

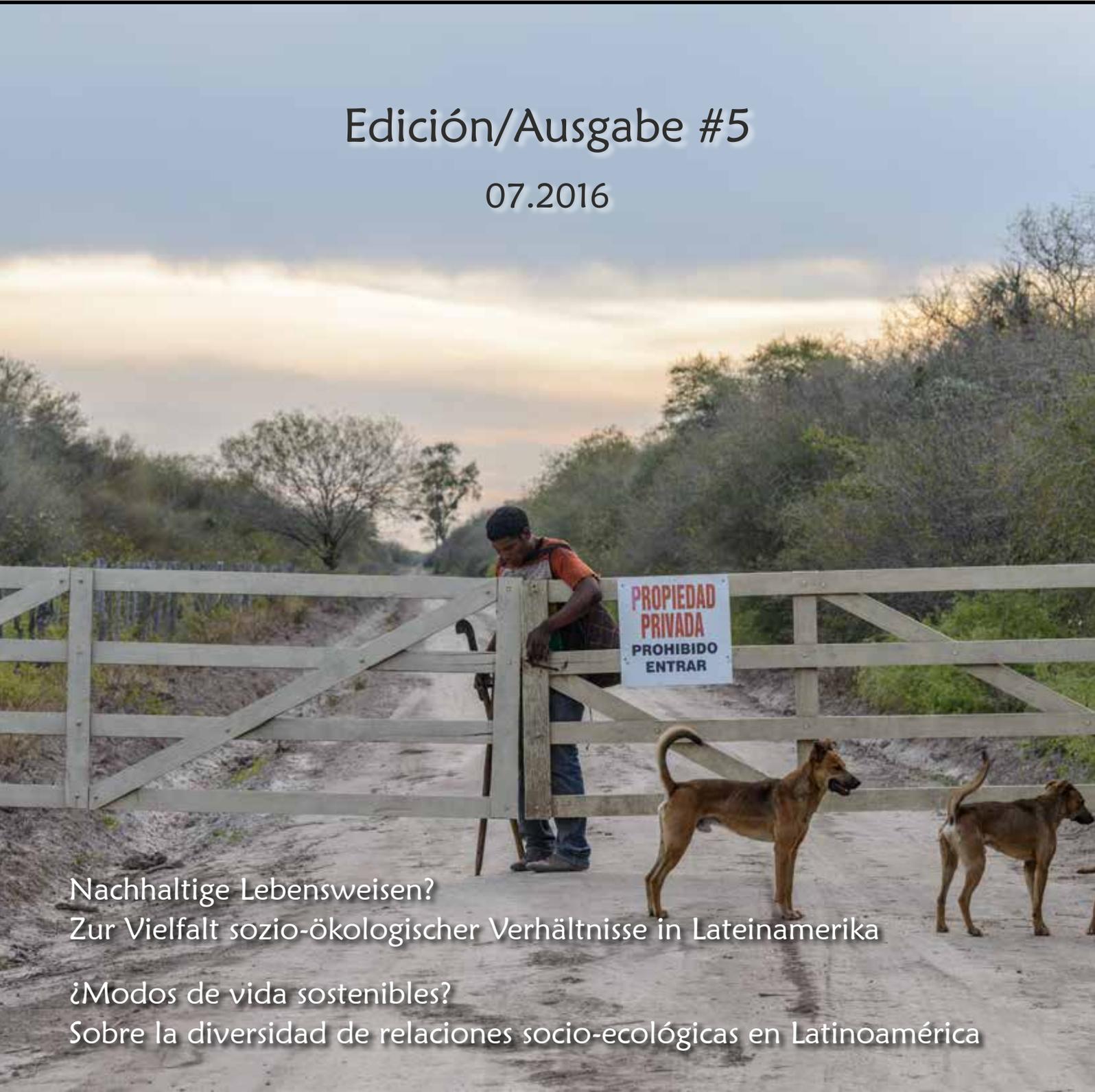
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Realidades y visiones sobre Latinoamérica

Edición/Ausgabe #5

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Nachhaltige Lebensweisen?
Zur Vielfalt sozio-ökologischer Verhältnisse in Lateinamerika

¿Modos de vida sostenibles?
Sobre la diversidad de relaciones socio-ecológicas en Latinoamérica

Revista ReveLA #5
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Zur Vielfalt sozio-ökologischer Verhältnisse in
Lateinamerika

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Die Ayoreos und das Leben nach dem Wald”. Gerald Henzinger

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* El contenido de los distintos artículos es responsabilidad de sus autores, y
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Editorial

Queridos lectores,

Con la quinta edición de la Revista ReveLA empieza nuestra revista su tercer año. Luego de la publicación de la cuarta edición y la exitosa conformación de la revista como asociación en el invierno pasado, hubo unas merecidas semanas de calma en la editorial, esto debido a que a principio del presente año cinco miembros del equipo editorial finalizaron sus trabajos de investigación y con esto llevaron a término la Maestría en Estudios Interdisciplinarios Latinoamericanos. Sin embargo, la presunta calma no duró mucho tiempo y pronto empezó la Revista ReveLA a dar varios pasos muy productivos.

