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COSTS AND BENEFITS, LAND USE AND POTENTIALS, HUNGER AND CAUSES

Criticism of biofuels – checking the facts

The debate around targets and ethics requires greater differentiation

Critics of biofuels – from mineral oil companies to environmental groups – express a wide variety of concerns with regard to ecology, ethics and economics. There is no doubt that biofuels are not a panacea for climate protection and energy transition in the transport sector. However, climate-friendly mobility structures of the future are unrealistic without biofuels. On closer inspection, the accusations made against these energy sources often turn out to be of a generalising nature. In order to avoid short-circuited arguments, several claims made by critics are to be analysed here.

1 Costs and benefits

„In 2011, EU countries spent ten billion euros on subsidising biofuels in order to cover only 4.5 percent of EU-wide fuel requirements. (...) With its misguided biofuel policies, the EU is creating astronomical costs for the taxpayer."
Olaf Tschimpke, President NABU (Nature and Biodiversity Conservation Union, Birdlife Germany), 17th April 2013

The subsidy sum of 9.3 to 10.7 billion euros for biofuels in the EU originates from a study with which the Canadian International Institute for Sustainable Development (IISD) was commissioned by several European environmental protection groups.[1] Questions must be asked about several aspects of both the level of the subsidies and their presentation as taxpayer-funded costs.

1.1 Pure expansion targets are not subsidies

The IISD itself points out in its study that the sum of 9.3 to 10.7 billion euros does not correspond with the internationally recognised definition of the World Trade Organisation (WTO) for direct or indirect government subsidies. According to IISD estimates. A little more than half of the total sum (5.8 billion euros) are indirect subsidies in the form of tax reliefs: The EU member states forego tax revenue from the consumption of biofuels in order to compensate for the price advantage of fossil fuels. However, in view of the massive decline in tax exemptions in EU member states, this calculation, whose method was unclear, was considerably too high. In August 2013, the IISD corrected the value down to only 2 billion euros following information from the research institute Ecofys and from the German Renewable Energies Agency, among others. The large part of the remaining sum (3.6 to 4.8 billion euros), given the blanket description „subsidies", consists of assumed additional costs to EU economies that would result from the mandatory biofuel quotas in EU member states. The IISD determined these additional costs by calculating the difference between the average world market quotations for biodiesel or for Brazilian bioethanol on the one hand, and the higher market value of biodiesel and bioethanol within the EU in 2011 on the other. The methodological justification for this „subsidy" calculation: The EU member states would have been able to buy biofuels more cheaply on the free world market, but they distorted these through their mandatory targets for biofuel usage, thus unnecessarily creating higher costs for motorists within the EU.

[1] IISD: Biofuels – At What Cost? A review of costs and benefits of EU biofuel policies. Winnipeg/Geneva, April 2013.

1.2 It is not the taxpayer who pays, but the fuel consumer

Although this describes a distribution effect for the national economy which results from the state expansion targets or from the compulsion to use biofuels, this is not a matter of a subsidy, as there is no cost to the public purse, apart from administration costs. In this respect, presenting it as a subsidy which would create an annual burden of more than ten billion euros to the European taxpayer is false, both with regard to the amount and the facts.

Biofuel prices cause additional costs to the national economy. But transferring these costs to the fuel consumer can certainly be judged to be positive for the society as a whole. The burden is not on the entirety of taxpayers, but on the fuel consumers, i. e. the drivers of cars, trucks and motor cycles, dependent on consumption. The more fuel they use, the higher are the costs. This, or an even more powerful control effect, would be welcomed also from an ecological viewpoint, as higher fuel costs could provide an incentive to change to lower-emission and cheaper forms of transport (train, bus, bicycle, ...). Increasing fuel costs are also an incentive to the introduction of vehicles with a lower fuel consumption and greater efficiency.

Furthermore, damage to the environment, to health and to the climate results in external costs to the national eco-

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nomy which have so far not been priced in to the end consumer prices of fossil fuels. Against this background, it is surprising that the IISD study commissioned by environmental groups indirectly welcomes the abolition of mandatory biofuel quotas, also with the prospect among other things of reducing costs for the motorist, while at the same time not taking into consideration the ecological control effect of fuel costs.

