

**Title: Environmentalisms, discourses and injustice reproduction: the case of agrofuels**

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**Abstract**

The production of agrofuels is gaining great importance in Brazil and worldwide due to several incentive policies such as blending mandates with gasoline or diesel, justified as actions to couple the contemporary energy and environmental challenges. However, the real contribution of agrofuels is increasingly questioned due to negative environmental and social impacts generated by them. This paper seeks to relate the different streams and environmental discourses around agrofuels; how these different positions around the social and environmental impacts are incorporated into the environmental impact studies, which seem to give little importance to the local social impacts, generally concentrated on traditional people and small farmers, with less power, characterizing a clear case of environmental justice. Hence, it is necessary to question these policies and green propaganda, since they are reproducing the capitalistic way of use of Nature that ignores other cultures and social groups, violating the principles of social and environmental justice and respect for human rights.

**Keywords: Agrofuels; Sugar cane; Environmental justice; Environmental impact assessment; Environmental conflicts; Political ecology**

## **Introduction**

Given the current energy crisis, as it approaches the so called ‘‘oil peak’’, the trend of rising prices for fossil fuels is certain (McMICHAEL, 2009). On the other hand, the environmental issue is more present on political agendas, being global warming and climate change the main topic. Then, agrofuels are presented as a ‘‘perfect solution’’ to reduce greenhouse gases (GHG) emissions and cars pollution, and at the same time as a renewable energy source (SZMERCSENYI & GONÇALVES, 2009).

In the Brazilian case, agrofuels production is encouraged by international and national demands, such as policies to reduce carbon emissions, quotas of blending fuels and the flex fuel cars which use mixtures of gasoline and ethanol. At 2009, Brazil had a significant share in world agrofuels production, particularly ethanol (45%), and it is still growing. Brazil also produces biodiesel, specially made of soybeans.

According to Assis (2010), the interval between the years 2001 to 2008, Brazilian production rose from 11.4 billion liters/ year to 27.5 / year, with the interval 2005-2008 concentrating 81 % of the increase, coinciding with the European Union and the United States announcements to set targets for replacing fossil fuels, and it also represents the start of exports to meet these demands, resulting in a large increase in planted area in Brazil. Hermele (2012) illustrates the dimensions of mixtures of ethanol and biodiesel in various countries (table 1).

Table1. Agrofuels blending mandates in 2009.

Source: HERMELE (2012).

<b>Country</b>	<b>Mandate</b>
Australia	E2 in New South Wales, increasing to E10 by 2011; E5 in Queensland by 2010
Argentina	E5 and B5 by 2010
Brazil	E22 to E25 existing; B3 by 2008 and B5 by 2013
Canada	E5 by 2010 and B2 by 2012
China	E10 in 9 provinces
Colombia	E10 and B10 existing
Dominican Rep	E15 and B2 by 2015
EU	E 5.75 by 2010, E10 and B10 by 2020
Germany	E5.25 and B5.25 in 2009; E6.25 and B6.25 by 2014
India	E5 by 2008 and E20 by 2018; E10 in 13 states/territories
Italy	E1 and B1
Jamaica	E10 by 2009
Malaysia	B5 by 2008
Paraguay	B1 by 2007, B3 by 2008, and B5 by 2009; E18 (or higher) existing
Peru	B2 in 2009; B5 by 2011; E7.8 by 2010
Philippines	B1 and E5 by 2008; B2 and E10 by 2011
South Africa	E8–E10 and B2–B5 (proposed)
South Korea	B3 by 2012
Thailand	E10 by 2007 and B10 by 2012; 3 percent biodiesel share by 2011
United Kingdom	E2.5/B2.5 by 2008; E5/B5 by 2010
USA	Nationally, 130 billion litres/year by 2022; E10 in Iowa, Hawaii, Missouri, and Montana; E20 in Minnesota; B5 in New Mexico; E2 and B2 in Louisiana and Washington State; Pennsylvania 3.4 billion litres/year agrofuels by 2017
Uruguay	E5 by 2014; B2 from 2008–11 and B5 by 2012

Although the encouragement and support for this large expansion of agrofuels is led by a sustainable development appeal, contradictions in the literature are pointed out in the opposite direction to the common sense. Firstly, it is important to comment on the immaterial dispute around the term biofuel: some authors argue that “bio” could mean “life”, which is ironic due to the environmental impacts and nature’s exploitation. Moreover, the term “agrofuels” seems more appropriate to emphasize the agricultural origin of these fuels and will be the current term in this text.