Así como en los dos años anteriores, una gran parte de los miembros del equipo participaron en el Congreso anual de Investigación latinoamericana en Austria (LAF) del 29 de abril al 2 de mayo de 2016 en Strobl am Wolfgangsee, en donde se presentaron los progresos de ReveLA del último año. Como asociación y revista, que pretende apoyar el intercambio científico y cultural, esta cita anual resulta especialmente importante.

Un gran avance para ReveLA y la recién fundada asociación, se reflejó en el trabajo conjunto con Claudia Sandoval Romero y la publicación del libro de fotografías “Postcards from Italy” a mediados de Mayo, en el marco de la primera Edición Especial de ReveLA, publicada en abril en nuestro sitio web y de libre acceso para el público.

Con gran satisfacción tenemos el gusto de presentar los nuevos miembros del equipo. En primer lugar Natalia Serrano Ávila, quien ya desde la temporada de invierno se integró al grupo editor con ímpetu y nuevas ideas. Poco antes del cierre de este ciclo, se integraron a nuestra revista los nuevos corresponsales: desde Guatemala, Fatima Antonethe Castaneda y desde Nicaragua, Tania Sosa Jirón. Así mismo Rodrigo Ruiz se convirtió en el primer practicante en la historia de nuestra publicación. Estamos a la expectativa de sus aportes y por este trabajo conjunto, por el que nos alegramos mucho.

También existe la novedad del trabajo en conjunto de nuestro proyecto con la Maestría de Estudios Latinoamericanos en el Postgraduate Center de la Universidad de Viena. A partir del semestre de invierno 2016/2017 será posible realizar una práctica de seis meses en la Revista ReveLA, esta podrá ser convalidada como curso libre dentro del currículo del programa universitario. Mayor información al respecto se encuentra en la sección Maestría.

En nuestra edición actual nos complace nuevamente presentar una contribución abundante y diversa. En la sección científica aparecen esta vez textos alrededor de la pregunta “¿Modos de vida sostenibles? Sobre la diversidad de relaciones socio-ecológicas en Latinoamérica”.

¡Les deseamos una lectura emocionante!

Therese Thaler
Equipo editorial ReveLA

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*mit Fotos von Gerald Henzinger, Jonas Wagner und Michael Kleinburger

Sección Científica

El tema científico de la quinta edición de nuestra revista aborda las diversas concepciones y prácticas de las relaciones socio-naturales en Latinoamérica. Estas concepciones y prácticas tienen que ver con cuestiones del fundamento epistemológico mismo, que se encuentra, por ejemplo, en términos como “naturaleza”, y también generan interrogantes acerca de la relación, concepción y explotación de los ecosistemas naturales en diferentes sociedades latinoamericanas, así como acerca de las consecuencias de los efectos globales ecológicos en tales relaciones socioambientales.

La diversidad de estas concepciones y realidades, sobre las cuales hemos invitado a escribir, no se mueven en planos únicos, neutrales - ni a nivel práctico ni analítico-, sino, que se posiciona en contextos de poder y estructuras de dominación, las cuales llevan al favorecimiento y la implementación de ciertas concepciones sobre la naturaleza y las prácticas socioambientales, así como a la opresión de otras

Un aporte importante, cómo la influencia de la colonialidad existente en el orden del poder y las relaciones de violencia epistémica en las concepciones socio-ambientales en Latinoamérica, es realizado por Juan Pablo Gerez Hade en su análisis sobre la continuidad de relaciones de explotación en las fases consecutivas de neoliberalismo, post-neoliberalismo en los gobiernos “progresistas” de Latinoamérica. Therese Thaler describe en su artículo la relación entre las coyunturas turísticas, las estrategias políticas de protección y la integridad ecológica de los arrecifes de coral en la Isla de Roatán, que pertenece a Honduras. Alexandro Aguilar Zisler se sitúa en las condiciones históricas, así como las consecuencias sociales y ecológicas del programa brasileño de Bioetanol, lo que hace parte de la compleja problemática global de agrocombustibles. Por último, Christoph Eckart, basado en una sinopsis de datos provenientes de las ciencias climáticas y agronómicas, se centra en la cuestión: ¿Qué implicaciones tiene el cambio climático global sobre la producción de alimentos de las diferentes zonas climáticas de América Latina?.

Los últimos tres artículos fueron escritos por estudiantes y egresados del Máster en estudios latinoamericanos en Viena. Juan Pablo Gerez Haded por su parte, desarrolla el programa en Estudios Globales en Graz. Felicitamos el exitoso trabajo de los autores y le deseamos a usted una lectura interesante y esclarecedora.

Gregor Seidl



Bioethanol in Brazil

“Development of the Industry and its Impact on Farming Families in Brazil”

*Alexandro Aguilar**

Summary

The rapid growth in global demand for sugarcane bioethanol, which is produced as energy for transport has had major influence on the life of farmer families in Brazil. This paper focuses on the history, production, development, impact on land ownership and food security. In the sixteenth century, sugarcane was introduced by the Portuguese and became one of the main pillars of the Brazilian economy. Sugarcane was used in the 20th century as prime source for the production of bioethanol to cover fossil fuel shortages during the interwar period between 1918 and 1939 and was industrialized in the 70s within the frame of the National Alcohol Programme (PróÁlcool) to gradually replace gasoline.

