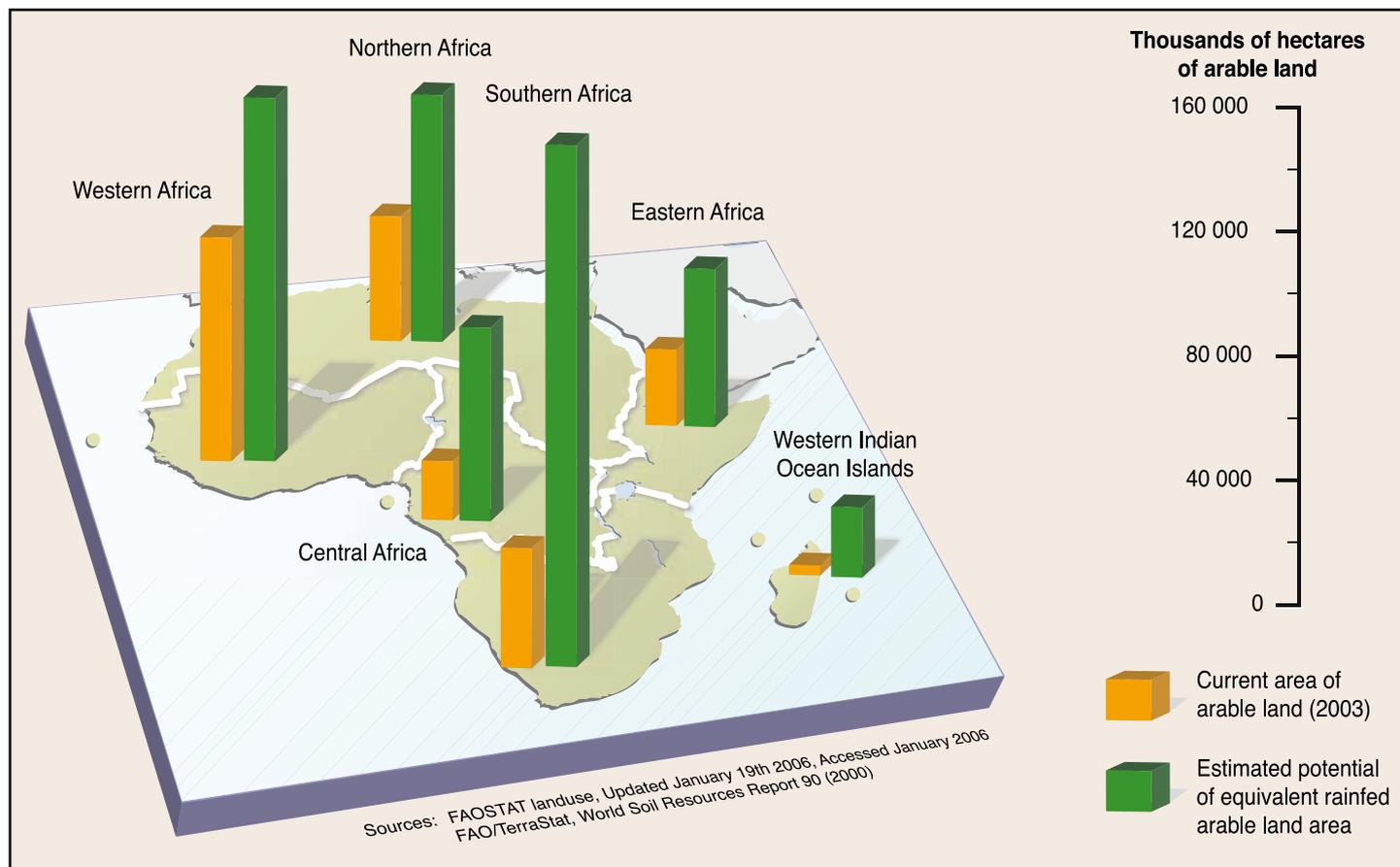


Figure 1. Africa has large reserves of land that is potentially available for rainfed agriculture. In principle, there is considerable scope for expansion of agriculture. As mentioned in the text, however, some of the land characterised as available may in fact be under use for grazing or shifting agriculture. Sources: FAOSTAT, FAO TerraStat. Original graphic on [http://maps.grida.no/go/graphic/current\\_and\\_potential\\_arable\\_land\\_use\\_in\\_africa](http://maps.grida.no/go/graphic/current_and_potential_arable_land_use_in_africa)

biofuels by this time. Of course, many assumptions go into such calculations, and there is always a possibility that similar to other commodities in the past the biofuels bubble will burst some time in the future.

