



Journal  
of Danubian  
Studies  
and Research

## The Serious Consequences of the Implementation of EU Policies regarding Biofuels

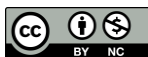
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**Abstract:** Biofuels are defined, according to the EU directive on renewable energy, as “liquid fuels for transport produced from biomass” and must meet certain sustainability criteria (European Commission, Biofuels). In 2021, the majority of biofuels consumed in the EU were mainly crops (mainly ethanol and biodiesel). On the other hand, after many analyses, it is reported that the efficiency of the use of biofuels in terms of reducing the greenhouse effect is greatly overestimated. Considering that the availability of biomass in the EU for the production of biofuels is quantitatively limited, then the argument of the European Commission regarding the contribution of the use of biofuels to the energy independence of the EU is also not true. Another problem is that the production of biofuels in the EU is expensive, labor costs, energy costs, environmental taxes, etc. make the price of biofuels produced in the EU high. Because of this policy, the high demand for biofuels in the EU (ethanol or biodiesel) led in other countries of the world to the intention to satisfy this need. As a result, in countries such as Brazil, Indonesia, the Philippines, Malaysia, etc., plants from which to produce biodiesel and ethanol began to be grown on an increasingly large scale, one of these plants being the oil palm. The consequences are serious. In many countries very large areas of forest have disappeared, to make way for the cultivation of plants for biofuels. Another serious aspect of the problem is the fact that many people around the globe are already suffering from hunger or from the fact that they cannot afford minimally satisfying food. Changing the destination of many agricultural lands used for food production to be used for the production of biofuel leads to an impoverishment of food resources, which is unacceptable! Practically, the foolish policy of

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the European Commission regarding the environment has led to the export of negative social and environmental consequences to other countries. This is not ethical or moral. It is not acceptable to protect the environment in the EU, which is associated with a decrease in food availability, nor at the expense of the environment in other countries. Environmental protection, in this regard, is a global problem; fewer forests on a planetary level means less carbon dioxide absorbed and stored, resulting in a greater greenhouse effect. It is absurd to think that by using biofuels in the EU, you pollute less, practically somewhere, a country has deforested large areas, to produce this biofuel, and the effect is a decrease in the absorption of carbon dioxide and therefore an increase in the greenhouse effect. However, deforestation has multiple negative effects, such as landslides, erosion, the degradation of agricultural land adjacent to forests, the disappearance of springs, the disappearance of many species of living things, with tragic and irreversible consequences on the ecosystems and, implicitly, with serious economic consequences.

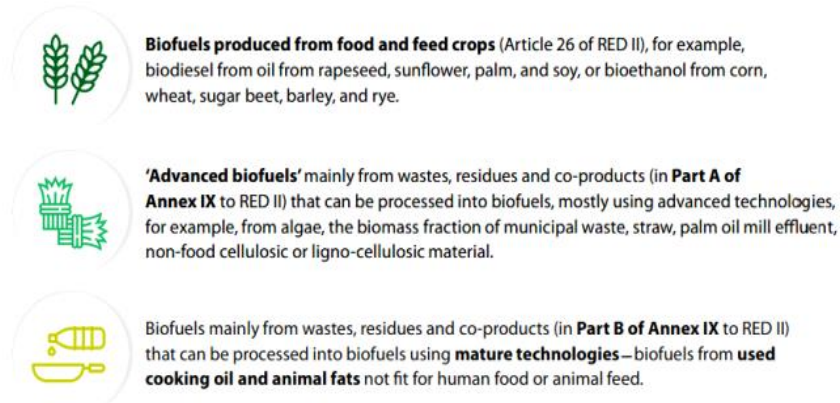
**Keywords:** alternative fuels; deforestation; emerging countries

## **1. Introduction**

Regarding biofuels, the need to use them as an alternative to fossil fuels emerged from the desire to reduce the degree of environmental pollution and to gradually frame the economic development of the EU on a trend consistent with the concept of sustainable development. According to the definition of the European Commission and other specialists, biofuels are liquid fuels for transport produced from biomass (Directive 2003/30/EC of the European Parliament and of the Council, 2023; Ail & Dasappa, 2016; Special Report 29/2023). As an alternative to fossil fuels, biofuels are intended to help reduce greenhouse gas emissions in the transport sector (Special Report 29/2023). In theory, biofuels could be a fairly affordable renewable energy source. In a broader sense compared to the previously mentioned definition, according to others, the category of biofuels is much wider, including gaseous, liquid, and solid fuels<sup>1</sup> (Gollakota & Shu, 2023) (Fig. 1).