Brazil has become the world's largest bioethanol producer in the twenty-first century. The inflow of foreign capital and the adoption of favourable laws have supported this development. The growth of renewable fuels' industry, concentration of farmland in fewer hands, extensive use of monocultures and switch to energy crops has reduced biodiversity and availability of territory for food production.

High-income farmers have used this opportunity to become suppliers or lease their vast territorial possessions to the sugarcane mills in order to obtain higher profits. A few middle-income farmers have been able to change part of their production to energy crops as a means to stabilize a portion of their revenue and obtain better access to loans and modern technology. Farmers with low income and weak legal standing have been forced to leave their rural habitat, work at the mills or occupy unused territory and others have drifted into poverty.

The growth of the bioethanol industry has increased the price for local food and forced the import of nutrients from other countries.

Bioethanol has been promoted for a long time as an alternative to replace fossil fuels. The governments of Brazil, the United States and the European Union along with international organizations have only recently realized how the growth of this industry has put the lives of rural people at risk and are now calling for a more sustainable development of this sector.

Keywords

Bioethanol, history, production, development, land, food.

1. Introduction

Land ownership and food security of Brazilian farmers have suffered major changes due to continuous increase in global demand of bioethanol that has been used to replace fossil fuels and reduce Green House Gas (GHG) emissions. Some international organizations have supported the change to renewable fuels in view of the apparent ecological benefits.

The Intergovernmental Panel on Climate Change (IPCC), an organization of the United Nations Environment Programme (UNEP) and the World

Meteorological Organization (WMO), states on its fourth assessment report from 2007 that global temperatures are on the rise due to anthropogenic factors. The IPCC lists a range of proposed mitigation options to combat climate change and optimize crop and grazing land management to increase soil carbon storage.¹ These and other studies show the efforts needed to reduce the use of fossil fuels and lower the emission of pollutants; however, the negative economic and social effects of the rapid growth of this industry on farmer families is not considered.

It is important to analyze the history, production methods and development of the bioethanol industry in Brazil in order to understand the reason of such adverse effects on rural families.

2. History

Bioethanol production arose out to the need to create alternative income sources and replace depletable natural resources (crude oil, gold, silver, etc.). Sugarcane production has been an economic pillar and bioethanol gained importance as energy for transport during the first half of the twentieth century and became a significant export good in the twenty-first century.



<http://www.brazilintl.com/agsect>

2.(a) Sugarcane (Sixteenth to twenty-first century)

Production of sugarcane on the “Terra do Pao Brazil” started in the sixteenth century and was used to finance the colonization of the north Atlantic littoral. Early plantations and sugar mills settled in the northeast (Bahia and Pernambuco) and south (Sao Paulo, Sao Vicente and Rio de Janeiro) of the country. Brazilian sugar found its way to Europe through the Portuguese kingdom.² This economic period called the sugarcane cycle lasted until the end of the seventeenth century. Native indigenous people were the first slaves to work on plantations and mills. The Portuguese soon realized that the indigenous workforce was not enough to cover the large demand for labour. African slaves soon became a profitable option. This situation was sharpened because indigenous communities retreated to the interior of what is now called Brazil in order to escape slavery. The growing demand for sugar in the seventeenth century enabled Brazil to become the world’s biggest producer. This development eventually slowed down as other European powers (Spain, Netherlands,

France, etc.) began to produce sugar in their colonies. The outcome was a decrease in price and demand for sugar that forced the Portuguese settlers to intensify the search for other income sources. Nevertheless, Brazil remained since its conquest, one of the leading producers of sugarcane and according to the United States Department of Agriculture (USDA), is now the largest sugar producer in the world.

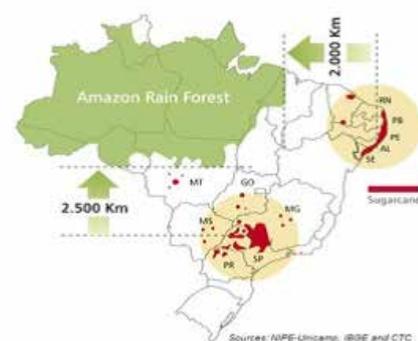
Sugarcane production is nowadays located in the south-central region (Espírito Santo, Goiás, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Paraná, Rio de Janeiro, Rio Grande do Sul, Santa Catarina, São Paulo) and the north-northeastern region (Acre, Alagoas, Amazonas, Bahia, Ceará, Maranhão, Pará, Paraíba, Pernambuco, Piauí, Rio Grande do Norte, Rondonia, Sergipe and Tocantins) of Brazil.

2.(b) Bioethanol (Twentieth to twenty-first century)

i. The twentieth century

Between World War I and World War II, sugarcane ethanol was used as fuel for transport in the northeast of Brazil (Pernambuco and Alagoas). The Usina Serra Grande Alagoas was the first mill to produce a type of combustible based on ethanol known as “USGA”. In 1919, the Governor of Pernambuco issued the first mandate for the compulsory use of ethanol on official vehicles. In 1931 the issuance of a national decree made the use of a 5% ethanol/95% gasoline blend compulsory. During World War II it was mandatory to use at least 50% ethanol and 50% gasoline for transport due to severe shortages caused by the bombardment of oil tankers by German submarines.³ The demand for ethanol declined as crude oil became cheaper at the end of the war and the mills only produced it when there was an unusual surplus of sugarcane. Nevertheless, ethanol remained the only alternative to reduce the dependency on gasoline

Sugarcane producing regions in Brazil



<http://www.brazilintl.com/agsect>

imports and counter high prices and shortages of oil. Another factor that also favoured the use of ethanol made from sugarcane was the decrease in price for sugar.⁴

Introduction of “PróÁlcool”

The global oil crisis and limited local oil resources overshadowed the 1970s. The Brazilian government needed a solution to reduce the dependency on gasoline imports and finance the discovery of new national oil wells. This resulted in the introduction of the National Alcohol Programme named “PróÁlcool”⁵ in 1975, which mandated the use of a gasoline/ethanol blend, granted public subsidies and tax reductions for the use of ethanol-run-vehicles and controlled the price of this sugarcane-based fuel.