Regarding environmental impacts, there are some considerable negative impacts in the sugar cane chain production, for example, water resource pollution by pesticides,

fertilizers and waste in general. In addition, the biomass burning is responsible for environmental pollution, affecting quality of life and health of the local populations. Another social/health problem is the slavery/labour conditions of some workers. Moreover, Teixeira *et al* (2008) questions the real contribution to reduce car pollution, making it a controversial positive impact. Possibly the most critical point is the issue of competition between monocultures and food production generating concerns about food security in several scales of analysis.

All of these problems derived from the agrofuels mode of production in Brazil confirm the analysis of White and Dasgupta (2010), that states that agrofuels are just another commodity, not differing from other assets of the old primary-export model of the peripheral countries.

### **The environmentalisms**

The agrofuels have the uniqueness of being displayed in a context in favor of so-called sustainable development, supported by the political incentives already shown previously. In this context, which agrofuels are presented with an environmental appeal, it is necessary to recognize the heterogeneity of the so-called environmental movement. Martinez-Alier (2009) distinguishes three streams of environmentalism: the cult of wildness, the gospel of eco-efficiency and the environmentalism of the poor.

The ‘cult of wildness’ is related to a sacred vision of natural life, understanding that nature has an intrinsic and intangible value, as well as the natural right of existence. These ideas gained strength with the increasing destruction of the natural world, represented by the rapid loss of ecosystems of high biodiversity, where species are extinct without even being known to man. Then, this stream has a preservationist perspective of Nature.

The gospel of eco-efficiency defends a better use of natural resources, in an utilitarian way of conservationism. This stream is generated as a response to social demands about environment, trying to conciliate economy and nature. Nowadays, it can be represented by the ‘‘carbon credits’’ or the ‘‘polluter-principle’’, both related to a ‘‘green economy’’ that is emerging worldwide.

The third stream, known as the environmentalism of the poor - here considered as *political ecology* - emerges as a critical view of the previous ones. In this way, nature cannot be reduced to market laws. Additionally, it should not be viewed as sacred but as a whole integrated with human societies, providing the material needs and symbolic values. Hence, this stream is concerned with people-nature relationships, understanding how different cultures see and use their natural resources.

### **The environmentalisms and the agrofuels impacts**

Said that, how do the different environmental streams see the role of agrofuels? Steward Fast (2009) provides a light on this question. He examines the controversial topics of the production of agrofuels, as well as which of these topics are more or less addressed by certain institutions (3 NGO’s, 2 government institutions of Canada, and an English academic institution). The author shows the existence of two main discourses about environment: an ecological discourse and a discourse of environmental justice, with its peculiarities (table 2).

<b>Ecological discourse</b>	<b>Environmental justice discourse</b>
Focus on protecting biophysical system from harm	Focus on protecting marginalized groups from harm from environmental hazards
Little distinction between socio-economic position of groups within society	Considers socio-economic position of groups in society
White middle class dominated activist groups	Minority and low income dominated activist groups
Engage and rely on state institutions and experts	State institutions seen as uncommunicative even hostile, expert opinions challenged
Nature has intrinsic value does not solely exist as resource for humans	Use of nature as resource by humans creates distributive injustice (who gets what) and procedural injustice (how are all groups part of decision making)
Environmental protection over economic growth	Environmental protection trumps economic growth; yet economic attributes, particularly access to jobs with good working conditions emphasized
Global and abstract environmental concerns prominent (e.g., biodiversity, deforestation)	Local acute environmental concerns prominent particularly toxics linked to local health problems

Table2. Caracteristic of the ecological discourse and the environmental discourse.

Source: Fast (2009).