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<sup>1</sup> <http://www.ignou.ac.in/upload/unit-3.pdf>.

**Figure 1. Main categories of biofuels by feedstock**

Source: European Court of Auditors, <https://www.eca.europa.eu/ECAPublications>

Their origin is organic, of a biological nature (as the name suggests), the sources being diverse: vegetable residues from herbaceous or woody plants. Many times, these residues come from industrial or agricultural activities, and we consider their use to produce biofuels to be a good thing, unequivocally. The use of any waste is essentially a superior utilization of a resource that would otherwise be discarded and polluted. A very widespread characteristic of biofuels is that, most of the time, they are used by transporters by mixing them with fossil fuels at certain proportions. In this way, the impact of fossil fuels on the environment can be reduced. Biofuels that can be used in transport can be liquid or gaseous (such as biogas).

## 2. The Consequences of EU Demand for Biofuels

In our discussion, we will refer more to liquid biofuels, as they are the most widespread, such as bioethanol, biodiesel, and bio-oil; they are three of the most important liquid biofuels (Directive (EU) 2018/2001 of the European Parliament and the Council). More than twenty years ago, the EU was considering the implementation of biofuel use, and the initial projects being particularly ambitious. We recall here the Directive 2003/30/CE of the European Parliament and of the Council/05.2003 promoting the use of biofuels and other renewable fuels for transport (GLOBIOM, 2023).

First generation biofuels can be produced from different crop feedstock; they include biodiesel - produced from oil palm, rapeseed, and soya - and bioethanol, produced from cane or corn (Wu, et. al, 2019). The term second-generation biofuels also appeared, i.e.

biofuel generated from biomass industrial plantation; they are categorized as second-generation biofuels, also called advanced biofuels<sup>1</sup> (). Accordingly, a mandatory objective of the European Union was established regarding the global share of energy from renewable sources in the final gross energy consumption of the Union in 2030. The directive also established criteria for reducing greenhouse gas emissions through the use of biofuels, bioliquids and biomass fuels. The objective was very ambitious, unrealistic and not achieved (for example, it was set a 20% replacement of conventional fuels in the road transport sector by 2020 (Special Report 29/2023), which was not achieved. Thus, in 2021, approximately 93% of the energy used in the rail and road transport sectors in the EU came from fossil fuels (Special Report 29/2023). We will not discuss here the reasons why this target was not met, but we will present the effects on non-EU countries, on other continents, on which EU biofuel policies. In response to the increasing demand for biofuels in the EU, according to the principle of supply and demand, it has become tempting for some emerging countries to produce biofuels or raw materials for their manufacture, which they then sell to EU countries. However, this has been proven to have negative effects on the environment. Thus, we list the cause-and-effect chain as follows: to reduce pollution, the EU uses biofuels. They are expensive and are in short supply if produced in the EU. Because of the need for biofuels for the EU, some emerging countries produce biofuels obviously, at lower prices than the biofuels produced in the EU, and then export them to Europe. The bad part is that in order to meet the EU's growing need for biofuels, these countries have cleared massive areas of forest to make way for crops used in biofuel production. It represents, in fact, an export of pollution in less developed countries, which is also immoral, not only harmful to the environment. Deforestation also affects local communities which, under the pressure of the expansion of cultivated areas, are simply destined to perish. We exemplify, in this sense, the study carried out by researchers from the Smithsonian Institute (USA), which shows a very clear fact: the damage caused to the environment can be too great if extensive areas of centuries-old forests are deforested so that they can be cultivated instead of corn, soy or sugar beet for biofuel production<sup>2</sup>. The same researchers also show that the use of biofuels obtained on an industrial scale leads to negative effects on the environment, much greater than the eventual reduction of pollution, through their use in engines. In the same way, Swiss researchers reached conclusions such as the fact that there are big differences between biofuels in terms of their footprint on the environment; the pollution generated by the use of fossil fuels is less harmful than the negative effects of deforestation (Wu et al., 2019). Through deforestation, the storage of carbon extracted by trees from carbon dioxide in the atmosphere through photosynthesis is

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<sup>1</sup> <https://green-report.ro/>.

