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Sybille Acosta and Claudia Zilla

Markets and Minds

Trade and Value Conflicts over Biofuels

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SWP
Stiftung Wissenschaft
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German Institute
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Ludwigkirchplatz 3–4
10719 Berlin
Germany
Phone +49 30 880 07-0
Fax +49 30 880 07-100
www.swp-berlin.org
swp@swp-berlin.org

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Sybille Acosta is Research Assistant at SWP's Global Issues division and
Dr. Claudia Zilla a Researcher at SWP's The Americas division

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The catastrophic reactor meltdown at the Fukushima nuclear power plant has added weight to calls for a transformation of the global energy supply. There is growing demand for alternatives to both nuclear power and CO_2-intensive fossil fuels. Support for renewables is associated with various objectives: promoting climate and environmental protection, counteracting the increasing scarcity of non-renewable energy sources, and cushioning the risks of rising and fluctuating oil prices. Moreover, as growth markets, renewables offer opportunities for economic development. The price difference between conventional and renewable energy sources is shrinking. On the one side, technological progress is increasing the efficiency and reducing the cost of renewable energy. The existence of three generations of biofuel underlines the dynamism of this development. On the other side, in addition to the long-term trend of increasing scarcity of conventional energy reserves, political instability in North Africa and the Middle East, and stricter nuclear safety standards can drive the cost of nuclear and fossil energy.

Debates about the production and use of biofuels are emotionally charged and often one-sided, with one group presenting them as a cure-all, the other condemning them out of hand. Assessments of the social and ecological repercussions of biofuel production diverge enormously, and putatively social and ecological criticism sometimes serves as a cover for economic interests. Depending on the competitiveness of their domestic biofuel production, states strive to open up new markets or erect trade barriers to protect their own industries. Finally, the debate is often conducted in idealistic terms, where the pros and cons of biofuels are measured not by the yardstick of empirical comparison with other resources and fuels, but against utopian standards that only few products can hope to satisfy.

This study focuses on trade and value conflicts over biofuels, and shall contribute to de-emotionalising the discussion. We outline the positions of the biggest biofuel-producing states, Germany/EU, the United States and Brazil, and analyse their main lines of argument as well as bilateral and multilateral cooperation formats that seek to bridge differences and thus reduce conflict potential. The study comes to two central conclusions:

- Containing trade conflicts demands an open dialogue in which economic interests are treated as such and not cloaked in social or ecological concerns. Conflict reduction requires transparent exchange of information between the key actors to uncover differences of positions, problem perceptions and understandings of causality, and thus contributes to confidence-building and reduces the transaction costs of inter-

national cooperation. That is the precondition for more intense outcome-led international cooperation moving towards uniform agreed norms and standards. This presupposes a convergence of interpretations and discourses and will prepare the ground for intensified cooperation. In this sense, a virtuous circle emerges.

- Virtually no other agricultural product is subject to such strict and extensive exigencies. The quality criteria applied to biofuels are generally based more on idealised wishes than any comparison with real existing and functionally equivalent products. Such an approach can easily scupper the chances of developing alternatives to fossil fuels within any expeditious timeframe. Instead, biofuels should be compared empirically with fossil fuels, with the specific sources of energy they are to substitute. A calm and context-sensitive analysis of the economic, social and ecological advantages and disadvantages of the production and use of biofuels is needed. The development of international norms and the corresponding harmonisation of national standards should thus go hand in hand with a more differentiated understanding and more context-sensitivity.

Biofuels at a Glance

Types of biofuel

Biofuels are fuels produced from biomass. The current discussion relates principally to transportation fuels. Types include bioethanol, biodiesel, vegetable oil, biobutanol, biomethanol, biogas, hydrogen from biomass, and synthetic biofuels such as biomass-to-liquid (BtL) and cellulosic ethanol. Objections are sometimes raised to the term "biofuel", on the grounds that it falsely suggests "green" qualities. Our use of the term "biofuel" rather than the alternative "agrofuel" simply reflects prevalent usage and should not be understood as taking sides. Bioethanol and biodiesel are currently the most widely used and discussed transportation biofuels. Bioethanol, gained by alcoholic fermentation of the sugars and starches found in plants followed by distillation, can replace petrol. The raw materials for ethanol production include sugar cane and sugar beet, maize, cassava and grain; in Germany grain and sugar beet account for most biofuel production. Biodiesel is produced by chemically re-estering fats and oils with methanol and can be used pure or blended with conventional diesel. The raw materials in this case include soya beans, rapeseed, mustard, jatropha, palm oil and other vegetable oils. In Germany biodiesel is produced primarily from rapeseed.[1]

First, second and third generation

Whereas these first-generation biofuels use only part of the biomass, namely sugar, starch and oil, second-generation biofuels are set to permit almost complete utilisation.[2] Third-generation biofuels are based on emerging technologies that promise higher productivity. Biodiesel from microalgae and bioethanol from microalgae and seaweeds are some examples. However, as these second and third-generation fuels are currently under development and not yet ready to market the following discussion considers only first-generation biodiesel and bioethanol.

Market-led substitution

Diverse factors influence the substitution of fossil fuels by biofuels. In order for the market to drive a replacement process, the production cost of biofuel must not exceed the market price of the fossil fuel it competes with. Biofuel production costs vary strongly depending on crop, soil fertility, climate, wage costs and technology. The only biofuel that can currently compete on price with its fossil equivalent is Brazilian bioethanol produced from sugar cane. Another crucial factor is the world market price of the raw materials or food crops suitable for producing biofuels (for

1 The definition and characterisation of biofuels in this and the following paragraph are based on Renewable Energy Policy Network for the 21st Century (REN21), *Renewables 2010 Global Status Report* (Paris, 2010); *Bericht der Bundesregierung zur Steuerbegünstigung für Biokraft- und Bioheizstoffe 2008*, German Bundestag, 16. Wahlperiode, Bundestagsdrucksache 16/13900, 1 September 2009.