1.3 Benefits of biofuels are to be included in the costs of political decisions for biofuels

For a holistic evaluation of the subsidisation of renewable energies, it is usual to undertake a comprehensive costbenefit analysis. In this respect, the perennial monitoring by the German Federal Ministry of the Environment of the effects of the costs and benefits of the expansion of renewable energies examines a range of economic effects and their complex interactions.[2]

The IISD study deals with these interactions only inasmuch as it denies that there is a benefit to the national economy through the avoidance of environmental damage, as biofuels are not able to make a contribution to climate protection. Although calculating climate impacts of biofuels is a contentious issue in the scientific community, the fundamental possibility of a net greenhouse gas reduction through biofuels is beyond question.

On the other hand, IISD does not investigate the extent to which additional tax revenue is generated through biofuel producers supported by expansion targets and tax exemptions.

1.4 The result: Net benefit from savings on fossil fuel imports

If more biofuels were used instead of diesel and petrol, the energy bill for importing these fossil fuels into the EU would be reduced. The IISD study takes this contribution towards supply security into account. The cost savings for mineral oil imports in 2011 amount to 11.2 billion euros.

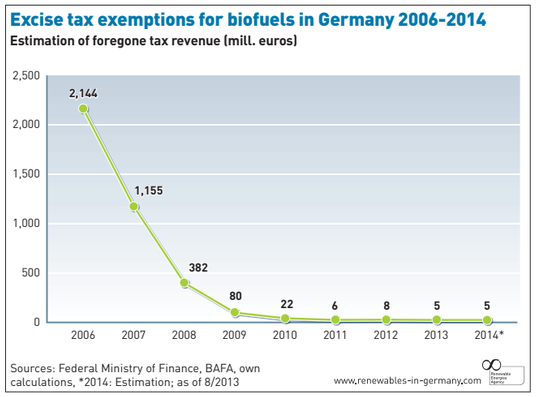
EU biofuel annual production 2011:
9.4 mill. t. biodiesel + 3.7 mill. t. bioethanol
= 8.5 billion euros import costs for diesel saved
= 2.7 billion euros import costs for petrol saved
= 11.2 billion euros import costs saved

The saving of 11.2 billion euros on the import costs of fossil fuels therefore considerably exceeds the total amount of the criticised „subsidies" in the form of an enforced usage of biofuels (3.6 to 4.8 billion euros) and the lost tax revenues (2 to 2.5 billion euros).

[2] Fraunhofer ISE/DIW/GWS/IZES: Monitoring der Kosten und Nutzenwirkungen des Ausbaus erneuerbarer Energien im Strom- und Wärmebereich im Jahr 2011. Karlsruhe, June 2012.

If the public purse is to grant financial support for certain technologies, then this support must not only be efficient and effective, but must be legitimised through a benefit to society as a whole. The comparison of the costs and benefits of biofuel usage in Germany shows a positive result on balance.

The subsidies for biofuels in the form of tax concessions have massively declined after the changeover of promotion to the 2007 biofuel quota legislation and will be phased-out almost completely by 2015.



Thus, biofuels in Germany have ...

- increased direct and indirect employment in the agricultural sector (22,700 employees in Germany alone in 2012). Many agricultural companies have been able to establish an important additional mainstay through the cultivation of energy crops.[3]
- reduced the fossil fuel imports (c. 2 billion euros in 2011)[4] and reduced the environmental damage associated with this (c. 0.4 billion euros in 2012)[5]. It has been possible to reduce the pressure of demand that leads to the tapping of increasingly dirtier sources, such as tar sand and deep-sea oil.
- prevented the emission of 4.7 million tons of greenhouse gases.[6]
- increased the municipal value creation (0.7 million euros from income, company profits and municipal tax revenues in 2011).
- confronted the oligopoly of the mineral oil corporations in the fuel market with a middle-sized agricultural competitor up until the introduction of the biofuel quota legislation.

[3] GWS: Renewably employed in the German states: Report on the updated estimate of gross employment in the individual states in 2012. Osnabrück, July 2013.
[4] BEE: Jahreszahlen Erneuerbare Energien, dated: 06/02/2012.
[5] Based on: Federal Ministry for the Environment: Renewable Energy Sources in Figures. National and International Development. Berlin, July 2013.
[6] Ibid.

Biofuels will not completely replace the current requirement for the import of fossil fuel energy sources. Ecological guidelines of biofuel production must possibly be further strengthened within the framework of EU sustainability criteria and of the German biofuel sustainability act. Independently of this, however, it can be established that with reasonable public funding, the market introduction of biofuels has brought along positive effects for the national economy.

