

Impacts of bio-fuel production on the Third World countries

Introduction

The lately promoted and prescript production of bio-fuels was few years ago a good promise for global society running out of fossils to have an option not to change its consumption patterns and decline the demand/supply chain using a renewable resource. That could have helped to avoid economic fluctuations and even show a political effort to the 21st century 'new man' society, which is keen for a green action and sustainability. One can follow such an act with just simple rational thoughts about fossil energy resources, which we run short of in near future anyway. The production and consumption cause ecological problems – effects on our planet; the prices on world markets fluctuate and raise – effects on economy and society; the power conflicts of resources have many geopolitical impacts starting with quality of life of local communities and subsequent grievance and greed and ending with exploitation of the Third World, tension, violence and pressure on global justice – effects on morality and peace.

The EU and US mandatory implementation of bio-fuels (20 % target of renewables in energetic stock and 10 % of road transport fuel within EU by 2020¹) provoked its mass production, often in vulnerable developing countries, even though the very first idea that crossed westerners' minds was the energetic self-sufficiency and home production (driven by massive subsidies though²). Global bio-fuel consumption is estimated to jump from about 70 billion litres in 2008 to 250 billion litres in 2020.³ The mass is the key point, even more in the Third World, where it certainly did caused many problems if production contained resources and land. In this paper I want to sum up some of the main causalities linked with this topic showing that anyhow innovative idea has controversial results in its pros/cons comparisons and one might even state it as a continuation of the exploiting policy ('neocolonialism') from the West to the Third World countries. Since I want to turn this topic into a broader analysis in my final thesis later this year, this paper considering its size and pre-research timing is mainly an attempt at an essay influenced by some articles with data on this topic, not truly a data analysis. First I will look at the relationship between the West and Third World

¹ Wood Mackenzie (2010; p. 14)

² According to ActionAid (2010; p. 2) report, the industry would be subsidised to the tune of about €13,7 billion per annum if meeting the 2020 target of 10 % transport fuel obtaining from renewable sources. In US those subsidies went up to \$7 billion already in the year 2007 (Economist, 2007).

³ ActionAid (2010; p. 4) survey continues with numbers. To meet the EU 10 % target alone, the total land area directly required to grow industrial bio-fuel crops in developing countries could reach 17.5 million hectares – over half the size of Italy. Additional land will also be needed in developed countries, displacing food and animal feed crops once again to developing world.

concerning this topic and then I will continue with some socioeconomic and environmental issues.

Production for Western world

Let me start with some reasons for mandatory implementation of bio-fuels in the North America/EU agendas. These are: growing demand of energy, demand for sustainability and fight with a climate change, rising of oil prices in the world markets, tendency for self-sufficiency in energy production, etc. The last reason might be read as an attempt to be less dependent on fossil-fuel rich countries (Middle East, Russia), but as well as a take up of the subsidised agriculture self-sufficient policy (Common Agriculture Policy of EU).⁴ The bio-fuel boom, which had started latest with the beginning of new millennium, made from these areas major producers of bio-fuel in the world.⁵ However, progressive targets of both EU and US required additional imports of bio-fuels and made EU a net importer already in the year 2008. This policy helped Brazil (followed by Argentina) to be the most significant exporter of ethanol fuel (sugarcane production towards US) nowadays (2nd biggest producer after US).⁶ In oilseeds production in Brazil the story is the very same, but here the demand is driven by the EU. But Brazil has been considered to have the world's first sustainable bio-fuels economy, investors are local, they try to avoid land-use problems, workers are paid above the minimum wage, etc. For purposes of this paper I will rather focus on the least developed regions, where different regimes from both local authorities and MNC's take place. Such countries (Africa, South-East Asia) are becoming very significant exporters and social and environmental issues are here visible the most.⁷

Price increase

There have been several evidences, that the growing demand for bio-fuel production puts a considerable pressure on prices.⁸ Why? Agriculture commodity prices are becoming increasingly correlated with oil prices (directly and indirectly – price of fuel, fertilisers). The volatile and rising oil-prices may shift these turbulences to agriculture production (food and bio-fuel). Last but not least, the increasing share of bio-fuel usage of crops (up to 20 % in the case of sugarcane) moves both demand and supply upwards (and the price on world markets of course). If we follow classical economic

⁴ An analysis which supports my assumptions is offered by Hertel et al. (2008. p. 25)

⁵ Within the EU, Germany is the largest producer (54 % of EU total biodiesel production in 2006), Czech Republic gives 2.2 %. European Biodiesel Board (2007; in: Ibid. p. 6).

