



Maua Juma, 9, stands in front of her family plot in Tanzania.

Kate Holt/Shoot the Earth/ActionAid

## Coming Clean on Hunger: The Dirty Truth about Industrial Biofuels

Engaging in the debate over biofuels, ActionAid asks, "Who benefits?" Are biofuels clean or dirty? Green or mean? An answer to rural development or a part of the problem in the global food system? An important move towards energy independence or another profitable opportunity for the oil, gas and ethanol industries? In exploring the issue we found that U.S. and European renewable fuel targets benefited the few at the expense of the many and distracted people from the growing North-South food and energy imbalance. We will make our underlying agenda clear: we come from a rights-based development perspective that puts poor people first and confronts unequal power. Working in partnership with poor and excluded people we assert the following analysis of industrial biofuels.



Tractor destroys corn and bean crops that were in the process of being harvested to make way for a sugar plantation and ethanol refinery in Agua Caliente, Guatemala.

## Biofuels are NOT clean, green energy

When you look at the full lifecycle of biofuels – from seed to the finished product – they are worse for the environment than the fossil fuels they are designed to replace. Emission savings are quickly outweighed by the emissions generated from deforestation, the conversion of peat lands or permanent grasslands to grow biofuel crops, and the release of nitrous oxides in the fertilizers used to cultivate biofuel crops.

### Facts

- Every ton of palm oil (one of the crops used to create biofuels) generates 33 tons of carbon dioxide emissions – 10x worse than petroleum.<sup>1</sup>
- Nitrous oxides, the greenhouse gases that are released by the fertilizer necessary for the production of industrial biofuels, are times more powerful than carbon dioxide.<sup>2</sup>
- The fertilizer and pesticide runoffs from the U.S. Corn Belt contributed to the Gulf of Mexico and Atlantic Coast “dead zones”. To meet the U.S. government’s Renewable Fuel Standard, increased corn production for ethanol production would increase nitrogen pollution in the Gulf by 10-34%.<sup>3</sup>
- It takes between 2.5-3 gallons of water to produce one gallon of ethanol. A plant producing 100 million gallons of ethanol a year uses as much water as a town of 5,000 people, according to a study in the National Academy of Sciences.<sup>4</sup>

## Biofuels contribute to food price volatility

The biofuels boom leads to higher prices in several ways. Shifting food and feed crops to fuel shrinks food supply in a world with growing demand for food and grain fed protein sources. Turning crops into fuel further entwines food and fuel. You can find oil in all aspects of the production of food from the fertilizer to powering farm equipment to transporting food to the market place. When oil prices go up, the cost to produce food rises too. When food

becomes fuel, high oil prices create a bigger demand for alternative fuel, putting more pressure on prices.

The transfer of land from use to produce food to fuel is compounded by food growers changing over to biofuels in anticipation of higher returns and farmers leaving their own land uncultivated to work on biofuel plantations. Ultimately, the rapidly rising demand for crops for fuel has put them into competition with those grown for food driving food prices higher and affecting what -- and how much -- people eat in developing countries.

### Facts

- The FAO estimates that in 2008, 125 million tons of cereals were diverted to biofuel production. In the same year, more cereal production was diverted to animal feed and industrial uses than feeding people.<sup>5</sup> Today, almost 40% of the U.S. corn crop goes to fuel.
- The U.S. harvested 416 million tons of grain in 2009. 119 million tons went to biofuels. That is enough to feed 350 million people a year.<sup>6</sup>
- The amount of corn required to fill a 4x4 tank with biofuel would feed a child for a year – that’s a staggering 1,000 meals, or the equivalent of 40 meals in every gallon of biofuel.<sup>7</sup>
- If all global biofuel targets are met, it is predicted that food prices could rise by up to an additional 76% by 2020, resulting in an estimated 600 million extra hungry people.<sup>8</sup>