2 Land area requirements potentials

„To cover the EU biofuel requirement in 2020, an agricultural land area of 22–31.5 million hectares will be needed. This corresponds to as much as 88 percent of the total area of Germany. For this, land areas in developing countries will also be drawn upon which would be suitable for growing the food and relieving the hardship of 870 million hungry people in the world."
BUND/Misereor/Oxfam: Factsheet „Verordnete Verantwortungslosigkeit", April 2013

Firstly, the information on land area requirements will be investigated, which has been particularly highly criticised. 22 to 31.5 million hectares of agricultural land corresponds to about 12 to 17% of the land area used for agriculture in the 27 EU member states. The presentation that at least these areas would be needed for energy crops in order the meet the EU renewable energy targets in the transport sector (10% by 2020) leaves out several important assumptions. The data are based on an estimate by the research institute Ecofys commissioned by the UK Department for Transport and published in 2008. Ecofys calculated the land area requirement that would result if 10% of the endconsumer energy consumption in the transport sector were to be covered by biofuels.[7] Only two of the four scenarios are quoted. The fact that a scenario optimised for greenhouse gas reduction and the use of residual materials would result in a considerably smaller land area requirement of 16.5 million hectares is not mentioned. Depending on which energy crops are assumed for the cultivation mix and with what yield, very large ranges can result for the land area requirement. Admittedly, the potential for biogenic residual materials is limited (liquid manure, straw and other waste materials). However, the more these raw materials are used for biofuel production, the smaller is the land area requirement. And the lower the energy consumption in the transport sector, the less biomass is needed to cover a 10% proportion.

2.1 The net demand for agricultural land remains reasonable

In order to estimate the actual effects on the demand for agricultural land in the EU and world-wide, it is, however, a crucial fact that the figures mentioned above from the Ecofys study were shown only as a gross land area requirement. In the case of biofuel production, co-products always accumulate which can be used as protein-rich feeds in livestock farming, e. g. rapeseed and soybeen meal in the production of biodiesel, and dried distillers grains with solubles (DDGS) and sugar beet pulp or sugar beet molasses in the production of bioethanol. Therefore through the cultivation of energy crops, animal feed is also produced which would otherwise need to be additionally cultivated or imported. Ecofys subtracts the associated saving of agricultural land area from the gross agricultural land area for biofuels. Accordingly, the net agricultural land area required to meet the 10% target is then only 11.9 million hectares (instead of 31.5 million) or 8.3 million hectares (instead of 22 million). Therefore, as a proportion of the land area in the EU used for agriculture, the demand is for about 4.5 to 6.5%. At least one quarter and up to a maximum of two thirds of the area would be taken up outside of the EU, depending on the cultivation mix.

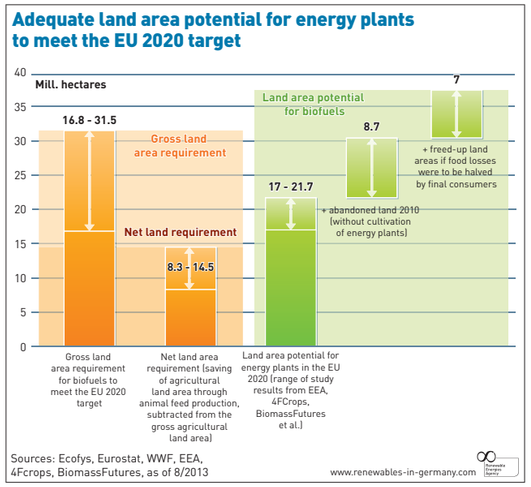
Besides, the EU target for 2020 is not an exclusive biofuel expansion target. Other renewable energy sources can also account for the target in the transport sector, e. g. renewable electricity in electric vehicles and in rail traffic. In view of the relatively few possible applications in the infrastructure, the contribution from these would admittedly be small, but this contributes to a further reduction in the land area requirement for energy crops used for biofuels. The more renewable energy there is in the transport sector, the smaller is the land area requirement.