2 Second-generation biofuels include BtL and lignocellulosic ethanol. Lignocellulosic ethanol is gained from the cellulose, hemicellulose and lignin that make up the bulk of biomass (and cannot be used in the existing process). BtL ethanol can be produced from any solid biomass.

example sugar cane for sugar or bioethanol). Only if this price is lower than the selling price of the biofuel is the conversion of biomass into biofuel economically worthwhile.

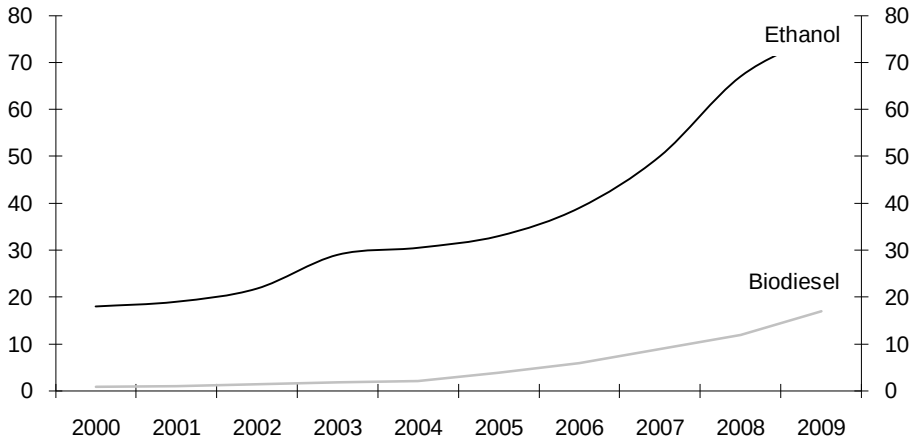
Political promotion

To date, however, the process of introducing biofuels has been driven more by political intervention than by market forces. Instruments of state promotion include blending quotas, production subsidies and tax incentives. All EU member states have adopted national targets and timetables for biofuel blending, and also outside the EU and OECD many states have committed to increasing the proportion of blended biofuel.[3] State action to promote biofuels is justified in terms of diverse economic, social and ecological benefits. Substitution of biofuels thus depends not only on the costs involved but also on political objectives and assessments as to whether set goals can be achieved by using biofuels.

Production and producers

Global production of bioethanol and biodiesel has increased sharply in recent years (see Figure 1), with significantly more bioethanol being produced than biodiesel (in 2009 76 billion litres compared to 16.6 billion litres). The United States and Brazil dominate global bioethanol production, between them accounting for almost 90 percent in 2009 (see Figure 2). Germany, France and the United States lead in biodiesel, together accounting for more than 40 percent of global production in 2009.

Figure 1
Global ethanol and biodiesel production, 2000–2009 (billion litres per year)



Source: REN21, *Renewables 2010: Global Status Report* (Paris, 2010).

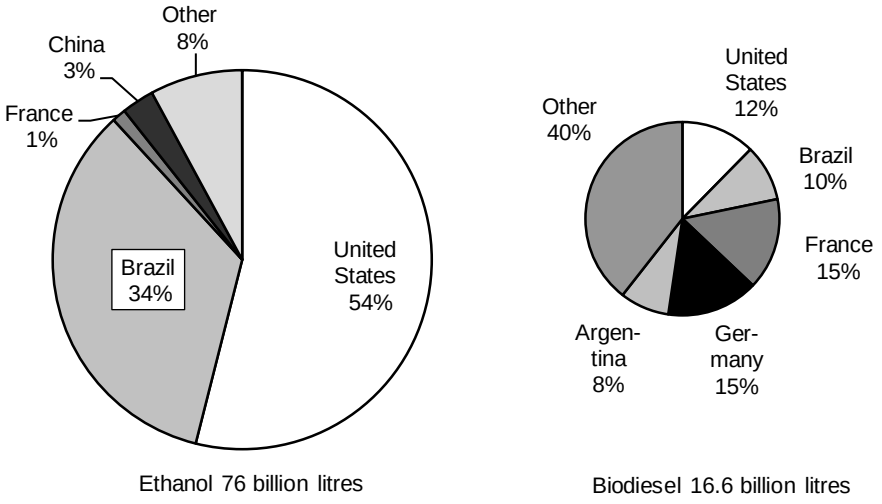
Trade restrictions

While state intervention promotes domestic production of biofuels, extensive tariff and non-tariff import restrictions hamper international trade. Certification requirements, too, can function as non-tariff trade barriers. Currently only about 10 percent of the world's consumption of biofuel is traded internationally. Brazilian ethanol exports to the United States and the EU represent the only significant trade flow, and even here

3 For an overview of different national and sub-national instruments for promoting biofuels see REN21, *Renewables 2010* (see note 1).

import tariffs add more than 25 percent to the price in the United States and more than 50 percent in the EU.[4] The United States and the EU in particular have set themselves ambitious targets for biofuel blending, which they are unlikely to be able to achieve solely through domestic production. So the importance of international trade in biofuels can be expected to grow.

Figure 2
Production of ethanol and biodiesel by country, 2009 (%)



Source: REN21, *Renewables 2010. Global Status Report* (Paris 2010).

4 Food and Agriculture Organisation of the United Nations, *The Market and Food Security Implications of the Development of Biofuel Production* (Rome, 2009).

