

Summary Biomob Masterclass 1: 'hidden potential in recovery of formerly arable land'

Presentation low-iLUC - Carlo Hamelinck

For biomass mobilization on formerly arable land, it is important to see how European legislation is currently constructed to deal with the concept of recovery of formerly arable land.

Certain options to avoid iLUC are adopted in EU legislation, most notably crop yield improvements as well as direct and low-carbon land use change. They are clarified within the iLUC Delegated Act. Direct and low-carbon land use change, which includes the utilization of low carbon and biodiversity lands, only receives a small credit within the GHG accounting of the Renewable Energy Directive.

However, there are other options of growing low-iLUC feedstocks, such as food-fuel synergies which diversify the agricultural output of a plot. Furthermore, actions can be taken to reduce third-party expansion into high carbon land. Neither of these options is adopted in EU legislation, even though they would result in highly desirable and favourable crop production.

Therefore, the definition of iLUC in the European legislative context is narrowed down from the potential options available. It focusses mostly on the aspect of what is called "additionality", defined as agricultural practices that either result in a sustainable yield increase or make use of formerly unused (including abandoned) land for the production of biofuels. Three criteria are defined to provide additionality, of which at least one condition must be met: 1) The additional feedstock becomes only financially attractive because the produced biofuels count towards the RED II renewable energy target; 2) they allow for cultivation of food and feed crops on abandoned or severely degraded lands; 3) they are applied by small holders. In addition, the additionality measures must be recent, e.g. no longer than 10 years before the certification of biofuels as low-iLUC fuels. Certification of expansion into abandoned agricultural land will be easier in the future.

Presentation findings on energetic potential of abandoned land - PDB

Based on the study on actual land availability in Europe by WUR, it was shown that since 1975, 36 million hectares of land were abandoned. On this land, specific bioenergy crops could be grown that are suitable for growth on bad soil conditions. The yields of such crops have been simulated by WUR to amount to about 5 - 7 tonnes of biomass per year and hectare. With an average heating content of 16.7 - 17.9 gigajoules per tonne biomass, this amounts to an energetic potential of up to 4,680 petajoules per year. In other words, up to 36 % of European road transport energy demands could be satisfied by marginal lands. This underlines the relevance that promotion of marginal land cropping should play in EU policy and legislation. Even with more recent land abandonment estimates from a 2021 study published in Land, over 5.3 million hectares of (additional) underutilized lands were identified from 2015 to 2019 in reasonably sized patch sizes. Since this study uses a more recent observation period compared to the WUR study, the overall quality can be expected to be higher for re-cropping.

Presentation on actual land availability in EU - Berien Elbersen (WUR)

Marginal land definition:

Lands having limitations which in aggregate are severe for sustained application of a given use and/or are sensitive to land degradation, as a result of inappropriate human intervention, and/or have lost already part or all of their productive capacity as a result of inappropriate human intervention. This entails:

1. Areas with natural constraints
2. Fragile lands
3. Degraded lands
4. Polluted lands/contaminated sites

However, case studies in areas of high land abandonment showed that natural constraints were rarely the reason for land abandonment. Socio-economic drivers (both wider and on farm level) were mostly contributing to land abandonment (+/- 80% as the main driver of land abandonment), and equally contribute to the aversion against bringing these lands back into production. Neither socio-economic drivers of land abandonment, nor land-abandonment itself are sufficiently addressed in EU legislation. In fact, the common agricultural policy (CAP) incentivizes the continuation of agricultural practice to some degree, but not the sustainable manner of doing so. Moreover, the absence of land management is not registered, e.g. land ownership is not sufficiently and accurately registered resulting in the disappearance of abandoned land from the European records without further monitoring. Despite the large amount of data that farmers need to report to the EU, basic and crucial information such as the yields are not reported and thus land abandonment cannot be detected at an early stage or prevented. Overall, measures such as the CAP should focus more intensively on "win-win" situations where the abandonment of lands is prevented and sustainability is promoted, e.g. via subsidizing the degree of carbon capture in soils and a better integration with other European policy and legislation.

Plenary discussion - BioMob participants

In the plenary discussion, participants contributed to a stimulating discourse on governance of sustainable biomass growth and low-iLUC bioenergy crop promotion. One of the participants argued that 20 million additional hectares of land are expected to be abandoned between 2015 and 2030. In this way bioenergy crops are subjected to detailed iLUC criteria and are carefully assessed on their iLUC impacts, whereas land abandonment in the EU from food production is iLUC itself, shifting responsibility of food production to countries outside of the EU. An idea would therefore be that the same criteria on iLUC of biofuels should apply for land abandonment, as it is a form of iLUC itself.

Another participant suggested that biomass should be balanced similarly to how we currently balance energy within the EU. However, difficulties could arise in this situation, such as the responsibility for tracking unused lands.

Another question from the public regarded the issue of monitoring biodiversity loss/endorsement when abandoned agricultural land is brought back into practice. Current sustainability certifications do not have a standard framework to evaluate the impact of land use on biodiversity. Professor Elbersen however thinks that even though it is not incorporated as a standard in sustainability certification itself, European legislation such as the Bird and Habitat Directive has a sufficiently reliable framework to assess biodiversity impacts as it contains a complete list of animal/plant species in Europe.

Finally, land abandonment is not only a European issue, but is a worldwide problem. The comment was made that for example 30% of arable land in India is deemed to be degraded/marginal. Opportunities for biomass mobilization are therefore not restricted to Europe only, but can be expanded globally.