2.2 EU land area potential of around 20 million hectares by 2020

By establishing the 10% target, the EU estimates an associated land area requirement for biofuels of c. 17.5 million hectares (c. 9.5% of the land area used for agriculture). Several studies confirm that there is an adequate land area potential for energy crops in the EU. In the multi-year European project „Biomass Futures", European research institutes have modelled the regional potentials of biomass for use as an energy source in the year 2020. Alongside fuel-wood and biogenic residual materials, the cultivation of energy crops forms an important pillar for the supply with bioenergy sources. Compared with the currently available potential, energy crops have been found to have the highest rates of increase by 2020. While the potential for fuel-wood and biogenic residual materials hardly changes, an eight times greater potential is expected by 2020 based on the future availability of land for cultivation. Accordingly, a total of 21.7 million hectares of land in the EU would become free by 2020 for the cultivation of energy crops.[8]

[7] Ecofys: Land use requirements of different EU biofuel scenarios in: 2020. Utrecht, June 2008.

[8] Alterra/IIASA: Biomass Futures: Atlas of EU biomass potentials. Spatially detailed and quantified overview of EU biomass potential taking into account the main criteria determining biomass availability from different sources, February 2012.



With a figure of 20.2 million hectares potential land area, the European research project 4F Crops, which investigates the cultivation of crops for animal feed and food production as well as for bioenergy and use for materials, comes to a similar conclusion under different assumptions.[9] Calculations made by the Deutsches Biomasseforschungszentrum (DBFZ) and by the University of Hohenheim also show a potential area of about 20 million hectares.[10] The European Environment Agency (EEA) calculates a possible future land usage for energy crops of 17 million hectares.[11] If, instead of using rapeseed and grain for biofuels, higher-yield short rotation coppice were to be cultivated, the land requirement would be considerably reduced and, at the same time, the same energy yield obtained. A basic requirement for all calculations of land area potentials is that there must be no restriction to animal feed and food production in the EU.

2.3 Biofuels are a desired element of the structural change in agriculture

However, it cannot be guaranteed that potential land areas indigenous exclusively to Europe would be developed for energy plant cultivation. Where open trade routes and global price competition exist, mineral oil companies and biofuel manufacturers will possibly make recourse to cheaper imports of biofuels and biomass. Whether and to what extent it comes to higher imports of agricultural commodities into the EU depends on price developments in the world agricultural markets and the political circumstances.

A glance at the structural developments in agriculture in recent years makes it clear that the additional demand for biomass for biofuels does not, however, present a completely unreasonable challenge for the agricultural use of land in the EU or globally, as is suggested by the criticism quoted at the start. The motives for the EU targets for renewable energy in the transport sector agreed in 2009, apart from the increased independence from fossil fuel imports and the reduction of greenhouse gases, also had agricultural policy aims. The cultivation of energy crops was pushed ahead as early as the start of the 90s within the context of the Common Agricultural Policy in order to counteract the agricultural overproduction within the EU and the associated price collapse for agricultural commodities. In 1993, the McSharry Reform introduced a binding set-aside of initially 15 % of all arable land area. Farmers, who were receiving subsidies, had to allow a certain, annually redefined proportion of their arable land to lie fallow. Instead of subsidising farmers for non-production, it was possible also to cultivate crops on this land which did not directly increase the food or animal feed surplus, e. g. rape for biodiesel production.

The area of fallow land without energy plant cultivation amounted to 4 million to 6.9 million hectares in the years 1993 to 2008, i. e. about 4 to 6 percent of the arable land within today's 27 EU member states. The sum of the entire abandoned land areas without energy plant production was even higher, between at least 8 million and a maximum of 13 million hectares in the period between 1990 and 2010. As such, about 4 to 6.5 % of the entire land in the EU used for agricultural purposes (arable land, grassland and other areas) was not used at all for the production of agricultural goods.[12]

2.4 Respond to the needs of society instead of subsidising non-production

Against this background, the EU agricultural policies pushed ahead a politically intended structural change: Farmers, whether in crop production or in livestock breeding, were to orient themselves more on the price signals given by the agricultural trade instead of relying on the payment of direct EU subsidies. The aim was, and still is, a permanently stable level in agricultural prices in order to prevent any further farmyard closures, and to offer farmers a secure source of income. It was possible to end the subsidised set-aside in 2009 because, among other things, the surpluses were successfully redirected into the production of biomass for energy and agricultural prices and demand had risen considerably. The previously artificially held-back arable land areas once again came under the plough, mainly for the increased cultivation of food and animal feed, but also for energy crops. Instead of the over-production, criticised since the 1980s as „butter mountains" and „milk lakes" and sold to developing countries through export dumping, with bioenergy an additional pillar had been established for European farmers. With that, the production of agricultural goods no longer provoked a requirement for additional subsidies, but responded to a real need in society for a climate-friendly, renewable energy source.