It is evident that the political ecology concepts belong to what was defined as a discourse of environmental justice, where local impacts and the principles of justice are addressed. On the other hand, the gospel of eco-efficiency and, in part the cult of wildness are associated with the ecological discourse, in which issues such as sustainability and climate change have more importance. What can be understood is that these discourses disagree about the role of agrofuels for the environment. For example, the non-governmental organization (NGO) NDC supports agrofuels, while other NGO like Biofuelwatch is opposed. Hence it is assumed that for the first, the positive impacts contributions (such as carbon emissions) exceeds the negative contribution (pesticide contamination of water resources and local populations). Therefore, it is important to realize that the common sense on the green side of agrofuels hides internal

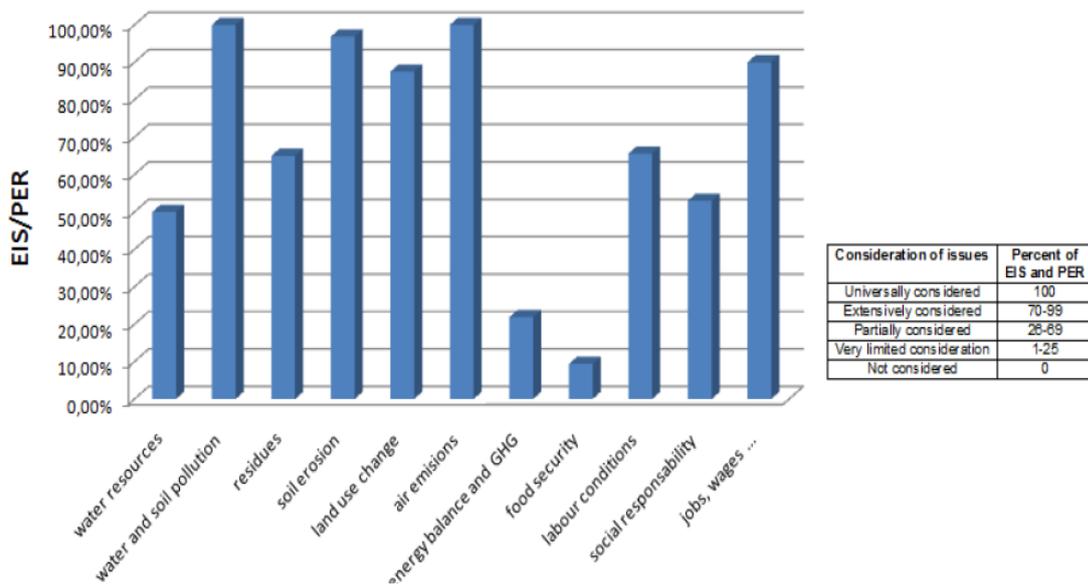
contradictions and controversies about them. Then, it is clear that the contribution or not of the agrofuels is subjective instead of consensus.

Once there are different discourses and opinions about the agrofuels impacts, how are these impacts addressed by environmental impact studies (EIS)?

Casteli (2011) analyzed 32 IES's of sugar cane production for ethanol in São Paulo state, Brazil (São Paulo is the main producer of sugar cane in Brazil). The frequency of the impacts is shown in figure 1.

Figure 1. Frequency of the impacts in the 32 Environmental impact studies analyzed.

Fonte: Casteli (2011)



The study acknowledged that some issues like environmental impacts are more addressed by these EIS's than others as social-economic impacts. For example, impacts like health impacts are much less addressed than environmental impacts such as water pollution. So, applying these typologies of discourses identified by Fast (2009), what is

clear is that the issues concerning environmental justice discourse, like local social impacts are much less addressed than the ecological discourse ones. In other words, it suggests that the EIS's are subordinated to the green economy principles instead of the justice principle, addressing impacts related to extra-territorial demands and ignoring local impacts.

### **Agrofuels and environmental justice**

At this point, it is necessary to ask: for whom are these impacts addressed in the EIS's really relevant? Obviously, the subjects that are impacted directly will tend to give greater importance to these local social impacts than to biodiversity or climate change. Thus, these data suggest that the process of EIS's is not democratic at all since it is not considering other social demands or critiques, such as those ones pointed out by the environmental justice discourse.

Moreover, the controversies about the real contribution to GHG emissions and the matter of food security are the main argument against agrofuels production, despite being considered only in a tiny fraction of EIS's. In addition to the negligence of local social impacts, an anti-democratic use of EIS's can be shown by environmental conflicts that have been established by that crop on certain areas of Brazil. Environmental conflicts in the countryside can emerge in many ways, like land grabbing, harmful waste disposals, and so forth.

The fact is that conflicts over land ownership, within a context of expansion of agribusiness in general, have been increasing in frequency (PORTO-GONÇALVES & ALENTEJANO, 2009). In the year 2010, 604 instances were recorded in which it was possible to identify the social categories that have been victims of violent actions. In

346 cases were involved traditional people, who use natural conditions of existence (land, sea, lakes, rivers and so on) (PORTO-GONÇALVES, 2008).