Phases of “PróÁlcool”

Phase one started in 1975 with the introduction of a compulsory blend of 22.4% ethanol and 77.6% gasoline per litre of fuel, whereas in 1979 the second phase began with the production of new cars with engines that could use 100% hydrated ethanol (95% ethanol and 5% water).

End of “PróÁlcool”

After the great success in the 1970s and 80s, “PróÁlcool” faced severe problems in the 90s. The oil price declined from 78 USD to 27 USD per barrel, which resulted in gasoline being cheaper than ethanol. The mills were not able to supply ethanol for four million vehicles and the situation worsened as the international sugar price rose due to the inability of the government to set any export quotas. The production of ethanol declined whereas the production of sugar rose. The government had to import ethanol to cover the big supply gap; however, this did not solve the problem of cars queuing at fuel stations. This resulted in customers losing trust in the programme, car manufacturers stopped selling ethanol-run vehicles, public subsidies disappeared, industry was deregulated and price for ethanol was liberalized.

ii. The twenty-first century

The end of “PróÁlcool” and the start of a new chapter in the history of agrofuels in Brazil was imminent as the dependency on oil rose again and its price increased at the beginning of the 21st century.⁶

The flex-fuel era

Car manufacturers negotiated with the Brazilian government to reinstall an ethanol programme and restarted investigations to equip cars with the necessary technology. The outcome was the introduction of vehicles with flex-fuel engines. These engines can run on gasoline and bioethanol or a combination of both. Compared to PróÁlcool, this new programme is purely market-driven without any significant control by the government. The only exception is that the state receives a good share from this growing business through additional tax revenues and the sale of the gasoline/bioethanol blend (25%/75%) via its company Petrobras⁷. The old programme left a well-developed network of fuel stations that is now used for the supply of the new gasoline/bioethanol fuel.

3. Production of bioethanol

Bioethanol production is complex, energy consuming, high in costs and only viable if there is a large demand. Here is a short overview on production methods, processes and yield.

3.(a) Production methods

Two biochemical methods are necessary to produce bioethanol from starch or lignocellulosic crops.⁸

i. First-generation technology

A method used to process crops rich in starch such as corn, grain and sugarcane, where starch is hydrolysed and fermented by using industrial enzymes and yeast. This is a well-known process implemented nowadays for the production of bioethanol in countries such as the USA (corn and maize) and Brazil (sugarcane).

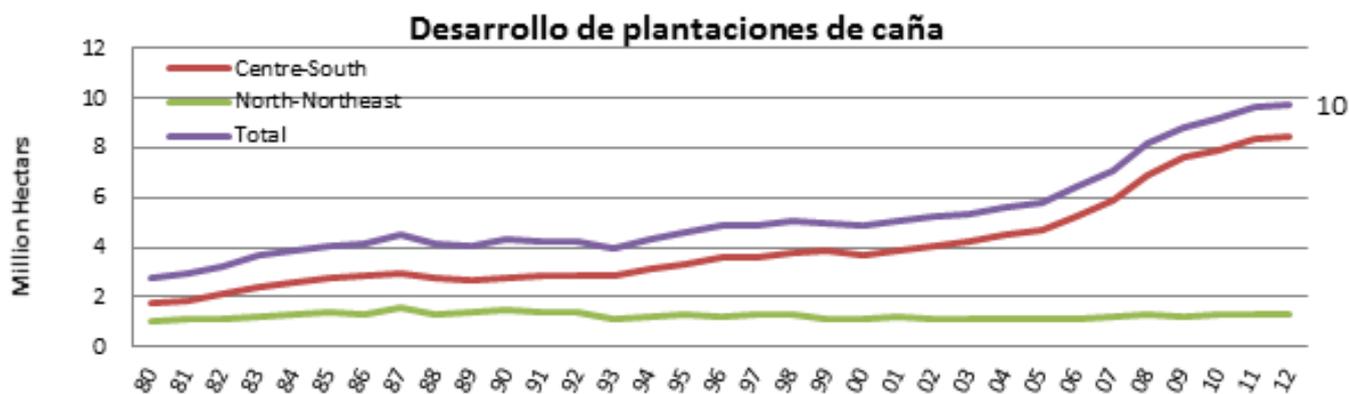
ii. Second-generation technology

A method to process lignocellulosic biomass such as wood, agricultural residues and energy crops. It is more complex to process this biomass as it requires thermo-chemical treatment prior to enzymatic hydrolysis. After this procedure the released sugar is subsequently mixed with yeast to be fermented and the product thereof is bioethanol.