The International Biofuel Debate

Conflicts over biofuels

The potential for international political conflict associated with biofuels stems above all from competition for market access. Producer states compete for market share, and in pursuit of their trade interests they frequently resort to value-based arguments that moralise the discourse, pointing especially to potential land use competition with food crops and forest protection.[5] Overlaying interest-based positions with argumentation based on believes increases the potential for conflict because the latter is not amenable to resolution through negotiation.

Context of the debate

Such a conflict comes with diverging assessments of the production conditions and consequences of increased use of biofuels.[6] The complexity of life-cycle analyses makes it especially difficult to arrive at a definitive and empirically grounded verdict. Moreover, the "soundness" of biofuels is often judged not in comparison with other resources and fuels but against a priori formulated ideals. Negative aspects concerning production and consumption in a specific situation are often attributed specifically to biofuels and not addressed as a structural problem of the context, when in fact these problems occur in other agricultural production processes under the same circumstances without raising comparable public attention.[7] Moreover, many analyses involving the trade-offs (for example competition for land to produce biofuel or food) ignore the time dimension that is in reality central to predicting scarcity and making political decisions about appropriate countermeasures. This one-sided line of argument is not the prerogative of the critics; the advocates of biofuels tend to present biofuels as a solution to multiple problems. One side praises biofuels as a cure-all, the other damns them as a menace.

5 Oliver Geden and Claudia Zilla, "Pragmatismus statt Panikmache: Für eine unaufgeregte Ressourcendebatte," *Internationale Politik*, 2009, no. 11/12 (November/December): 17–21. For example, in Germany Brazilian bioethanol exports are discussed as a cause of Amazon deforestation. But the sugar cane plantations for the bioethanol industry are not in the Amazon Basin at all and can only indirectly contribute to deforestation (for example if the expansion of crop-growing displaced cattle ranching into forest areas). The exponential increase in Brazilian meat production and export poses a much greater threat to the Amazon rain forest and causes significantly larger greenhouse gas emissions. Nonetheless Brazilian beef exports are not subject to the intensity of ecological criticism faced by its bioethanol exports. If there is discussion about problems with Brazilian beef, it is much more likely to involve phytosanitary concerns.

6 In this study we discuss the objectives and arguments of the main biofuel-producing states. We include only the official government discourses, but these consist of multiple actors and groupings of actors and thus reflect a range of different positions. For example, the views of different ministries often vary and public institutions may also argue positions that are not completely in line with their own government.

7 For example, working conditions in rural Brazil are extremely precarious, and national and state governments are often unable to enforce labour legislation. The problem here is a structural one. In fact, the situation of rural workers in the Brazilian sugar cane industry is often better than in many other agricultural sectors.

Actors and Arguments

Germany and the EU

Political framework

The EU biofuels directive of 2003 sets biofuel blending targets for the member states.[8] In 2008 biofuels accounted for 3.1 percent of all transport fuel consumption in the EU, with biodiesel playing a greater role than bioethanol in quantitative terms both in Germany and in the EU as a whole.[9] The EU directive provided for this share to increase to 5.75 percent by the end of 2010, and by 2020 at least 10 percent of the energy used in the transport sector should originate from renewable sources.[10] Germany has been promoting biofuels since 2004 using tax incentives and blending quotas; the national target for 2010–2014 is for biofuel to account for 6.25 percent of transport fuel.[11] Within the EU Germany is the state with the highest biofuel share.[12]

Biofuel imports

Domestically produced biofuel is insufficient to satisfy demand, making the EU a net importer of both bioethanol and biodiesel. In 2009 imports supplied a little over 10 percent of biodiesel consumption and more than 20 percent of bioethanol – even with a tariff of 6.5 percent of declared value levied on imported biodiesel and imports of undenatured ethanol taxed at €19.20 per hectolitre.[13]

Objectives and concerns

Biofuels are supported in order to secure and diversify energy supplies and facilitate the achievement of climate targets, as well as stimulating economic development and creating new jobs especially in rural areas.[14] If they are to achieve their biofuel blending targets, the EU and Germany will be increasingly reliant on imports from developing countries and newly

8 Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the Promotion of the Use of Biofuels or Other Renewable Fuels for Transport, *Official Journal of the European Union*, L 123/42, 17 May 2003.

9 Biofuels Platform, "Results of the European Biofuels Policy", www.biofuels-platform.ch/en/infos/eu-results.php (accessed April 26, 2011).

10 Directive 2003/30/EC (see note 8); Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, *Official Journal of the European Union*, L 140/16, 5 June 2009.

11 German Bundestag, *Bericht der Bundesregierung zur Steuerbegünstigung für Biokraft- und Bioheizstoffe 2008*, Bundestagsdrucksache 16/13900, 1 September 2009; Gesetz zur Änderung der Förderung von Biokraftstoffen vom 15. Juli 2009, *Bundesgesetzblatt*, 2009, I, 41, 20 July 2009, http://faolex.fao.org/docs/pdf/ger88860.pdf (accessed May 17, 2011).

12 In 2008 the biofuel share in Germany was 6.0 percent, followed by France with 5.7, Austria with 5.5 and Sweden with 5.0 percent. Europa, Gateway to the European Union, "Commission Sets Up System for Certifying Sustainable Biofuels", RAPID press release, Brussels, 10 June 2010, http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/10/247&format=PDF&aged=0&language=EN&guiLanguage=fr (accessed April 26, 2011).