In the state of Mato Grosso do Sul, land ownership conflicts grew 87,5 % between the 2003-2005 period, rising from 16 to 30 clashes, and the number of occupations in rural properties had an increase of 100% from 8 in 2003 to 16 occupations in 2005 (ASSIS 2008 *apud* Comissão Pastoral da Terra, 2006). Furthermore, during the year 2004 were made 24 occupations, with 15 of these were undertaken in municipalities where new plantings of sugar cane were started. The state of Mato Grosso do Sul concentrates most of the conflicts arising from violation of territorial rights: 23 Of 26 cases reported in Brazil in 2003, 28 of 41 in 2004 and 17 of 32 established by July 2005 (ASSIS, 2008 *apud* CIMI, 2005). The same tendency is being to be reported in other regions of the world as sub-saarian Africa and south-east Asia, where has been pointed out the land grabbing and dispossession of traditional people, suggesting an important role of agrofuels in this process.

In this context of conflict and power asymmetry, must be observed how these impacts are distributed among different social groups. In the case of sugar cane, the most addressed social and health impacts, positive and negative, are in the table 3 below:

Table3. Social and health impacts, positive, negatives and controversials of ethanol production in Brazil and its beneficiaries and damaged.

Social and health impacts		Beneficiaries	Damaged
Negative	Biomass burning		Local/traditional populations and workers
Negative	Labour/slavery conditios		Workers
Negative	Food security		Local/traditional populations and workers
Negative	Land grabbing		Local/traditional populations and workers
Negative	Environmental harms by monoculture		Local/traditional populations and workers future generations
Controversial	Air quality	Urban areas residents	
Positive	GEE emissions reduction	Global society, future generations and vulnerable areas	

First of all, it is necessary to note is the unequal distribution of benefits and damages of ethanol production, the first granted to non-local or global societies, while the damages tend to be distributed to local areas and populations. Another information

that could be explored is the concentration of these impacts. In other words, the damages are concentrated in a few rural people who lives in the territory scale while the benefits are diluted to extra-territorial and non-local or global populations.

Interestingly, the same pattern is repeated in relation to environmental impacts most well documented, summarized in the table 4 below:

Table 4: Environmental impacts, positive and negatives, of the ethanol of ethanol production in Brazil and its beneficiaries and damaged.

environmental impacts		Beneficiaries	Damaged
Positive	GEE emissions reduction	Global society, future generations and vulnerable areas	
Positive	Less pressure on other natural resources	future generations and vulnerable areas	
Negative	Water resources degradation and depletion		Local/traditional populations and future generations
Negative	Air pollution		Local/traditional populations and future generations
Negative	Soil pollution and erosion		Local/traditional populations and future generations
Negative	Natural ecosystems degradation		Local/traditional populations and future generations

So the first question that arises concerns the legitimacy of the so-called sustainability around agrofuels (or ethanol in the present case), since this process seems to be largely unfair, in the name of common well-being.

These examples illustrates a conflict between global and local, resulting from an asymmetrical power relationship among different social actors. Through a less regulated economy, the centers of power are favored and benefits from international trade which, within the context of increasing globalization tends to favor the hegemonic groups that are extra-territorial, destinating the burden of impacts for those social groups who are more vulnerable.

This phenomenon is comprehended as a case of environmental injustice, that the declaration of principles of the Brazilian Network of Environmental Justice is defined as “the mechanism by which unequal societies, in economic and social terms, aim the greatest burden of environmental damage to low-income populations, discriminated social groups, traditional ethnic, working-class neighborhoods, the marginalized and vulnerable populations” (PORTO & PACHECO, 2009).

## **Conclusion**

First of all, it is necessary to draw attention to the subordination of the EIS's to the ecological discourse, which in the name of sustainability reproduces the core-periphery relationships, distributing the impacts of agrofuels in an unequal way. These EIS's illustrates the negligence of the other social demands, showing that these tools could be used to validate injustice processes instead promotes a real assessment of the impacts or discussions and social concerns about these impacts. Hence, it is suggested that this ecological discourse is just a way to support the appropriation of nature by the capital, ignoring principles of justice and respect for human rights.

Thus, what is stabilised is a perverse logic of environmental injustice that concentrates the negative impacts in a few social groups. The article aim to show that

the some benefits of agrofuels hide important problems, being the support of agrofuels morally unacceptable.

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