3.(b) Production process

i. Growth

Fertilizers maximize the size and growth speed of sugarcane to reach maturity for harvesting.



ii. Milling

Autor: Alexandro Aguilar

The crop undergoes mechanical or chemical treatment to break apart the fibre structure and to increase the surface area of biomass.

iii. Hydrolysis

Complex carbohydrates are broken down to simple sugars with the use of heat and enzymes.

iv. Fermentation

The biomass is filled into containers that allow the inflow of oxygen and outflow of carbon dioxide, is mixed with yeast, left to be fermented for a couple of hours and the product thereof is bioethanol.

v. Purification

Excess water is removed and concentration increased through distillation. Further chemical and physical processes are necessary prior to the use of bioethanol in cars.

3.(c) Production yield

The productivity and size of farmland in Brazil has grown over the years due to continuous technological improvements and has reached an actual production yield that moves around 60 to 70 tons of sugarcane per hectare. This amount serves to produce approximately 4200 to 5915 litres of bioethanol depending on seasonal factors.

4. Industrial development

The need to reduce worldwide emissions has opened new opportunities for Brazil's agrofuel industry. The local demand for bioethanol has become global and the introduction of flex-fuel cars has enhanced this development.

4.(a) Growth

According to the Brazilian Sugarcane Industry Association (UNICA) and the Brazilian Trade

and Investment Promotion Agency (Apex-Brazil), production in 2012/2013 has mounted up to 588 million tons of sugarcane, which in turn brought out 38 million tons of sugar and 23.2 billion litres of bioethanol. The USDA states that Brazil has become the world's largest exporter and second largest producer of bioethanol after the USA.

4.(b) Influencing factors

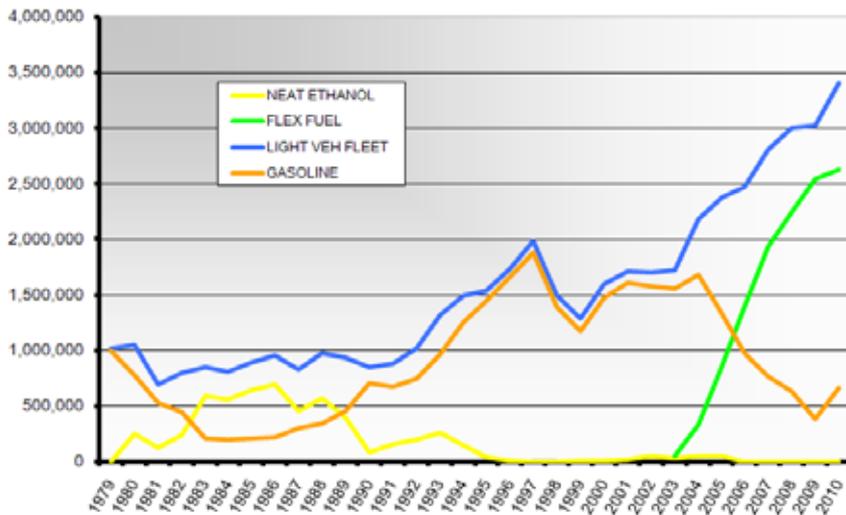
These are the main drivers that have considerably boosted the production of Brazilian bioethanol:

- Higher taxes on imported fossil fuels and lower taxes on agrofuels.
- Promotion of attractive financing conditions for new technologies for the production of agrofuels.
- Enactment of government policies favourable for growth of agrofuel industry in the country.
- Enforcement of the Kyoto Protocol to the United Nations Convention on Climate Change to reduce the emission of GHG.
- Introduction of the American Renewable Fuels Standard (2005) and the European Renewable Energy Directive (2009) to reduce GHG emissions in the USA and Europe.
- Increase in demand for flex-fuel cars in Brazil and around the world.

These conditions along with the industrial development aid from governments, international companies and organizations have opened the global market for Brazilian bioethanol producers.

5. Land ownership

Point seven describes the success of bioethanol in Brazil. Despite of the highly complex and resource



<http://es.wikipedia.org>

consuming production from an economical and political point of view, the future of agrofuel industry seems promising. According to Joao Pedro Stedile, leader of the Landless Rural Workers Movement (Movimento dos Trabalhadores Rurais Sem Terra), “the production of alcohol from sugar cane for use as a fuel in vehicles had a positive impact on Brazil’s trade balance. It reduced the country’s dependence on oil and kept the price of fuel down.”⁹ Nevertheless, the growth of this industry has had an impact on land ownership that cannot be ignored.

In order to understand the reason of growth in demand for bioethanol having such an impact on other agricultural sectors, it is important to comprehend that mass production of bioethanol in Brazil requires large pieces of land to grow sugarcane. An area of 167m² is needed to produce one ton of sugarcane and thus 70 litres of bioethanol. The actual amount of land necessary to produce 27.5 billion litres (production result 2013/2014) is ten million hectares. Even though many experts claim that there is sufficient territory for new plantations, the fact is that the industry has used up land formerly needed for food production or cleared natural resources such as the Amazonas, Cerrado and Pantanal.

According to Copebrás, a Brazilian phosphate and fertilizer corporation, “agribusiness is now one of the main growth engines of the Brazilian economy and the country is one of the main global players supplying agricultural products”. The cultivation of soya, maize and sugarcane accounts for over 80% of total agricultural production in Brazil.