<sup>2</sup> Idem

also reduced. Agricultural crops are more ineffective in carbon storage than forest ecosystems. A much more viable solution, with a positive impact on the environment is the reforestation of as many areas, the forest has a very high capacity to store carbon. As a result of the demand for biofuels, in countries such as Brazil, Indonesia, the Philippines etc., huge deforestations of equatorial or tropical forests have begun, and in their place huge farms have been implemented, with oil palm, soybean, corn or sugar cane crops. These compounds are used to produce ethanol or biodiesel (first generation biofuels). It is obvious that these deforestations are also possible because of the pressing need for money that these countries have, much poorer than the EU countries. The work is also doubled by a defective environmental policy in these countries, short-term financial interests or corruption, and political factors that avoid making long-term beneficial decisions. The immorality of using biofuels also presents another obstacle.

On the globe, many people die of hunger or suffer from malnutrition. A use of agricultural land to produce biofuels, not food for them represents a profound immorality. The EU puts in the fuel tanks what could have been used to feed some people (corn, sugar cane, soybeans, palm oil etc.). As an example, in the report - A8-0066/2017 of the European Parliament, it is mentioned that: “taking into account the report ‘GLOBIOM: the basis of the post-2020 policy on biofuels,’ taking into account the Special Report no. 18/2016 of the European Court of Auditors entitled “EU System for the Certification of Sustainable Biofuels”, as there are many causes of deforestation worldwide, including the production of agricultural products such as soy, beef, corn and palm oil ...; whereas almost half (49 %) of all recent deforestation is the result of illegal clearing for commercial agriculture, and this destruction is driven by overseas demand for agricultural products such as palm oil, beef, soy and timber products; whereas the illegal conversion of tropical forests to commercial agriculture is estimated to produce 1.47 gigatons of carbon per year — the equivalent of 25% of the EU’s annual fossil fuel emissions” (GLOBIOM, 2020)<sup>1</sup>.

A problem of food price increases is not only in poorer countries but also in more developed and highly developed countries. It is logical that if a larger amount of fields are diverted to produce biofuel, i.e. to be burned in engines, then a smaller amount remains available to the food industry, as there is less food on the market. A higher demand for these plants also led to higher food prices on the world market. This means that an even greater proportion of people will not have access to food because it is simply too expensive and they cannot afford it. Practically, it is a “crime” to put in the tank of the car biofuel obtained not from waste, but from plants cultivated especially for this. With every liter of biofuel obtained

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<sup>1</sup> <https://www.europarl.europa.eu/>.