13 OECD and FAO, *Agricultural Outlook 2010–2019* (Paris, 2010).

14 Federal Ministry of Food, Agriculture and Consumer Protection (BMELV) and Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), *Nationaler Biomasseaktionplan für Deutschland* (Berlin, 2009), 6f; Commission of the European Communities, *An EU Strategy for Biofuels*, Communication from the Commission, Brussels, 8 February 2006, COM/2006/34, 4.

industrialised countries. But Germany and the EU fear that the export-led production of biofuels in these countries is especially associated with negative social and ecological impacts, highlighting the risk that biofuel production could lead to deforestation, destruction of other ecosystems and displacement of food crops. Negative social consequences are also discussed, for example displacement of small farmers and exploitation of plantation workers.[15]

Sustainability standards

Germany and the EU would like to ensure that only sustainably produced biofuels are included in the blending quota. Biofuels only count towards blending targets if the greenhouse gas emissions attributable to their production across the entire production chain are at least 35 percent less than from their fossil fuel equivalents, and the biomass used must not be cultivated on ecologically valuable land.[16] The EU has no uniform system for defining sustainability standards in detail and verifying that they are implemented. The German biofuel sustainability decree of 30 September 2009 implements the EU directives. The two certification systems recognised to date differ in the standards they apply. REDcert was established by German agricultural and biofuels industry organisations and directly implements the statutory requirements. International Sustainability and Carbon Certification (ISCC), whose development was encouraged by the German government, is based on more far-reaching principles that also include social criteria. The German government is keen to establish biofuel sustainability criteria at the international level too.[17]

United States

Political framework

The Renewable Fuel Standard (RFS) enacted in 2005 by the U.S. Environmental Protection Agency (EPA) under the Energy Policy Act established the first blending target in U.S. history: 28.4 billion litres (7.5 billion gallons) of biofuel are to be added to petrol in 2012. The Energy Independence and Security Act of 2007 expanded the RFS programme: by 2022 the U.S. transport sector should be using 136.3 billion litres (36 billion gallons) of biofuel, of which 79.5 billion litres (21 billion gallons) should be

15 Press and Information Office of the Federal Government, "Nachhaltiger Ausbau von Biokraftstoffen", press release, 22 October 2008; Federal Ministry for Economic Cooperation and Development, *Sektorkonzept Nachhaltige Energie für Entwicklung*, strategy paper (Berlin, 2007); BMELV and BMU, *Nationaler Biomasseaktionsplan für Deutschland* (see note 14); German Bundestag, *Bericht der Bundesregierung zur Steuerbegünstigung für Biokraft- und Bioheizstoffe 2008* (see note 11); European Commission, *An EU Strategy for Biofuels* (see note 14), 6.

16 Forests, nature reserves and biodiversity-rich areas are considered as ecologically valuable land; see Directive 2009/28/EC (see note 10).

17 BMELV, "Biomasse nur noch aus nachhaltigem Anbau: Staatssekretärin Klöckner stellt erstes europäisches Zertifizierungssystem vor", press release, 20 January 2010; Press and Information Office of the Federal Government, "Nachhaltiger Ausbau von Biokraftstoffen", press release, 22 October 2008; BMELV and BMU, *Nationaler Biomasseaktionsplan für Deutschland* (see note 14).

"advanced biofuels".[18] The Food, Conservation and Energy Act passed in May 2008 set aside $1 billion for ethanol projects. On 5 May 2009 President Barack Obama ordered the establishment of the Biofuels Interagency Working Group (IWG), bringing together the Department of Agriculture, the Department of Energy and the Environmental Protection Agency. A management team is responsible for supply chain management and oversight of coordination between the IWG and the U.S. Biomass Research and Development Board.[19]

Domestic production and imports

Today the United States produces about 45.4 billion litres (12 billion gallons) of biofuel annually. The lion's share of this is ethanol produced from maize, which consumes about 15 percent of the maize harvest.[20] Although the U.S. bioethanol sector has grown in importance over the past decade, with the share of bioethanol in the fuel supply rising from 1 to 7 percent between 2000 and 2008, production still falls far short of consumption targets.[21] At the same time, trade barriers hinder biofuel imports. Imports of bioethanol from Brazil, which the EPA granted "advanced biofuel" status in 2010 are taxed at 25 percent of declared value plus $0.59 per gallon (about 3.8 litres). Bioethanol comes to the United States duty free only if it is imported via Central America under the Caribbean Basin Initiative (CBI). In order to evade trade barriers, bioethanol producers from Brazil and the EU carry out the last step in the production process, dehydration, in Central America.[22] CBI Ethanol is allowed to cover up to 7 percent of the bioethanol sold in the United States.

Objectives of bioethanol promotion

The priority goal of bioethanol promotion in the United States is increasing energy security by reducing dependency on fossil fuels and energy imports. The main focus is therefore expanding the domestic bioethanol industry, which should also impact favourably on the labour market. Beneficial effects on climate change and the environment are also cited as arguments for the use of biofuels in the United States, but they occupy a less central position than in the EU.

18 Under this definition an "advanced biofuel" is one that reduces greenhouse gas emissions by at least 61 percent compared with the fossil fuel equivalent.

19 *Growing America's Fuel: An Innovation Approach to Achieving the President's Biofuels Target*, 3 February 2010, www.whitehouse.gov/sites/default/files/rss_viewer/growing_americas_fuels.PDF (accessed June 20, 2010). Congress created the Biomass Research and Development Board in 2000 to coordinate federal programmes promoting biofuels and bioproducts, maximising benefits and ensuring strategic coherence. Biomass Research and Development Board, www.usbiomassboard.gov (accessed August 23, 2010).