The increase in demand for bioethanol has reduced

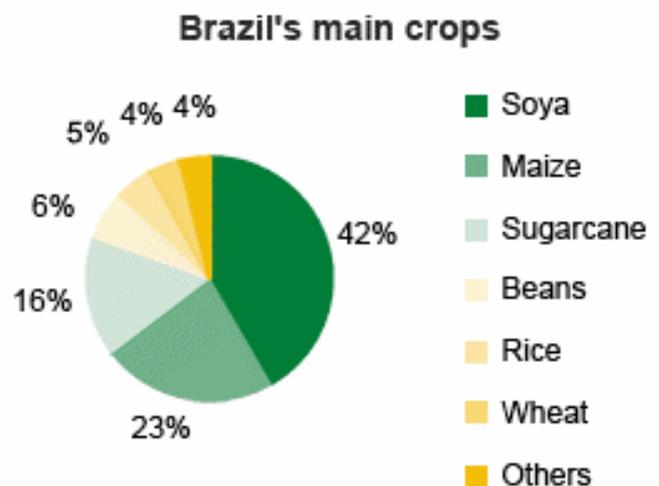
the availability of farmland and has forced other agricultural sectors such as soy, maize and cattle ranching to move to unused land and sensible natural regions such as the Amazonas, Cerrado and Pantanal.

More and more agriculture has moved from food to energy crop production due to the profitable outlook, favourable national and international legislation and better access to financing. Since Brazil opened the agricultural market for foreign investments, the mills (i.e. Cosan, Bonfim, LDC Bioenergia and Guarani) and their international shareholders

have purchased large pieces of farmland. Cargill, Bunge and the Noble Group are some of the most important transnational commodity groups in the production chain of bioethanol. Others such as BASF, Bayer or Singenta benefit from the sales of herbicides and pesticides for the production of sugarcane. Sixty percent of the sugarcane land belongs to the mills and their international counterparts. A portion of them belongs to high-income farmers who have been able to profit from the bioethanol boom by becoming suppliers or leasing their lands to sugarcane mills.

Middle-income farmers have dedicated a percentage of their land for production of energy crops at the expense of self-sufficiency and independence. They are now forced to purchase food from the local markets to cover their daily needs and have to accept the sugarcane prices that the mills dictate.

The Bioethanol boom has been unfavourable for small-



income farmers who had to leave their rural habitats to find other sources of income as they were not able to afford stepping into the profitable bioethanol business. Many of these people occupied unused territories, cleared natural sensible areas in order to survive or drifted into poverty. Recent development in the industry has put these people under additional pressure as some mills are claiming these territories.

Other farmers who were expelled from their habitats had to accept jobs with very hard conditions at the sugarcane plantations. The majority of them had been forced to work long hours without breaks, proper food and poor salaries. The mills have also brought these workers far away from their homelands in order to prevent them from leaving the job or uniting to fight for their rights. The Comissão Pastoral da Terra calls this phenomenon “Modern Slavery”. Plenty of these farmer families have joined groups and organizations such as the “Movimento dos Trabalhadores Sem Terra” (MST) to receive support for the protection of their rights as a consequence of the increase in struggle for land rights.¹⁰

6. Food security

This topic has come under the wheels of the bioethanol industry. “Rather than developing people-friendly farming to supply food to their own population, governments pursue the traditional cash-crop model using intensively-farmed monocultures. These are grown in existing agricultural lands, thereby pushing other agricultural activities into other parts of the country or onto new agricultural lands. This is leading to wide spread deforestation and is threatening not only Brazil but also Argentina, Colombia, Costa Rica, El Salvador, Guatemala and Uruguay”.¹¹

Numerous small farmers have switched part of their agriculture from food to energy crops to secure their income, receive better access to credits and raw materials. However, they have lost their self-sufficiency and are now forced to purchase food in the local markets. These farmers are also dependent of the mills who impose production quotas and prices on them.

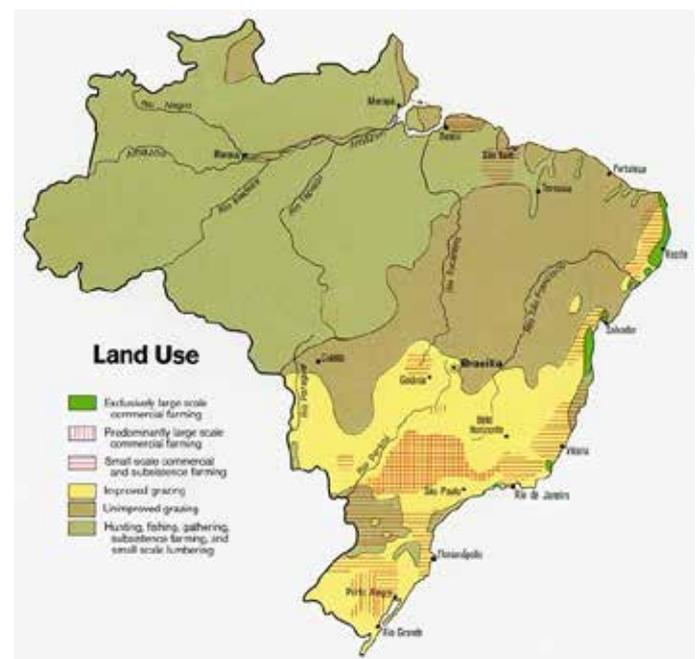
Small farmers that do not have the economic means to switch to energy crops, have difficulties covering their basic needs and are exposed to migration, malnutrition and impoverishment. The loss of small farms has reduced the local production and forced the import of food from other countries to cover the

local demand. This along with the increase of the ethanol price has pushed the cost for sugar and other agricultural goods further up.