## Biofuels cannot replace oil or provide energy security

There is not enough land worldwide to grow enough biofuel crops to end our oil dependence and maintain enough land for sufficient food, forest and animal habitat. Industrial biofuels will do little for energy security – indeed crops have their own insecurity due to droughts and natural disasters. Biofuels are also inefficient forms of fuel. They are not energy-dense the way gas is, so they cannot carry vehicles long

distances on their own. They need to be blended with fossil fuels to be productive – so they cannot replace fossil fuels. While biofuels proponents want to increase the percentage of ethanol at the pump to 15%, car manufacturers are raising concerns that the resulting gas would corrode conventional car engines. Despite the huge uptake in ethanol production over the last few years – resulting in 40% of our corn crop going to fuel, not food or feed – we have not seen an equivalent drop in oil imports. Even if the entire U.S. corn crop were to go to fuel, it would displace only a small share of gasoline demand.

## Facts

production in recent years, if the argument that ethanol is displacing oil imports were true, one would expect to see a comparable decline in oil imports. Even when factoring in the fact that ethanol is less energy-dense than gas, when you do the math, the reality is that ethanol is not making a dent in oil imports.<sup>9</sup>

- Even before the 2008 food crisis, experts indicated that to eliminate the use of gas entirely would require more than doubling the cropland currently under cultivation, adding an additional 80 million acres of corn alone.<sup>10</sup> To replace 90% of our gas with corn ethanol would require planting five times our corn crop and using every bushel for biofuels.
- If all the corn produced in the U.S. were devoted to fuel (leaving nothing for food, feed or other uses) that would meet only 12% of the demand for gasoline. When you subtract the amount of fossil fuel required to produce the fuel, you would be left with an energy gain of 2% of the gasoline supply.<sup>12</sup> Considering that we import half of our petroleum, the actual contribution to “energy independence” would be less than 2%.<sup>13</sup>

## Biofuels fail to boost rural development and create jobs in the U.S.

Ethanol lobbyists argue that support for biofuels in the form of tax credits will boost jobs in rural America. However, when you look at the breakdown of the subsidy you find that this is one of the more expensive ways to generate jobs in America. Job generation is important, but there are far more efficient ways to create jobs that won't promote an industry that has such a negative environmental and human impact. It is important to assess not only how many new jobs are created but also how stable the jobs are, and what the labor, health and safety standards are in the positions.

## Facts

- The \$6 billion in ethanol subsidies approved in December 2010 could generate an extra 600 million gallons of ethanol. Every 100 million gallons of ethanol creates 70 jobs. Thus the 2011 subsidy could result in 420 jobs. When you take the cost and divide it by the number of jobs, the price tag is \$14 million per job.<sup>14</sup>
- The average corn ethanol plant directly employs only 45 workers.



Jasmine Ali, Tanzania:  
Hoeing her newly planted  
corn.

Kate Holt/Shoot The  
Earth/ActionAid

## Biofuels contribute to price volatility, which is bad for the American farmer

Many in the Corn Belt have watched for decades as farms consolidate and jobs vanish, so the push towards biofuel production and refinement, which initially was happening in smaller farms and locally owned plants was seen as a real boon. However, as the biofuel demand has increased, more and more

of the biofuels are being produced by larger agribusiness that are converting to corn ethanol from corn for food and ethanol plants are less often locally owned. Although price rises benefit corn farmers in the short term, the volatility – which includes price drops – is not helpful for farmers. Ranchers, dairy farmers and other animal agriculturalists are hurt by price volatility and price hikes because it raises the cost of the feed, forcing in some cases, layoffs in those industries. The shrinking supply makes it difficult to get access to the corn and other feed needed to support their businesses.

## Facts

- The biggest ethanol subsidy is the Volumetric Ethanol Excise Tax Credit (VEETC). According to the Government Accountability Office, not a penny of this subsidy goes directly to helping farmers.
- Corn prices at the Chicago Board of Trade increased from an average of \$2 a bushel in 2006 to nearly \$7 in July 2008 and then down to \$4 a bushel (a level just barely above cost of production) by October 2008 and is back up to \$6 a bushel by December 2010. While rises in corn and other commodity prices appears to offer some breathing room for U.S. farmers, in fact the food fuel competition leads them on a roller coaster ride of wild price swings which creates real problems for farmers since there is a long gap between decisions on planting and the harvests that result.<sup>15</sup>