from these plants, we contribute to the starvation of some people in underdeveloped countries, which is extremely immoral. In the same study mentioned above<sup>1</sup> it is shown that since 2007, the Organization for Economic Cooperation and Development (OECD) predicts that biofuels will have a strong negative impact on agriculture, in the sense that food prices will increase; since 2007, in Brazil, as a result of abandoning traditional, less profitable crops and replacing them with palm trees or sugar cane, food costs three times more in the first half of 2007, compared to the same period of the previous year! In developed countries, such as the USA, the effects are the same; the price of food increases, as long as the destination of some crops or lands is for biofuels (Wu, et. al, 2019). In fact, later, after a few years in which different signals in this sense were collected, the European Commission recognized the perverse effects of this policy, following to adjust them. In a European Parliament Report of March 17, 2017, regarding palm oil and the deforestation of tropical forests, it is shown, among other things, that: the total volume of greenhouse gas emissions due to land-use change due to palm oil is not known; in producing countries, there is no reliable data on the area of land devoted to authorized or unauthorized cultivation of oil palms; total land-use changes driven by the 2020 EU biofuel mandate amount to 8.8 million hectares, of which 2.1 million hectares are being converted in Southeast Asia due to pressure from expanding plantations palm trees for oil; the deforestation of tropical forests destroys the natural habitats of more than half of the world's animal species and over two-thirds of the plant species and endangers their survival<sup>2</sup>. In strengthening these statements comes the International Institute for Applied Systems Analysis, which shows that by 2020, the area of land that has been converted worldwide for the production of palm oil for biodiesel is 1 million hectares, of which 0.57 million hectares are primary forests in Southeast Asia<sup>3</sup>. Later, the European Commission tried to stimulate the use of advanced, non-biological biofuels [3]! We were wondering, if they are not biological in nature, why is the prefix “bio” still used?! In recognition of the EU's botched policy on biofuels, a Special Report of the European Court of Auditors appeared in 2023: EU support for sustainable biofuels in transport – an unclear direction. This Report directly or indirectly recognizes the failure of the policy implemented by the European Commission regarding biofuels. In 2021, 93% of the energy used in road and rail transport in the EU came from fossil fuels. Thus, only 7% from other sources. In another study, it is shown that first-generation biofuels have approximately 50% higher lifecycle emissions than their fossil equivalents!<sup>4</sup>

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<sup>1</sup> <https://green-report.ro/>.

<sup>2</sup> <https://green-report.ro/>.

<sup>3</sup> <https://iiasa.ac.at/impacts/>.

<sup>4</sup> <https://www.europarl.europa.eu/>.

Another problem in the use of biofuels produced in overseas countries is that their transport to consumer countries in the EU is expensive and polluting. Moreover, for the crops of plants intended for the production of biofuels, chemicals are used that pollute the environment (herbicides, fungicides, fertilizers, etc.). The production of these chemicals used is also polluting! There is another aspect to this: the place of natural tropical forests, which have a very high capacity to absorb and store carbon (through photosynthesis), has been taken by agricultural ecosystems. These plantations have a very low carbon storage effect compared to forests! So the greenhouse effect is amplified! Under these conditions, it is less polluting to use fossil fuels than biofuels. Pushing the use of biofuels beyond certain limits becomes much more polluting than the use of fossil fuels. Moreover, indications of the forced, unfounded use of biofuels are part of a policy adopted not only by the EU, but also by other countries, called “net zero”; at the UN level, its definition is “the reduction of carbon emissions to a small amount of residual emissions that can be absorbed and stored sustainably through nature and other carbon removal measures, leaving zero in the atmosphere”<sup>1</sup>. There is an ambitious goal for the countries that have joined this project: somewhere in the time horizon, 2030-2050, to reach zero! (Crânganu, 2020). But some specialists have demonstrated that the policies associated with this “net zero” concept soon lead to a socio-economic disaster (Crânganu, 2024).

### **3. Conclusions**

EU policies on the use of biofuels have been inconsistent. Biofuels are indeed a good opportunity to replace some fossil fuels. The forced imposition, without any scientific-economic basis, by politicians of minimum ceilings and unrealistic deadlines for the use of these biofuels, leads to distortions in the economies of EU countries and the transfer of serious environmental problems to emerging countries on other continents. These countries have cleared large areas of virgin forests to plant crops that will form the basis of the production of biofuels required by the EU. Biofuels can only represent a viable alternative if they are produced in Europe, from organic biological waste. This waste had no other use anyway. Transportation costs of biofuels would also be reduced and, implicitly, the carbon footprint of transporting these biofuels would be much lower. Cultivating European land with plants for the production of biofuels is not a moral and economically viable solution. This would lead to the allocation of agricultural land to produce biofuels rather than food. Thus, an increase in food prices occurs both in the EU and in other developed countries,

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<sup>1</sup> [https://www . a\) . .org/en/climatechange/](https://www.ipcc.ch/report/ar6/wg2/downloads/https://www.ipcc.ch/report/ar6/wg2/downloads/).

but also in poor countries. The high price of food has driven even more people in poor countries to malnutrition and starvation.

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