[9] CLN IPiEO/EC BREC: 4FCrops. Future Crops for Food, Feed, Fibre and Fuel. Land use in EU-27 now, in 2020 and 2030, February 2010.
[10] Dr.-Ing. Schütte, Andreas: „Biomassepotenziale. Möglichkeiten der Optimierung der nachhaltigen Biomassenutzung". Lecture, Berlin, 19/03/2013
[11] EEA: EU bioenergy potential from a resource efficiency perspective, July 2013.
[12] Areté/Università di Bologna: Evaluation of the set aside measure 2000 to 2006. Bologna, May 2008.

2.5 Energy plant cultivation can in the future utilise freed-up land areas

The EU target for renewable energy in the transport sector continues this process systematically. As described above, in discussions in the scientific community, a land potential for energy crops of around 20 million hectares is considered to be viable. There are several reasons to assume that the expansion targets for biofuels do not provoke an unavoidable „land area shock". Instead, there are a large number of design options:

- After the end of the set-aside regulations, there are still around 8 million hectares of abandoned agricultural land in the EU. These areas obviously cannot be called upon to generally satisfy the additional requirement for biofuels, however, for a combined biofuel and animal feed production at structurally disadvantaged agricultural sites (e. g. degraded land, poor soil quality), cultivation adapted to the site can offer a possible alternative to the cultivation for food that is not worthwhile in that location.

- The demographic change in the EU will in the mid term lead to a downturn in demand in the EU for food and feedstuffs. Parts of these land areas previously used for these purposes can then be used for the increased cultivation of energy crops.

- Through advances in culture methods, cultivation and further increases in efficiency, further slight increases in yield per hectare – without genetic engineering and in spite of increasing extremes of climate – can be assumed.[13] Additional land areas for energy crops could become free with the concurrent fall in demand.

- A decisive factor for the future availability of land for energy crops is the hard-to predict development of the world agricultural trade. If exports decline, farmers affected by this could use their land instead for the cultivation of energy crops.

- The inappropriate use of food has so far wasted considerable amounts of agricultural land. It is estimated that 25 % of the food of German final consumers is not eaten, but thrown away. If the food losses of the German final consumers alone were to be halved, the land area required for the supply of food and animal feed could be reduced by 1.2 million hectares.[14] Europe-wide, the potential saving in land area could amount to an estimated 7 million hectares.

- And not least, changes in consumer behaviour can also release land areas. About 60 % of the EU grain harvest is used as animal feed. In Germany, about 60 % of agricultural land is used for animal feed.[15] If consumers were to reduce their food intake by just a few percentage points, agricultural land in the magnitude of the current abandoned land in the EU would become free.

3 Hunger and causes

„We must put an end to the rich burning up the food of the poor by driving around in their high-powered cars and luxury vehicles."
BUND (Friends of the Earth Germany), press release, 08/06/2011

These and similar statements from environmental and development policy organisations assume a direct causal relationship between the use of energy crops for biofuels and the hunger of 870 million people. The image of the European motorist who deprives the hungry African of his food points towards the continuing scandal that – in spite of world-wide over-production – millions of people still have no adequate provision of food. Blaming biofuels for this, however, falls a bit short:

3.1 The demand for biofuels is negligible

The influence of biofuels on the global availability of agricultural land has so far been small: In 2012, energy crops were cultivated on about 30 to 55 million hectares of arable land world-wide, i. e. on about 2 to 3.5 % of the 1,500 million hectares of globally available arable land.[16] The demand for energy crops for EU biofuel production caused a global increase in land area usage of 1.3 million hectares between 2000 and 2008.[17] As the EU biofuel consumption is now around 50 % higher since this last survey in 2008 commissioned by the EU Commission[18], it is likely that the global demand for land area is also correspondingly higher. The pressure of demand can in many countries lead to agricultural land previously used for food or for animal feed being redesignated. Agricultural land for energy crops can in the best case be extended to previously abandoned or degraded areas, but even also in ecologically sensitive regions, e. g. in rain forests. However, the EU sustainability criteria