20 U.S. Department of Energy, *Biomass Multi-Year Program Plan* (Washington, D.C.: Office of the Biomass Program, 2005).

21 *Growing America's Fuel: An Innovation Approach to Achieving the President's Biofuels Target* (see note 19).

22 *Ethanol and Other Biofuels: Potential for U.S.-Brazil Energy Cooperation*, CRS Report for Congress RL34191 (Washington, D.C.: Congressional Research Reports for the People, 27 September 2007), http://opencrs.com/document/RL34191 (accessed July 15, 2010).

Brazil

Political framework

The Brazilian government launched the ProÁlcool programme back in 1975 to encourage the production of ethanol from sugar cane. Today bioethanol covers 50 percent of domestic demand for car fuel.[23] Since 2003 the Brazilian government has also begun promoting the production of biodiesel in poorer regions especially with an eye to supporting small-scale farming. In contrast to the technologically advanced ethanol sector, biodiesel production is solely for the domestic market. The Brazilian government's diplomatic efforts to boost global use of biofuels therefore concentrate on bioethanol.

Ethanol diplomacy

Whereas the ProÁlcool programme originally set out to reduce Brazil's dependency on oil imports, today's "ethanol diplomacy" is about increasing ethanol exports. In 2009 almost 20 percent of produced ethanol was exported.[24] As well as increasing foreign currency inflows and boosting the Brazilian economy, ethanol exports are also expected to produce positive distribution effects, because poorer sections of the population benefit most from the creation of new jobs in the ethanol industry. Brazil is also seeking to build an international reputation as an "alternative energy power". The Brazilian government sees biofuels as a contribution to global energy security and climate protection that also offer important development potential for poorer countries. Biofuels furthermore enable poorer countries to reduce the carbon intensity of their economies without becoming dependent on expensive technologies or having to accept economic losses.[25]

A world market for bioethanol

The Brazilian government believes that these gains can only be fully realised if a global market for bioethanol is established. To that end it wants both to increase the number of producer countries through cooperation with developing countries and to persuade industrialised countries to open up their markets. Brazil regards the industrialised countries as the biggest obstacle to the establishment of an international market, through their trade barriers and their reservations against biofuel production in developing countries. The Brazilian government consequently uses every opportunity to dispel such doubts and win acceptance for Brazilian ethanol production, emphasising that no Brazilian rain forest is sacrificed for biofuels production,[26] emphasising the positive energy balance of sugar cane ethanol, and pointing to the quality of jobs in the ethanol industry, which is above-average for the Brazilian agricultural sector.

23 Brazilian Embassy in Berlin, "Nachhaltige Entwicklung und Biokraftstoffe", 22 April 2008, http://brasilianische-botschaft.de/wirtschaft/wettbewerbs-und-standortvorteile (accessed April 28, 2011).

24 OECD and FAO, *Agricultural Outlook* (see note 13).

25 Antônio José and Ferreira Simões, "Biocombustíveis: A Experiência Brasileira e o Desafio da Consolidação do Mercado Internacional", in *Biocombustíveis no Brasil: Realidades e Perspectivas*, ed. Ministerio das Relações Exteriores (2007), 11–33; Ministerio das Relações Exteriores, "Recursos renováveis", www.itamaraty.gov.br/temas/energia-e-biocombustiveis/recursos-renovaveis (accessed May 26, 2010).

26 Decree 6961 of December 2009 prohibits the cultivation of sugar cane on ecologically valuable land.

Moreover, the Brazilian government underlines, biofuel production contributes to global food security by generating income for poorer people.[27] Brazil would like to have bioethanol classified as an environmental good by the World Trade Organisation (WTO) and biofuels traded as a commodity with uniform global pricing.[28] Establishing internationally agreed standards could make the latter possible, but if these are too restrictive they will be open to misuse in the name of sustainability as non-tariff trade barriers.[29]

Conflict Potential

Promotion of domestic production

The states discussed here are interested in increasing domestic production of biofuels largely in order to reduce their dependency on fossil fuels. They also see expansion of the biofuel industry as a way to boost rural development and create jobs. These are the arguments used to justify state promotion of biofuels.

Diverging trade strategies and normative justifications

Different strategies are pursued depending on competitiveness. Whereas Brazil seeks to achieve the aforementioned objectives above all by expanding ethanol exports, Germany, the EU and the United States limit the proportion of imported biofuel in their own markets through tariff and non-tariff trade barriers, even though domestic production is inadequate to achieve their biofuel targets. In concordance with their different trade interests, Germany, the EU and Brazil assess the impact of biofuel production on the scarcity of other resources very differently. In contrast to Brazil and the United States, doubts as to the sustainability of biofuels are widespread in Germany and the EU, where sustainability deficits are discussed largely in connection with export-led production in developing countries rather than domestic production. Brazil, as the most competitive ethanol exporter, attempts to defuse these reservations and convince the international community that biofuel production has positive effects, especially in developing countries.[30]

Conflict potential through normativity

The debate about the "benignity" of biofuels makes it more difficult to reconcile trade policy differences, for while political and economic differences can be resolved through negotiation, antagonistic positions justified in terms of conviction and ethics are practically non-negotiable. Worse

27 Giorgio Romano Schutte and Pedro Silva Barros, "A Geopolítica do Etanol", *Boletim de Economia e Política Internacional* (Instituto de Pesquisa Econômica Aplicada), 2010, no. 1, 33–44; José and Simões, "Biocombustíveis" (see note 25); Brazilian Embassy in Berlin, "Nachhaltige Entwicklung und Biokraftstoffe" (see note 23). For detail on the European perspective and production in Brazil see Gerd Kohlhepp, "Análise da situação da produção de etanol e biodiesel no Brasil", *Estudos Avançados*, 24 (2010), no. 68, 223–253.