The intensive use of pesticides and other chemicals on monocultures including the uncontrolled use and disposal of a by-product called vinhoto is killing plants and polluting water needed by small farmers.

7. Solutions

A major part of the economic development in Brazil has occurred at the expense of the local ecology and rural population. The agro fuel boom has created wealth, however, also increased poverty. Nevertheless, the last decades have also built up social pressure from the public side to reduce poverty among farmers. The following are some solutions that have been brought up with social dispute.

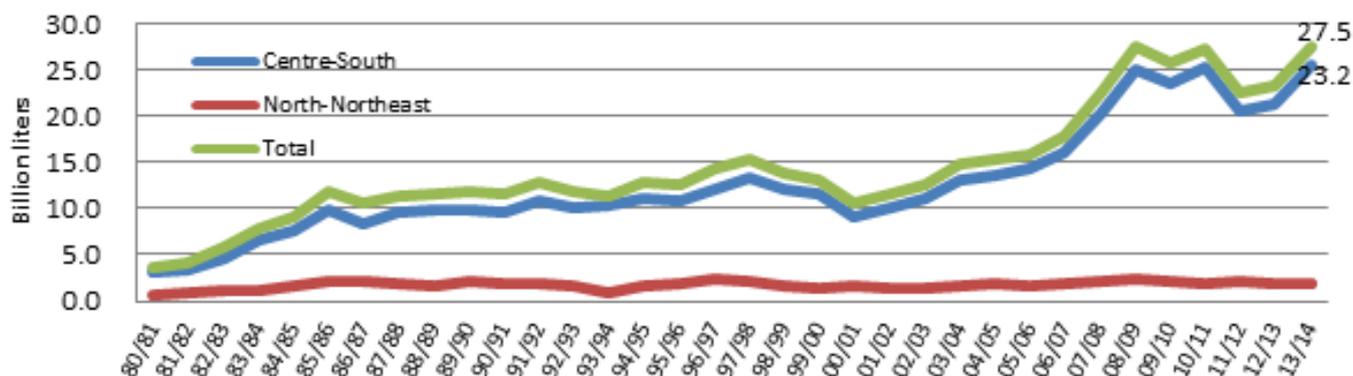


http://www.zonu.com/brazil_maps/Brazil_Land_Use_Map.htm

“In 2005, the governor of Mato Grosso do Sul asked the Legislative Assembly to prohibit alcohol mills from being built on the alto Paraguay Basin, but the State Secretary of Tourism and Production argued that the distilleries were the only way to improve the economy in the region. Social and environmental movements successfully campaigned against the mills, although environmentalist Francisco Anselmo de Barros sacrificed his life in the fight”.¹²

“Bolsa Familia” is a successful programme claiming to have reduced the level of poverty in Brazil by 50%.

Producción de agroetanol en Brazil



Autor: Alexandro Aguilar

This programme is run by the Brazilian government and is part of the greater “Fome Zero” network of federal assistance programmes, of which the goal is to eliminate hunger and extreme poverty. The “Bolsa Familia” contributes money to poor families who have to prove that their children attend school and are vaccinated. This so-called conditional cash transfer has rescued around twelve million Brazilian families from poverty.¹³

8. Conclusion

The history of Brazilian bioethanol has been successful but controversial. Sugarcane, a main source, entered the North Atlantic Littoral in the sixteenth century, made its way to the northeast and south-central states to become one of the main pillars of the Brazilian economy in the last centuries. The agrofuel industry in Brazil has gained international interest in the last years due to the fact that renewable fuels such as bioethanol and biodiesel are alternatives that can apparently reduce GHG emissions on a global scale.

The Brazilian government is under great influence of the sugarcane industry union (UNICA) that represents the biggest producers. This organization being a very powerful lobbyist has succeeded in changing state laws in favour of this sector. The overall growth of the agricultural sector has also pushed the government to allow the use of unused and natural sensible territories.

The negative impacts of agrofuel production on land and rural families in developing countries have only appeared recently on the environmental and industrial development agendas of the USA, EU and international organizations. Recent studies have shown that the accelerated development in the agrofuel sector may have impacts that diminish the

value of reducing fossil fuel and GHG emissions by creating substantial social and economic disparities for Brazilian farmers.