[13] Alterra/IIASA: Biomass Futures: Atlas of EU biomass potentials. Spatially detailed and quantified overview of EU biomass potential taking into account the main criteria determining biomass availability from different sources, February 2012.
[14] WWF: Tonnen für die Tonne. Ernährung, Nahrungsmittelverluste, Flächenverbrauch. Berlin, January 2012.
[15] Own calculations based on BMELV (German Federal Ministry of Food, Agriculture and Consumer Protection).
[16] IEA: Technology Roadmap. Biofuels for Transport. Paris, April 2011; Nova Institute: Stoffliche Nutzung von Biomasse. Basisdaten für Deutschland, Europa und die Welt. Hürth, January 2012; DBV: Etwa 3 Prozent der Weltackerfläche für Biokraftstoffe. Press release, 19 January 2012.
[17] Ecofys/Agra CEAS/Chalmers University/IIASA/Winrock: Biofuels Barometer 2008, July 2011.
[18] EurObserver: Biofuels Barometer 2012, July 2013.

prevent the import of energy crops that originate from such agricultural land areas. In relation to the world-wide arable land areas and the demand pressure for food and animal feed, the demand pressure for biofuels is also currently negligible.

„The Federal Office for the Environment does not share the opinion that bioenergy has a decisive influence on hunger in the world There are no indications that it is the relevant driver for this – at least not at the moment. The main causes lie in other areas, for example, in the fact that development policies in the agricultural sector or for the promised increase in development aid funds were not successful enough. Soil in many countries is still too poorly and not sustainably used."
Jochen Flasbarth, President of the Federal Office for the Environment, UBA, Berliner Zeitung, 13/09/2012

With an increasing requirement for food, an increasing demand for agricultural goods is to be expected in the coming decades. This development can, but must not necessarily lead to direct competition with energy plant cultivation: The yields could be considerably increased on the currently farmed land areas. The requirement for land could lead to development of the abandoned land and – depending on definition – up to 1,500 million hectares of degraded land.[19]

3.2 Structural poverty is older than biofuel production

Many emerging and developing countries theoretically have an adequate agricultural potential to provide food for themselves, that is, to ensure food self-sufficiency. In spite of this, these states are often to a large extent dependent on food imports. From the 1990s up until 2008, agricultural prices world-wide were at a historically low level. In many regions world-wide, farming of the land was not worthwhile. Additionally, the EU and the USA sold their surpluses of certain agricultural goods with export subsidies to developing countries at dumping prices. Small-scale farmers committed rural exodus, they gave up the production of food and migrated into the metropolises looking for alternative sources of income. As a result of this, an estimated 300 million hectares of agricultural land world-wide were abandoned,[20] among other things on account of civil war and other domestic conflicts.

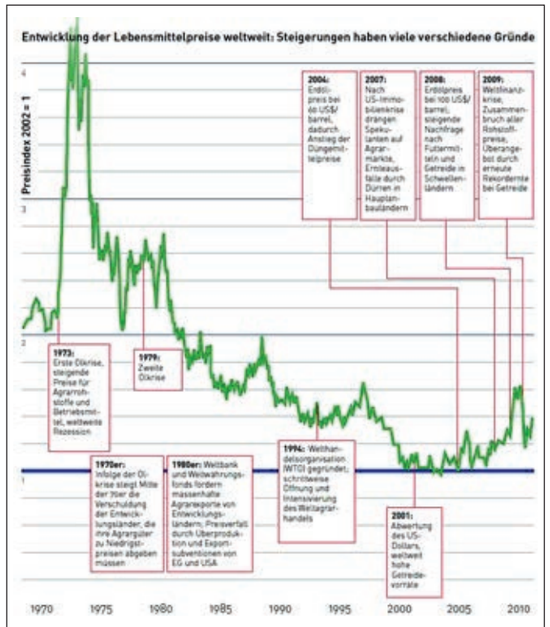
To combat the hunger, the structural poverty in the affected regions would have to be overcome: by strengthening selfsufficiency and protecting the domestic markets, through the support of small-scale farmers and by improvement of cultivation techniques and the infrastructure. These relationships must not be disregarded in the debate around the advantages and disadvantages of biofuels. The fact that bioenergy sources in developing countries can also be a possibility for strengthening self-sufficiency and saving on expensive imports of fossil fuels is an essential part of the search for solutions to overcoming structural poverty.[21]

