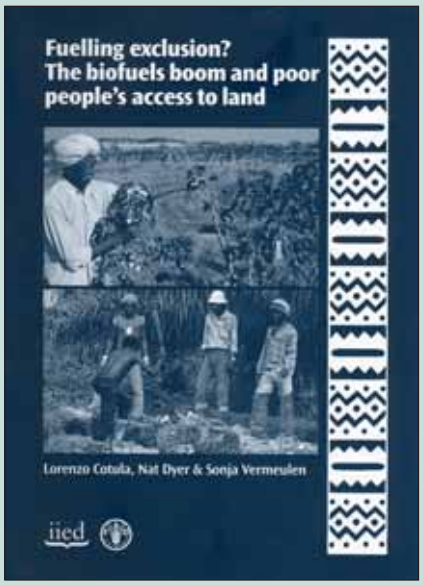
What effect will biofuels have on forest land and poor people's access to it?

A study recently published by the International Institute for Environment and Development (IIED) and FAO, *Fuelling exclusion? The biofuels boom and poor people's access to land* (L. Cotula, N. Dyer and S. Vermeulen, 2008) examines the implications of the spread of commercial planting of biofuel crops for land use and access in producer countries. The authors note that higher crop yields per unit area and more efficient processing alone cannot be expected to supply the rapidly growing demand for biofuel feedstock (raw materials). The following are some of the observations made or cited in the study.

Large-scale conversion of forest and conservation areas to biofuel crops are predicted. Indeed vast land use changes from forest to cash crops have already occurred. The authors cite the spread of oil palm in Indonesia, for example, which has resulted in the clearance of 18 million hectares of forest over the past 25 years, although only 6 million hectares were planted to oil palm by 2006.

According to the International Energy Agency, in 2006 an estimated 14 million hectares of land were used for the production of biofuels and by-products, approximately 1 percent of globally available arable land. At the global level, projected growth in biofuel production to 2030 could require from 35 million to 54 million hectares of land (2.5 to 3.8 percent of available arable land) depending on the policy scenario. It has also been predicted that even with modest greenhouse gas regulations, 1.5 billion hectares, equivalent to current total global farmland, could be under biofuel crops by 2050.



How much land is available to meet these needs? A large proportion of the world's land surface is unsuitable (too dry, cold, steep and/or nutrient poor) for cultivation. The Global Agro-ecological Assessment estimated that worldwide 2.5 billion hectares are "very suitable" or "suitable" for cultivation, and a further 784 million hectares are "moderately suitable". In Asia, Europe and North America, almost the entire cultivable area is either under cultivation or under forest in which cultivation would have "severe environmental consequences". In these regions, expansion of biofuel crops can only come about as a substitution for other crops or through expansion into forest areas.

Thus about 80 percent of the world's reserve agricultural land is Africa and South America, where total cultivable land is estimated to be 807 million and 552 million hectares respectively (all three suitability categories minus land under forest). About 227 million and 183 million hectares of this land, respectively, are already under cultivation. However, the authors note that if land under shifting cultivation and fallow systems is not already included in these measurements, the total "cultivated" land in Africa could be as much as 1 135 million hectares – well above the alleged available reserves. Despite high levels of uncertainty, it is clear that reserves of land with high agricultural potential are extremely limited. About half of the cultivable land reserves are in just six countries: Angola, Argentina, Bolivia, Colombia, the Democratic Republic of the Congo and the Sudan.

Most policies advocate planting of biofuel crops on "marginal" lands. If the above-mentioned "moderately suitable" lands are considered marginal, the world has 610 million hectares of unforested marginal land. Another estimate gives the total global area of degraded land, defined as formerly forested tropical lands not currently used for agriculture or other purposes, as 500 million hectares (100 million each in Asia and South

America and 300 million in Africa). Current abandoned agricultural land could be 386 million hectares globally.

Several governments have taken steps to identify idle, underutilized, marginal or abandoned land and to allocate it for commercial biofuel production. In Indonesia, for example, the Department of Agriculture has reported that there are approximately 27 million hectares of "unproductive forest lands" that could be offered to investors and converted into plantations. However, there are likely to be major obstacles to commercial production of biofuels on marginal lands, and overuse of marginal land can result in long-term or permanent ecological damage such as salination or severe erosion. Use of these lands also has social implications. In many cases, the livelihoods of poor and vulnerable groups depend on lands perceived by governments or private operators as marginal (e.g. for crop farming, herding and gathering of wild products). In India, for instance, jatropha is widely planted on "wasteland" that rural people rely on for fuelwood, food, fodder, timber and thatch.

The tenure status of such lands may be complex, with governments asserting landownership but exercising little control at local level, and local groups claiming resource rights based on customary tenure systems that may not be legally enforceable. In southwestern China, for example, where provincial governments plan to expand jatropha to 1 million hectares of "barren" land over the next decade and a half, possibly as much as three-fourths of this land is owned not by the State but by village collectives, with use rights granted to individual households. Most private investment in biofuels has so far been limited to State-owned land, but the ambitious targets for scaling up jatropha production are likely to result in problems of land availability and extension of cultivation to collective lands.

Besides direct impacts on land tenure, production of biofuel crops may have more subtle implications for access to land-based resources. For example, substitution of a biofuel crop for a food crop might exclude landless people from post-harvest gleaning; husbands might appropriate land from their wives if it is uesd for cash crops rather than subsistence; and fallow periods may be shorter, meaning less land for communal livestock grazing.

In large part the impact of biofuels on land access is likely to result from increased land values and the potential for higher economic returns. The authors note that although much of the impact will be exclusionary and negative, biofuel cultivation may also strengthen land access for some poor land users, by renewing people's interest and investment in land and encouraging small-scale farmers to seek more secure tenure over their land resources. For example, in South Africa women have planted tree crops for future biofuel use specifically to secure their claims over land contested by their late husbands' families.

A range of policies and processes can influence linkages between biofuels and land access – international (international commodity prices, trade barriers for biofuels), national (policy and legal frameworks on biofuels and on land tenure) and local (balancing of traditional and formal land rights). Some of these (e.g. national policies to promote expansion of export-oriented feedstock plantations or power asymmetries between current small-scale land users and prospective large-scale interests) may exacerbate loss of land access by poor people and small-scale land users. However a growing assemblage of good practices and innovative business approaches seeks to promote more equitable and sustainable land management.

Civil society also has a role in protecting the environment, land rights and human rights from possible misuse associated with biofuels. In Uganda, allocation of national forest reserves in Bugala and Mabira to foreign plantation companies for establishment of palm-oil and sugar-cane plantations elicited demonstrations in Kampala, court cases led by non-governmental organizations, a sugar boycott, petitions and a mobile-phone messaging campaign. The Ugandan Government subsequently withdrew plans to convert the Bugala forest reserve to sugar cane.

For the sources of information cited in this article, see the full text of *Fuelling exclusion? The biofuels boom and poor people's access to land*, available at: www.iied.org/pubs/pdfs/12551IIED.pdf