“There is a growing realization that the production of biofuels for energy on the scales necessary to supply significant shares of national and global energy provision will result in very substantial impacts (positive as well as negative) on the ecosystems, economies and cultures of the target regions. The protection of rural biodiversity, rural livelihoods, and management of scarce water resources are critical considerations in any analysis of the potential for sustainable biofuels provision in any country”.¹⁴

Notes

1. (Winiwarter, V. et al. 2012)
2. The Brazil Business (2014) <http://thebrazilbusiness.com/article/brazilian-sugarcane-industry> viewed on 25.08.2014
3. (Rostand de Araujo Rodriguez, R., 2000)
4. (Ludena, C. et al., 2007)
5. Programa Nacional de Alcool
6. (La Rovere, et al. 2011)
7. Petróleo Brasileiro S.A.
8. (Combes, M., 2007)
9. www.grain.org/article/entries/607-latin-america-joao-pedro-stedile.pdf
10. <http://www.cptnacional.org.br/>
11. (Ortiz, L. et al., 2008)
12. (Ortiz, L. et al., 2008)
13. http://en.m.wikipedia.org/wiki/Fome_Zero
14. http://www.unido.org/fileadmin/import/68441_FINAL_DRAFT_UNIDO_BIOFUEL_STRATEGY.pdf

Literature

Alves Finco, M. V.; Dias Bartolomeu Abadio Finco, F.; Brazilian Biodiesel Program and its impacts on income and food security

of family farmers: cases from the Amazon Region; Laboratório de Segurança Alimentar e Nutricional (LabSAN); Universidade Federal do Tocantins (UFT), 2012 (<http://www.isecoeco.org/conferences/isee2012-versao3/pdf/1091.pdf>)

Barros, G.; Alves, L.; & Osaki, M.; Biofuels, food security and compensatory subsidies; China Agricultural Economic Review, 2010, Vol. 2(4), 433; 433-455

Combes, M.; <http://controverses.sciences-po.fr/climateblogs/bioethanol/interviews/mathieu-combes-journalist-at-natura-sciences-website/>

Fischer, G.; International Institute for Applied Systems Analysis; Biofuels and food security: implications of an accelerated biofuels production; summary of the OFID study / prepared by IIASA

(OFID pamphlet series; 38) -2009 (<http://ubdata.univie.ac.at/AC07607112>)

Ivanic, M.; Martin, W.; Zaman, H.; Estimating the short-run poverty impacts of the 2010–11 surge in food prices, World Development, 2012, Vol.40(11), 2302; 2302-2317

La Rovere, E. L.; Santos Pereira, A.; Simoes, A. F.; Biofuels and Sustainable Energy Development in Brazil; World Development Vol. 39, No. 6 pages 1026-1036, 2011; Elsevier Ltd. All rights reserved; OI: 10.1016/j.worlddev.2010.01.004

Lauring, A. M. (2011); The linkage between biofuels and food prices

Ludena, C.; Razo, C.; Saucedo, A.; Biofuels Potential in Latin America and the Caribbean: Quantitative

Considerations and Policy Implications for the Agricultural Sector, Paper 174712, 2007

(<http://EconPapers.repec.org/RePEc:ags:aaea07:9986>)

Ortiz, L.; Santos, C.; Rodriguez, L.; Pedace, R.; Vélez Torres, I.; Quiroa, S.; Rojas, I.; Godinez, M.; fuelling destruction in latin america - the real price of the drive for agrofuels; Friends of the Earth International, 2008

Pacini, H.; Assunção, L.; van Dam, J.; Toneto, R.; The price for biofuels sustainability, Energy Policy, 2013, Vol.59, Pp.898-903

Padula, A. D.; Santos, M. S.; Ferreira, L.; Borenstein, D.; The emergence of the biodiesel industry in Brazil: Current figures and future prospects. Energy Policy, 2012, Vol.44, Pp.395-405

Rostand de Araújo Rodrigues, R.; Aonde Vamos; Boletim Enfoque; edicao n° 007; Junho 2000 (<http://web.archive.org/web/20080319112800/http://www.aondevamos.eng.br/boletins/edicao07.htm>)

Scarlat, N., & Dallemand, J. Recent developments of biofuels/ bioenergy sustainability certification: A global overview, Energy Policy, 2011, Vol. 39(3), 1630; 1630-1646

UNIDO's Biofuels Strategy, Sustainable Industrial Conversion and Productive Uses of Biofuels; United Nations Industrial Development Organization; Vienna, Austria; http://www.unido.org/fileadmin/import/68441_FINAL_DRAFT_UNIDO_BIOFUEL_STRATEGY.pdf

Winiwarter, V.; Gerzabek, M.; The challenge of sustaining soils: natural and social ramifications of biomass production in a changing world/ed. - Wien: Verlag Der Österreichischen

Akademie Der Wissenschaften (Interdisciplinary Perspectives; 1). - 2012 ISBN: 978-3-7001-7212-3

Internet

http://www.kooperation-brasilien.org/de/themen/landkonflikte/umwelt/agrotreibstoffe?b_start:int=20

http://www.foeeurope.org/sites/default/files/publications/FOEI_FuellingDestruction_lr_FINAL.pdf

<http://www.foeeurope.org/sites/default/files/publications/FromForestToFork.pdf>

<http://www.foeeurope.org/issues/22/publications/all>

<http://www.isee2012.org/anais/pdf/1091.pdf>

<http://www.grain.org/article/entries/607-latin-america-joao-pedro-stedile>

http://heinonline.org/HOL/Page?handle=hein.journals/yhurdv113&div=16&g_sent=1&collection=journals#402

http://www.iaea.org/inis/collection/nclcollectionstore/_public/42/022/42022438.pdf

http://www.cifor.org/publications/pdf_files/EnviBrief/ENVBrief_June09.pdf

<http://en.wikipedia.org/wiki/Biofuel>

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