Each person in the EU consumes the equivalent of 30% more global arable land than can be considered sustainable, according to a new study. As well as providing food for a growing population, the land is also increasingly used to grow biofuel crops.

Generating energy from biofuels is seen as an alternative to using fossil fuels and the EU has set a target to reach a 10% share of renewable energy by 2020\(^1\) its major part being expected to come from biofuels. However, growing oil-rich plants and sugar cane to convert into biodiesel and bioethanol requires large amounts of land. Meeting this demand by expanding cropland into grassland, forest or savannah reduces biodiversity and increases greenhouse gas emissions, water usage, water pollution and soil degradation.

Changes in land use often occur in a different country to where products are consumed, by means of international trade, which complicates the land use picture. Consumption in one region can easily drive another to exceed sustainable levels of resource extraction.

The study calculated that the consumption of global cropland (domestic production plus imports minus exports) for the EU in 2007, when biofuel production was still very low, was 0.31 hectares per person. This is a third more than the average number of hectares available per world citizen (0.23 hectares).

They also calculated that if the expansion of cropland is halted by 2020 to prevent further biodiversity loss, just 0.20 hectares would be available per person by 2030, once the rapidly growing population taken into account. This assumes a business-as-usual scenario for biomass production which mainly serves food demand and does not account for any further increase in biofuel demand. Even the expected 1% increase per year in the mean crop yield per hectare from technological advances and high-yielding crop varieties will not keep the EU within global limits of sustainability.

The solution, say the researchers, is for national and regional policies to impose a cap on global cropland use and to limit consumption of products that use the largest amount of global land. This can be achieved without compromising economic growth or personal wellbeing by increasing efficiency in the use of bio-based products (i.e. food, wood and straw), reducing waste and reducing meat consumption.

In the EU, biofuel quotas need to be managed responsibly and integrated into broader policies aimed at sustainable resource management, which include food and non-food products. To achieve this, accounting for global land use should become part of the EU’s official reporting procedure, say the researchers.

Although the EU requires certification of local sustainable biofuel production, i.e. not directly replacing natural habitat, this approach does not guarantee sustainability when the demand for biofuels increases, argue the researchers. This is because the higher the competition for cropland between biofuels and other bio-based products, the less likely it becomes that valuable habitat will be spared agricultural development by one of these other industries. This is an indirect consequence of biofuel demand known as “problem shifting”.

Additionally, since imports into the EU heavily contribute to domestic consumption, the researchers say that the EU could share responsibility with the trading country by helping them monitor land use changes.


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