28 The Doha Round of trade talks places special weight on promoting trade in environmental goods and services by dismantling and where possible abolishing trade barriers. However, the parties have not yet been able to agree on a definition.

29 José and Simões, "Biocombustíveis" (see note 25), 29.

30 Stormy-Annika Mildner and Claudia Zilla, "Brasilien und Biokraftstoffe: Chancen und Stolpersteine für eine engere Zusammenarbeit mit der EU und Deutschland", SWP-Aktuell 60/07 (Berlin: Stiftung Wissenschaft und Politik, November 2007).

still, the normativity of the debate and the associated diverging perceptions of the impact of biofuel production can lead the actors to close themselves to the substantive arguments of the opposing side.

International Cooperation

International cooperation forums can reduce the conflict potential in the debate about the normative status of biofuels by permitting an exchange of views and especially by reducing divergences in perceptions. A shared perception of the problem and a common language are important preconditions for deeper cooperation. In recent years a number of multilateral and bilateral cooperation forums have been set up explicitly to further the development of biofuels, bringing together the biggest importing states – Germany/EU and the United States – with Brazil as the major exporter. So to what extent do these cooperation forums contribute to reducing conflict potential?

International cooperation to reduce conflict potential

Multilateral Cooperation

The Global Bioenergy Partnership (GBEP) and the International Biofuels Forum (IBF) are multilateral forums established to develop shared standards and norms and to facilitate the exchange of information on biofuel promotion. The GBEP was set up in 2006 by the leaders of the G8+5 to promote high-level political dialogue and international cooperation in the field of bioenergy.[31] Twenty-three governments and twelve international organisations are members, while a further thirty-two actors have observer status.[32] GBEP's Task Force on Greenhouse Gas Methodologies has already developed a joint methodological framework for measuring greenhouse gases,[33] which will allow the creation of instruments for comparing the results of different life-cycle analyses. The goal of the second working group, the Task Force on Sustainability, is to develop voluntary sustainability criteria and indicators that are compatible with WTO standards. At the 2010 G8 summit in Muskoka, Canada, the heads of state and government supported the implementation of voluntary sustainability criteria for biofuel production.[34] The Task Force hopes to publish a first report on sustainability indicators in 2011.[35]

Global Bioenergy Partnership

31 The G8+5 is the G8 states plus Brazil, China, India, Mexico and South Africa.

32 GBEP, "GBEP Partners", http://www.globalbioenergy.org/aboutgbep/partners-membership/partners00/en (accessed May 18, 2011).

33 *The GBEP Common Methodological Framework for GHG Lifecycle Analysis of Bioenergy, Version One*, http://www.globalbioenergy.org/fileadmin/user_upload/gbep/docs/GHG_clearing_house/GBEP_Meth_Framework_V_1.pdf (accessed April 27, 2010).

34 *G8 Muskoka Declaration Recovery and New Beginnings,* Muskoka, Canada, 26 June 2010, http://www.globalbioenergy.org/fileadmin/user_upload/gbep/docs/G8_declarations_GBEP/G8_Muskoka_2010_GBEP.pdf (accessed April 27, 2011).

35 *Chair Conclusions, 11th meeting of the GBEP Task Force on Sustainability*, Sweden, 17 March 2011, http://www.globalbioenergy.org/fileadmin/user_upload/gbep/docs/2011_events/11th_TF_Sustainability_Stockholm_15-17_March_2011/Chair_conclusions_11_GBEP_TF_Sustainability.pdf (accessed April 27, 2011); *Chair Conclusions, 10th meeting of the GBEP Task Force on Sustainability*, Rome, 18 November 2010, http://www.globalbioenergy.org/

International Biofuels Forum

The Brazilian government initiated the establishment of the IBF in 2007, to prepare recommendations for expanding the production and use of biofuels and to define shared standards and norms for a future global market. The members of the IBF are Brazil, the United States, the EU, South Africa, China and India. The IBF has two working groups: one on standards and codes, the other on information exchange on development and use of biofuels including sustainability concerns.[36] Experts from the United States, Brazil and the EU working under the auspices of the IBF published a White Paper on Internationally Compatible Biofuels Standards in December 2007 outlining the similarities and differences between the three regions' technical biofuel standards.[37] The IBF's role became less important in 2008 when the international discussion shifted to possible goal conflicts between biofuel and food production.

Roundtable on Sustainable Biofuels

The multistakeholder initiative Roundtable on Sustainable Biofuels (RSB) has already been able to agree joint sustainability standards, listing twelve principles addressing the ecological, social and economic dimensions of sustainability.[38] The RSB brings together farmers, businesses, NGOs, experts, governments and international agencies. Although neither the EU nor the governments of Germany, Brazil and the United States participate in the RSB, biofuel producers and NGOs from all these countries are represented.[39] The international sustainability standards for biofuel production prepared by the RSB were tested in a pilot phase and as of March 2011 sustainability certificates can be issued.[40]

Bilateral Cooperation

Cooperation between EU/Germany and Brazil

Strategic Partnership EU/Brazil

In the joint statements of the annual EU-Brazil summits held since 2007 both sides confirm their support for sustainable production of biofuels and define the development of a global market for biofuels as a shared

fileadmin/user_upload/gbep/docs/2010_events/10th_TF_Sustainability_Rome_16-18_Nov/Chair_conclusions_GBEP_10_TF_Sustainability_Nov10_short.pdf (accessed April 27, 2011).

36 International Biofuels Forum, *Declaration*, Brussels, 6 July 2007, www. wilsoncenter.org/news/docs/Brazil.Declaration%20Intl%20biofuels%20forum.pdf (accessed June 28, 2010).