3.3 Not biofuels, but speculation, mineral oil and meat make food more expensive

Hunger is not a problem of too little food production, but a problem of poverty. Hungry people can no longer afford to buy food.[22] Not agricultural land, but distributive justice is lacking in many emerging and developing countries that are dependent of food imports, or have directed their agriculture towards the export of foreign currency-earning „cash crops". In certain harvest years in some regions of the world, the increasing demand for certain agricultural commodities for biofuels has – alongside other factors – contributed towards the increase in quotations on the agricultural stock exchanges (e.g. the Mexican tortilla crisis in 2007).[23] There were, however, various reasons for the temporary price explosions on the world agricultural markets which influenced and intensified each other. Failed harvests in important cultivation countries coincided with historically low stock levels, while there was a continued demand from affluent emerging countries, such as China and India, for grain for animal feed. Fluctuations in exchange rates and trade barriers have intensified price-increasing effects for certain agricultural products. The increasing price of mineral oil has also had an impact, as mineral oil is the basis of production means in agriculture, such as fertiliser, pesticides and fuel. And not least, after the US property bubble burst in 2007, institutional investors and trusts with speculative intentions crowded increasingly onto the agricultural markets.

In debates in the scientific community, the magnitude of the influence is contentious, however there is agreement to a large extent that not biofuels, but speculation on the world agricultural markets is one of the main reasons for the – meanwhile again fallen – record prices in 2008/2009.[24]

[19] Dauber, Jens et al.: Bioenergy from 'surplus' land: environmental and socio-economic implications. In: BioRisk 7: 5–50, October 2012.
[20] Umweltbundesamt (UBA): Globale Landflächen und Biomasse nachhaltig und ressourcenschonend nutzen. Dessau-Roßlau, October 2012; Dauber, Jens et al.: loc. cit.
[21] VENRO Association of German Development NGOs/German NGO Forum on Environment and Development/ICEED: Rethinking Biomass Energy in Sub-Sahara Africa. Bonn, August 2009; Food and Agriculture Organization of the United Nations (FAO): Small-Scale Bioenergy Initiatives: Brief description and preliminary lessons on livelihood impacts from case studies in Asia, Latin America and Africa. Rome, January 2009; International Energy Agency (IEA): Energy for all. Financing access for the poor. Special early excerpt of the World Energy Outlook 2011. Oslo, October 2011.
[22] Oxfam: Mit Essen spielt man nicht. Die deutsche Finanzbranche und das Geschäft mit dem Hunger. Berlin, May 2012.
[23] Vigna, Anne: Böses Erwachen in Mexiko. In: Le Monde diplomatique, 14 March 2008; Höhn, Bärbel: Biosprit muss nicht schädlich sein. Statt pflanzliche Energieträger zu verdammen, muss man sie ökologisch anbauen. In: Die Tageszeitung, 12 November 2007; USDA: U.S.-Mexico Corn Trade During the NAFTA Era: New Twists to an Old Story, May 2004.
[24] Baffes, John/Hniotis, Tassos: Placing the 2006/08 Commodity Price Boom into Perspective.World Bank Development Prospects Group, Policy Research Working Paper 5371, July 2010; WEED: Evidence on the Negative Impact of Commodity Speculation by Academics, Analysts and Public Institutions, May 2013, http://www2.weed-online.org/uploads/evidence_on_impact_of_ commodity_speculation.pdf.



Lesebeispiel: Mitte der 1970er Jahre lagen die Lebensmittelpreise um das Drei- bis Vierfache über dem Durchschnitt von 2002.
Quelle: IATRC 2009, IMF Food Index des Weltwährungsfonds, Index: Durchschnitt der Lebensmittelpreise des Jahres 2002 = 1

As the proportion of the agricultural raw material, e.g. rapeseed, grain and maize, in the overall production costs is around 50 % to 90 %,[25] an increased raw material cost makes the biofuel end product disproportionately more expensive. In the case of bread on the other hand, the raw material costs for the grain make up less than 5 % of the end consumer price. In view of the increased raw material costs, among other things, the production of bioethanol from maize has stagnated in the USA since 2011.[26] Also in the EU, the consumption of biofuels has only increased slightly since 2010.[27]

[25] DBFZ: Monitoring Biokraftstoffsektor. DBFZ Report No. 11. Leipzig, October 2012.
[26] RFA: Battling for the barrel. 2013 Ethanol Industry Outlook, January 2013.
[27] EurObserver: Biofuels Barometer, July 2013.