## Deepening our investment in conventional industrial biofuels will not produce advanced biofuels

When you look closely at arguments by biofuels proponents, you will find that most of the answers revolve around “advanced” biofuels and “cellulosic” ethanol. “Advanced biofuels” can range from fuel made from waste to burning wood to algae. Although the initial studies suggest that advanced biofuels may be better for the environment than initial biofuels, the current reality – what is largely in production now – are first generation biofuels from corn, soy, sugar and oils. The concept of first generation industrial biofuels as a

stepping stone to future biofuels is misleading because second generation industrial biofuels would require new technology and an entirely different infrastructure. It is still a question if second generation biofuels will ever become commercially viable, and more research is needed about the true impact of advanced biofuels on hunger, food security and the environment.

## Facts

- What we know from ActionAid Brazil’s report, *Smoke Screen: The Hidden Story Behind Biofuel Production* is that Brazilian ethanol production, while it is being labeled as an “advanced biofuel” by the EPA, is eating into fragile eco-systems and displacing cattle ranching and other farming into the Amazon with a devastating impact to the environment and hunger in poor communities.
- Since 1921 biofuel supporters have been promising “better” biofuels, but companies are still struggling to make advanced biofuels cheaply enough for commercial sales. The reality is that first generation biofuels are what we are talking about now, and we can’t just step from one technology to another.
- The ethanol tax credit eats up 75% of the tax credits for renewable energy.

<sup>1</sup> Eric Holt-Gimenez, “The Biofuels Myths,” *New York Times*, July 10, 2007 (<http://www.nytimes.com/2007/07/10/opinion/10iht-edholt.1.6588231.html>)

<sup>2</sup> Tim Rice, *Meals per Gallon*, ActionAid [http://www.actionaid.org.uk/doc\\_lib/meals\\_per\\_gallon\\_final.pdf](http://www.actionaid.org.uk/doc_lib/meals_per_gallon_final.pdf) (January 2010)

<sup>3</sup> “Biofuels,” *New York Times*, (<http://www.nytimes.com/info/biofuels/>)

<sup>4</sup> *ibid*

<sup>5</sup> FAO, 2009b. *Crop Prospects and Food Situation*. <http://www.fao.org/docrep/011/ai481e04.htm> and FAO, 2009c. *Food Outlook*. <http://fao.org/docrep/011/ai482e/ai482e02.htm>

<sup>6</sup> *Foreign Policy*, January 10, 2011 “The Great Food Crisis of 2011” by Lester Brown

<sup>7</sup> *op cit*. *Meals Per Gallon*

<sup>8</sup> *op cit*. *Meals Per Gallon*

<sup>9</sup> Robert Rapier, “Ethanol and Petroleum Imports,” *Consumer Energy Reports*, October 2009.

<sup>10</sup> *BusinessWeek*, February 2007 “Food vs. Fuel” by John Carey, Adrienne Carter and Assif Shameen

<sup>11</sup> Environmental Working Group <http://www.ewg.org/agmag/2011/01/whose-freedom-is-growth-energy-fueling/>

<sup>12</sup> Hill, et al., “Environmental, economic, and energetic costs and benefits to biodiesel and ethanol biofuels,” *Proceedings of the National Academy of Sciences*, 2006: 103; 111206-11210

<sup>13</sup> U.S. Energy Information Agency [http://www.eia.doe.gov/energy\\_in\\_brief/foreign\\_oil\\_dependence.cfm](http://www.eia.doe.gov/energy_in_brief/foreign_oil_dependence.cfm)

<sup>14</sup> Jed Graham, *Ethanol Subsidies: \$10 a Gallon and \$14 million Per Job Created*, *Investors.com* (December 10, 2010).

<sup>15</sup> Jae Hur, “Corn Extends Gains to Six-Week High as Report Says U.S. Planting May Drop,” *Bloomberg* <http://www.wikinvest.com/wikinvest/api.php?action=viewNews&aid=2155857&page=Commodity%3ACorn&format=html&comments=0> (December 20, 2010)

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