Few countries have the requisite “spare” land to devote to increasing crop production for biofuels, including the current leading producers such as the United States. Approximately 300 million hectares of potentially cultivable land is estimated for Africa (for example, Figure 1), and the continent is thus fast becoming one of the favoured destinations. Melillo *et al.* (2009) show that a switch to biofuels over the coming century would entail major land-use and land-cover changes. Most of these changes would occur in the tropical and subtropical regions of Africa and South America. And much of the growth in land area under biofuel crops would come at the expense of forests and pasture.

This means that not only is the fertile cropland or the so-called fallow land in Africa a potential target, but its forests may also face severe pressure in the future.

Apart from the issues relating to local land access and food security, there is the broader question of whether afforestation and the reliance on biofuels will have tangible mitigation benefits. The analysis by Melillo *et al.* (2009), for example, points to substantial greenhouse-gas emissions due to the land-use changes and fertiliser input associated with increasing biofuel production. These authors suggest that forest preservation and careful management of fertilisers will be needed to reduce emissions associated with biofuels.

Growing plants to be used as raw material for biofuel production could be an attractive proposition for Africa if it triggered innovation in agriculture, created employment opportunities and ultimately

helped reduce poverty. However, as pointed out by Cotula *et al.* (2009), such benefits depend critically on how equitable and just the enterprise is. The collusion of commercial and political interests may lead to loss of access to land and its resources by the poor and powerless. Given that Africa’s CO<sub>2</sub> emissions over the past century have been negligible, it cannot be asked to play the role of the world’s CO<sub>2</sub> tank without being offered real benefits. A deal needs to be profitable to the continent, besides facilitating long-term sustainable development.

## Is the gamble worth it?

The land lease deals are contradictory with the new orientation of land-tenure rights in Africa. Since the 1990s, most African countries went into the new era of decentralisation, with a land ruling system that focuses on local communities. The evolution of the Senegal land tenure law – from colonial ownership to nationalisation to community transfer – is a clear illustration of the long history of land rights. The land-leasing business threatens to destabilise this progress because the control over natural resources tends to move back to national governments and large private corporations. It thus needs to be critically evaluated.

Current state policies for agriculture development and food security hold some important lessons in terms of what happens when resources are nationalised. For example, some governments have created national companies to produce rice (Senegal River, Mali in Niger River) or other cash crops such as cotton (Burkina Faso, Mali and Senegal), cocoa and palm oil (Ghana, Côte d’Ivoire). The stated purpose for setting these institutions up is to stimulate a



Figure 2. Land preparation for Arabic gum plantation. Project ASYLIA-GUM from Saudi Arabia in Dahra Village, north of Senegal.

Country leasing the land	Country offering land	Aim and magnitude of project
Bahrain	Sudan	Food crops
Bahrain	Egypt	Food crops
China	Democratic Republic of the Congo	Biofuels, oil palm 2.8 million hectares
China	Zambia	<i>Jatropha curcas</i> , 2 million hectares
Egypt	Uganda	Wheat, corn 850,000 hectares
India	Ethiopia	USD 1.5 billions
Italy	Senegal	<i>Jatropha curcas</i>
Libya	Mali	Rice 100,000 hectares
Qatar	Kenya	40,000 hectares
Saudi Arabia	Ethiopia	Wheat and rice
Saudi Arabia	Senegal	Arabic gum
South Africa	Congo	Food crops, livestock 10 million hectares
South Korea	Madagascar	1.3 million hectares
South Korea	Sudan	690,000 hectares

Table 1. Sample of known agreements to lease land in Africa

“green revolution” in the most productive lands of the country. However, the achievements of these companies after three decades of performance are rather limited. An analysis and reorientation of such initiatives must be performed before inviting external players to use the country’s productive lands.

The land-lease business may be able to generate equitable development if strong governmental policies and actions ensure that crop production for biofuels does not compromise food security and that foreign corporations respect local land rights. For example,

it could be made mandatory for the international lessees to sell a proportion of the crops they produce to local communities at local rates. And the international community could take committed action to guarantee stable and appropriate prices for carbon. For example, the Environmental Audit Committee of the UK House of Commons recently recommended that the government look into bolstering the price of carbon when it is particularly low (see the full report on <http://www.publications.parliament.uk/pa/cm200910/cmselect/cmenvaud/290/29002.htm>).

#### Sources:

Cotula *et al.* (2009);  
Laishley 2009;

<http://makewealthhistory.org/2009/06/03/africas-land-deals-outsourcing-or-colonialism/>;

[http://www.panafa.net/blog/?page\\_id=417](http://www.panafa.net/blog/?page_id=417)

There is urgent need for a comprehensive analysis of the costs and benefits of inviting foreign nations and corporations to lease lands in Africa (Cotula *et al.*, 2009; Laishley 2009). Key issues pertain to the social and economic risks associated with land “expropriation” from local populations, the prospects for sustainable food security, accountability and impacts on local governance, and the potential environmental impacts. Only after such an analysis will it be possible to determine whether the risk is worth taking and the gamble will pay off. ■

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