⁶ RFA (Renewable Fuels Association) (online).

<<http://ethanolrfa.org/pages/World-Fuel-Ethanol-Production>> Cited (9. 1. 2012)

⁷ Another figure from Hertel et al. (2008; p. 21): acreage devoted to oilseeds increases from 11 – 16 % in Latin America and very similar number provides Southeast Asia and Africa (14 %).

⁸ Price volatility... (2011; p. 10). The study says that prices of wheat, coarse grains, oilseeds and vegetable oil increased by 8, 13, 7 and 35 % respectively.

theories, considering that oil-prices are high, and crops' values in the energy market exceeds those in the food market, crops will turn to the production of bio-fuels once again, which will increase the price of food. Food price volatility is then attached to the oil-prices and the whole system of bio-fuel production. For countries of sub-Saharan Africa or so, that are often dependent on one food/fuel crop, such a linkage with oil can be very dangerous. There has been a large debate recently about the impact of bio-fuel production on food crisis in 2008, which pushed about 30 million people into hunger.⁹ The crisis led into food riots and some governments were overthrown. FOE (2010; p. 4) argues, that crops being used for agro-fuels were a major factor in the rising price of food.

Land-use

In this chapter, I will discuss the land-use impact of bio-fuel production, often seen as a mixture of environmental and social issues. Since they are all very much connected, I will rather write a little about the story, than dividing them into list of impacts.

At first, massive production of monoculture crops is always an environmental challenge. The big issue is not which crops are grown¹⁰, but more likely how much cropland is demanded overall, and how much (and where) grazing and forestlands are converted to cropland. Secondly, these increases in crop cover come at the expense of pasturelands as well as commercial forests.¹¹

Such 'land grabs', where land traditionally used by local communities is leased or sold to outside (mainly Western or Chinese) investors, are becoming increasingly common across Africa, often without consent of local communities and without a full assessment of the impact on the local environment. Access to land has always been a crucial issue, providing food and livelihood (60 % of African population relies on farming for survival¹²). Up to a third of the deals for land are reported to be agro-fuel crop lands.¹³

Clearing the forest makes way for agro-fuel plantations. Unfortunately deforestation destroys valuable natural resources (as well loses a natural habitat for many species)

⁹ ActionAid (2010; p. 3). Survey continues with a prediction, that if all global bio-fuel targets are met, food prices could rise up to an additional 76 % by 2020, pushing extra 600 million people into hunger.

¹⁰ Sugarcane, sweet sorghum, maize and cassava are grown as food crops in Africa, but are also considered as feedstock for ethanol production. Oil palm, soy, groundnuts and jatropha are being promoted for bio-diesel.

¹¹ The largest percentage declines in commercial forestry cover are in the EU and Canada, followed by Africa. Hertel et al. (2008; p. 21) We might miss Brazil in this quote. Apparently the rain forests there are not cut in preferences of bio-fuel lands.

¹² FOE (2010; p. 8)

¹³ We can talk about millions of hectares nowadays, areas in size of Benelux. (Ibid; p. 10) Deforestation in Indonesia is often cited as a case of 'agro-fuels gone wrong.' Biofuelwatch (2010; p. 3)

and both directly (using machinery, fertilisers) and indirectly (process of deforestation and newly plantation itself) increases greenhouse gas emissions. The level of greenhouse gas varies according to several aspects, such as the nature of the crop, the amount of energy needed for transport and processing the fuel, yields per hectare, and so on. Some studies say that for some crops the bio-fuel business produces more emissions than would be produced by the equivalent of fossil fuel. Even greater are the changes in land-use.¹⁴ Moreover, crops, such as jatropha or sugarcane, for the production take water resources and need expensive pesticides.¹⁵ Mass production of a monoculture crop is a disaster for biodiversity and soil degradation. Rather than bringing a guaranteed income for farmers or land owners, in the end of season it might leave them with no income and no source of food.