37 Tripartite Task Force Brazil, European Union and United States of America, *White Paper on Internationally Compatible Biofuels Standards*, 31 December 2007, http://ec.europa.eu/energy/renewables/biofuels/doc/standard/2007_white_paper_icbs.pdf (accessed June 28, 2010).

38 *RSB Principles and Criteria for Sustainable Biofuel Production*, 5 November 2010, http://rsb.epfl.ch/files/content/sites/rsb2/files/Biofuels/Version%202/PCs%20V2/10-11-12%20RSB%20PCs%20Version%202.pdf (accessed April 27, 2010).

39 For an overview of the members of the RSB see http://rsb.epfl.ch/page-24931.html.

40 Roundtable on Sustainable Biofuels, *New RSB System Allows Certification and Traceability for Sustainably Produced Biofuels*, press release, 23 March 2011. http://rsb.epfl.ch/files/content/sites/rsb2/files/Biofuels/Media%20&%20Press/11-03-23%20PR%20-%20RSB% 20Certification%20Roll-out.pdf (accessed April 27, 2011).

goal.[41] Underlining the importance of international cooperation, they spotlight the IBF and GBEP as the appropriate forums. The joint action plan adopted in 2008, which forms the roadmap for a strategic partnership between the EU and Brazil, provides for intensified cooperation on promoting a sustainable and secure energy supply.[42] Regular energy policy dialogues seek to intensify cooperation in the following areas: developing second-generation biofuels; consolidating national, regional and international biofuel markets; drafting international technical standards; and promoting scientific research and technical innovation to ensure the long-term sustainability of bioenergy production. At the third EU-Brazil summit in October 2009 both sides agreed to jointly promote the development of sustainable bioenergy in Africa through triangular cooperation.

German-Brazilian Energy Agreement

In 2008 Germany and Brazil signed an agreement on cooperation in the energy sector whose foremost goal is to ensure a secure and sustainable energy supply.[43] The agreement came into force in January 2010. A working group on biofuels will promote the exchange of information on trade questions, norms, and ecological and social certification. Another stated goal is to simplify international trade in biofuels. After a series of informal discussions the first official meeting of the working group was held in October 2010 in São Paulo.

Cooperation between the United States and Brazil

U.S.-Brazil Biofuels Partnership

The U.S.-Brazil Biofuels Partnership was brought into being by the governments of the two countries through a memorandum of understanding signed in March 2007 in São Paulo, to promote cooperation in the field of biofuels. The two governments seek to intensify cooperation on three levels: Bilaterally, joint efforts in research and development of technologies for next-generation biofuels are planned, and should also be reflected in intensified cooperation within the framework of existing bilateral formats.[44] In relation to third states, especially in Central America and the Caribbean, local capacities for production and use of biofuels are to be promoted, along with private investment. The Organisation of American States (OAS) and the Inter-American Development Bank (IADB) also par-

41 Council of the European Union, EU-Brazil Summit, Joint Statement, Lisbon, 4 July 2007; Council of the European Union, Second Brazil-European Union Summit, Joint Statement, Rio de Janeiro, 22 December 2008; Council of the European Union, Third European Union-Brazil Summit, Joint Statement, Stockholm, 8 October 2009); Council of the European Union, IV European Union-Brazil Summit, Joint Statement, Brasília, 14 July 2010), Brussels 2010.

42 Council of the European Union, *Brazil-European Union Strategic Partnership Joint Action Plan*, Rio de Janeiro, 22 December 2008.

43 BMU, *Abkommen zwischen der Bundesregierung Deutschland und der Regierung der Föderativen Republik Brasilien über die Zusammenarbeit im Energiesektor mit Schwerpunkt auf eneuerbarer Energie und Energieeffizienz*, 14 May 2008.

44 These include the Commercial Dialogue (2006), the Consultative Committee on Agriculture (2003), the Common Agenda for the Environment (1995) and the Joint Commission for Scientific and Technological Cooperation (1984).

ticipate in these triangular cooperation initiatives.[45] Globally, developing compatible standards and certifications is on the agenda. Coordination of the work of institutions like the Brazilian INMETRO (Instituto Nacional de Metrologia, Normalização e Qualidade Industrial) and the American NIST (National Institute of Standards and Technology) is to be intensified, as is the representation of substantive positions at international forums like the IBF. A joint steering group oversees activities conducted under the memorandum of understanding.[46] President Dilma Rousseff and President Barack Obama decided in March 2011 to expand bilateral cooperation in the energy sector into a strategic energy dialogue and intensify their cooperation with third states.[47] The U.S. Department of Energy and the Brazilian Ministry of Mines and Energy will hold a joint workshop to discuss advanced biofuels and sustainability criteria. Additionally, Brazil and the United States have established a bilateral partnership for developing aviation biofuels.[48]

Opportunities to Ameliorate Conflict

Diverging perceptions hamper cooperation

The promotion of biofuels is a relatively young theme on the international agenda, and one that is controversially and emotionally discussed.[49] The conflation of trade policy differences with controversies over the normative status of biofuels increases the potential for conflict and hampers international cooperation. These trade policy differences will take time to resolve, because first divergences in perceptions of the problem need to be bridged and a shared language found.

Cooperation and progress

International cooperation on promoting biofuels is still in its early days. None of the aforementioned cooperation forums existed before 2006. They have already made progress on information exchange and developing international norms and standards. GBEP has developed a shared methodological framework for measuring greenhouse gas emissions from biofuel production, while the multistakeholder RSB has agreed joint sustainability standards and launched certification of sustainably produced biofuels in March 2011.