3.4 The abandonment of biofuels would not stop hunger

In view of the negligible influence of the biofuel demand in the complex pricing on the world agricultural markets, doubt must be expressed as to whether a stop on biofuel production would cause a measurable fall in prices – and whether this would be passed on at all to the hungry people in developing countries. But also going back to low prices cannot be the aim, as this, after all, would only prolong the dependency on imports of the developing countries. Without stable agricultural prices, there would be a lack of incentive in these countries to make the urgently needed investments in agricultural production. It is misleading to blame bioenergy for being the clear cause of the suffering of 870 million starving people. Equally pointedly it could be asked: If biofuel production were to be stopped, would the agricultural commodities that were no longer needed (above all sugar cane, maize, rapeseed and soya beans) really go to benefit the hungry? Is it probable that then in the cultivation countries under the prevailing political and economic conditions the foods that are required would be produced?

„...to only focus on biofuels and mask out the much greater competition for land area between animal feed and food, now that is really populist."
Thilo Hoppe (The Greens), Deputy Chairman, German Bundestag Committee on Economic Cooperation and Development, DLR Kultur, 16/08/2012

By making a scapegoat of biofuels, environmental and development policy organisations are arousing expectations of solutions that are not justified. Focusing only on the „food versus fuel" conflict distorts the well-known problems in world agricultural trade. In view of the global land area requirement for animal feed production of 35 % of the agricultural land, it would be more reasonable to speak of a „food versus feed" competition. A debate would be worth-while on how to mobilise the adequate potentials for food, animal feed and bioenergy in the many developing countries. It would be highly possible to integrate the production and use of biofuels into regional strategies for combating poverty.[28]

[28] With the project Bioenergy and Food Security (BEFS), the FAO has developed a control and guideline system which is intended to help organise the cultivation of energy plants in terms of food security on a national and project level, see http://www.fao.org/energy/befs.
The FAO and the environment programme of the United Nations Environment Programme (UNEP) have also developed a Bioenergy Decision Support Tool to avoid competition in the usage, see http://www.bioenergydecisiontool.org/bio_tool.htm,
and also the sustainability indicators of the Global Bioenergy Partnership (GBEP) http://www.globalbioenergy.org/fileadmin/user_upload/gbep/docs/Indicators/The_GBEP_Sustainability_Indicators_for_Bioenergy_FINAL.pdf.

3.5 Biofuels are the forerunner for obligatory ecological standards in agriculture

With the EU sustainability criteria, which are mandatory for all imports used for biofuel production, binding government minimum standards were introduced for the first time in the global agricultural trade. Since 2011, a net contribution to the reduction of greenhouse gases, the protection of ecologically valuable areas and transparency in the production chain must be guaranteed.[29] Although the minimum social standards in the certification system have so far been rather weak, working conditions in the cultivation countries are finding more international interest.

> *„If such high standards were to be placed on all agricultural uses as they are on biofuel, then we would live in a better world"*
> Jochen Flasbarth, President of the Umweltbundesamt (Federal Office for the Environment, UBA), Tagesspiegel, 07/03/2011

Environmental and development policy organisations should actually be interested in intensifying these minimum standards and extending them to the considerably more extensive part of the world crop that is channelled into food and animal feed production – after all, energy plant cultivation uses only the smallest part of world-wide agricultural land.

No energy = no food

Without energy, no food can be produced. If agricultural yields are to be increased, if the crop is not to spoil, but able to be stored safely, transported and further processed, a better energy supply in the developing countries is indis-pensable. Going back to fossil fuels cannot be the solution. Expensive imports of diesel for electricity and fuel supply are still increasing the debt of many developing countries and unavoidably intensify climate change. Biofuels and other bioenergy sources offer not only a potential for the reduction of greenhouse gases. As a domestic source of energy, they help to escape from the dead end of dependency on fossil fuels and imports, and to improve the supply of food and animal feed, as well as energy.

[29] AEE: Zertifizierung von Bioenergie. Wie Nachhaltigkeit in der Praxis funktioniert. Renews Spezial 53, December 2011.

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Tel.: +49(0)30 200 535.3

Email: kontakt@unendlich-viel-energie.de

Editor: Jörg Mühlenhoff

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