Many argue that there is a lot of spare (marginal, abandoned) land in Africa and Asia. Here, in the exploitation of local communities and their lands, we can find many similarities with oil and other mining and heavy industry led by MNCs from Western world (lately state companies from China).¹⁶ These people forget that 'marginal' areas are home to hundreds of millions, often merged to their lands as a way of survival. Their traditional system of livelihood, extensive grazing by pastoralists and rotating system of cultivation with fallow lands not only supports their living, it protects ecosystems and biodiversity.¹⁷ The competition for land and water between food and fuel crops is then a crucial issue for locals.¹⁸

It is a must to note though, that not all bio-fuel production must worsen the environment and the carbon footprint might be even positive (assisting the so called 'carbon dioxide sequestration') It is possible if natural forests and vegetation are allowed to re-establish, heavy machinery is not used in a big scale, etc. A considerable part of the carbohydrates produced through photosynthesis are transported through the roots to the soil, whilst only the biomass above ground is used for bio-fuel production.¹⁹ Technological improvements are in need, second and third generation of

¹⁴ FOE (2010, p. 16) says that for palm oil grown on the place of cleared forest, it takes 150 years for the carbon savings from the harvest to replace the carbon lost from the forest. Comparable findings (75-93 years) result from the survey of Danielsen et al. (2008, p. 7)

¹⁵ Despite what is often said about growing bio-fuel crops in arid conditions, irrigation in low-rainfall areas is required. Ambali et al. (2010, p. 9) Other authors proclaim that bio-fuel products are one of the most thirsty in agriculture.

¹⁶ Not surprisingly, several countries of Africa have started a discussion recently about establishing an organization fighting for their rights (nicknamed 'Green OPEC')

¹⁷ A nice speech about the energy sprawl and loss of biodiversity was held at the University of Toronto in the Climate Change Conference. Biofuelwatch.org (2010)

¹⁸ More numbers about loss of biodiversity, water needs and bio-fuel production can be seen in Biofuelwatch (2011)

¹⁹ Ambali et al. (2010, 1-8)

bio-fuel production processes had been promoted, but not very often used in the countries of Africa and Southeast Asia. Such upgrade is cleaner and more sustainable.²⁰

Conclusion

As we can see even from this short paper, there have been many arguments written and said about recently adapted mass biomass/bio-fuel production. Here in the conclusion I think is the right time for dividing the story in two lines.

The first line is the plausible eco-sustainable status of the bio-fuel production. Personally I think that none of monoculture crop industry can be ecological and considerate to local ecosystems. If using innovative methods, right crops on right places, it is anticipated, that such agriculture might be helpful in the struggle of climate change, fighting the green gas emissions. The problem is definitely the undertaking of land for bio-fuel purposes. So far, the intensive consumption of bio-fuels takes place in the USA, Canada, EU (and Brazil), upcoming shift to Latin America, China and other countries would made recent quotas and production unsustainable, even more when EU as the green policy booster will strengthen the targets. Even countries In Africa have started targeting bio-fuel power (e.g. Nigeria has set a national target for using up to 10 % home-grown agro-fuel in transport by 2020).²¹ In environmental case, I think that biomass production should be part of the sustainable energetic architecture, but definitely from local sources, where there no other options as hydro, wind or solar power plants. The final and main suggestions are simple – consuming less energy, acting better with waste, have more responsibility to the environment.

What we can see now is on one side liberal position of exporting products to the West and regulative double-standard conditions from foreign investors to the Third World, when energy is the good (oil, bio-fuel). If exploiting the developing countries for energy, my suggestion is to build up a huge photovoltaic panel across Sahara desert and sending the energy around the world. Not only this double-standardization makes troubles to the environment, but as well to local communities, who are underpaid, forced to change the place of living or fight for food and survival. In economy, which is based on one exporting product, and where the land is filled with one crop (moreover not for food), the options for people not to starve is import (no money to buy things) or being a self-sufficient farmer (land is grabbed from them). I believe that better control of such practises and sufficient refunds to the farmers could make the deal, well, if there is the need for massive bio-fuel industry.

²⁰ EFMN (2008)

²¹ FOE (2010; p. 13)

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