The special potential of triangular cooperation

Brazil's bilateral cooperation with the EU and with the United States embraces scientific and technological issues and action, especially with respect to second-generation biofuels and triangular cooperation to

45 *Joint Statement by President Rousseff and President Obama*, 19 March 2011, http://www.whitehouse.gov/the-press-office/2011/03/19/joint-statement-president-rousseff-and-president-obama (accessed April 28, 2010).

46 The latest meeting of the steering group was held in December 2009 in Washington.

47 The White House, Office of the Press Secretary, *Fact Sheet: U.S.-Brazil Strategic Energy Dialogue*, 19 March 2011, http://www.whitehouse.gov/sites/default/files/uploads/Brazil_Strategic_Energy_Partnership.pdf (accessed April 28, 2011).

48 Partnership for the Development of Aviation Biofuels, 19 March 2011, http://www.whitehouse.gov/sites/default/files/uploads/Partnership_Development_Aviation_Biofuels.pdf (accessed April 28, 2011).

49 Stormy-Annika Mildner and Claudia Zilla, "Nebenwirkungen inklusive: Biokraftstoffe: Die Produktion auf dem Subkontinent boomt", *Das Parlament*, 14 January 2008, 3.

promote biofuel production in poorer countries in Africa and Central America. The latter offers the possibility not only to promote the development of poor developing countries in accord with national self-interests but also to come to a shared understanding of sustainable biofuel production. Triangular cooperation confronts the parties with the necessity to reduce the diverse demands they place on biofuels to a pragmatic measure and, where goal conflicts arise, to set priorities, accept particular costs - as for example acknowledging that not all objectives can be maximised at the same time.

Conclusions

Dialogue between exporters and importers is crucial

International cooperation is imperative when dealing with conflicts that come along with or may hinder international trade. A precondition for effective conflict management is that the most important exporting and importing states are represented in the relevant international forums, along with relevant non-state actors. The Global Bioenergy Partnership (GBEP) is a positive example. The diverging interests of exporters and importers of biofuels are associated with very different perceptions of causalities, for example concerning land use competition between food crops and biomass for fuel. Information exchange is therefore crucial for international cooperation, to create transparency about interests and perceptions for the market participants. This reduces transaction costs in the affected markets and can also contribute to mutual confidence-building, bringing together diverging perceptions and developing a shared language. A shared language can also be found in the process of agreeing standards and methodologies, which is both an outcome of international cooperation and a favourable precondition for deepening it. In this sense, Germany and the EU as major importers of biofuels should be working for open dialogue between importing and exporting states.

Reconsider evaluation standards

De-emotionalising the international debate about biofuels is a matter of urgency. Rather than overloading the biofuel promotion with political objectives, we should concentrate on central priorities and openly discuss goal conflicts when they are encountered. Biofuels should not be judged against the maximum standard of an "ideal good" from which other products are exempt. Instead we should soberly examine the empirical advantages and drawbacks offered by biofuels, especially in comparison with the fossil fuels they substitute. The doubts about the sustainability of biofuels expressed in Germany and the EU relate above all to biofuel production in developing countries. Here we must query whether stricter standards are being applied than for other agricultural products. However, the international pressure generated by doubts over sustainability appears to have prodded Brazilian ethanol producers into paying greater attention to working conditions. Given that there is a grey area between protectionism and justified demands for minimum social and ecological standards, the impact on trade policy and the development process of the country in question should be taken into account when defining sustainability standards.

Develop international sustainability standards

The EU has defined minimum criteria for sustainability that biofuels must meet if they are to count towards blending targets. That requires certification. But the EU does not yet have a uniform system of sustainability certification. Even within Germany the certification systems already approved place different requirements on biofuel production. Although certification is not a formal precondition for importing biofuels, in practice exporters are forced to have their biofuels certified if they are to count

towards the EU blending targets.[50] Different certification systems requiring different principles and processes to be satisfied cause considerable bureaucratic costs. The upshot is the creation of barriers to the imports on which Germany and the EU depend to achieve their energy and climate targets. Germany and the EU should therefore work for the creation of EU-wide harmonised certification systems and promote efforts to prepare internationally recognised sustainability standards that conform with WTO rules. This will necessarily involve considering the positions of those developing countries that enjoy comparative advantages in biofuel production, for example because of soil fertility or climate. The working group on biofuels set up under the German-Brazilian Energy Agreement and the GBEP Task Force on Sustainability appear especially suited for this purpose.

Abbreviations

BMELV	Federal Ministry of Food, Agriculture and Consumer Protection
BMU	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
BtL	biomass-to-liquid
CBI	Caribbean Basin Initiative
CRS	Congressional Research Service
EPA	U.S. Environmental Protection Agency
EU	European Union
FAO	Food and Agriculture Organisation
GBEP	Global Bioenergy Partnership
IADB	Inter-American Development Bank
IBF	International Biofuels Forum
INMETRO	Instituto Nacional de Metrologia, Normalização e Qualidade Industrial (Brazil)
ISCC	International Sustainability and Carbon Certification
IWG	Biofuels Interagency Working Group
NGO	Non-Governmental Organization
NIST	National Institute of Standards and Technology (United States)
OAS	Organisation of American States
OECD	Organisation for Economic Co-operation and Development
REN2	Renewable Energy Policy Network for the 21st Century
RFS	Renewable Fuel Standard
RSB	Roundtable on Sustainable Biofuels
WTO	World Trade Organisation

50 Although directly coupling certification with import regulations would contravene WTO rules, there is little incentive to import biofuels that cannot be counted towards the blending quotas.