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## Environmental authorities and biofuel controversies

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## Environmental authorities and biofuel controversies

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The current generation of crop-based biofuels is heavily contested for its negative consequences for the environment and the poor. Hence, the current biofuel system needs to be transformed in the direction of what can be labelled 'fair fuels': (bio)fuels that are environmentally and socially sustainable. Conventional state environmental authorities have limited power and legitimacy to effectively regulate the sustainability of current global biofuels. Hence, we witness the emergence of private market environmental authorities, moral environmental authorities and all kinds of hybrid authorities in biofuel regulation. These new forms of environmental authority should neither be condemned as ineffective and undemocratic nor celebrated as the modern answer to transnational environmental problems that face state failure. Further critical inquiry into the changing environmental authority structure under conditions of globalisation is needed.

**Keywords:** fair fuels; environmental state; globalisation; governance; NGOs

### Challenging conventional environmental authorities

Environmental authority has traditionally been linked to the state and state organisations. The authority of the state to rule on and regulate environmental problems is tied up with the conventional framing of environmental goods as collective goods and environmental problems as market failures. Hence, from the 1950s onwards, states have been key institutions in dealing with the growing environmental challenges. State environmental authority materialised in and was legitimately executed via among others environmental protection agencies, environmental laws and regulations, state environmental plans and planning and state-organised environmental campaigns.<sup>1</sup> It was only in the late 1980s that this undisputed state environmental authority witnessed its first problems. Where neo-liberal ideologies and programmes of deregulation and privatisation (such as those in the UK and the US) came together with

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accusations on state failures in environmental protection, these state authorities were challenged in their ongoing expansion. But a new wave of environmental concern prevented a significant set back in state environmental authority and capacity in the 1990s. The 1990s were formative in the building of state environmental authority in many of the developing, industrialising and transitional countries. And state authorities collaborated in negotiating, concluding and implementing international environmental agreements.

Many scholars claim that by the end of the 1990s, state environmental authorities in many countries were again subject of debate. Initially, in the 1970s and 1980s, environmental scholars were sceptic and critical towards any idea of undermining state authority, whether it was through privatisation, deregulation or liberalisation. More recently, a less critical attitude towards and assessment of decreasing state authority seems to have emerged among environmental scholars, following especially the environmental governance school-of-thought (cf. Mol 2007b). In short, multiple actors, multiple levels and multiple modes of steering/governance have contributed to the insight that conventional nation-state authority is just one among many modes of environmental protection. Hence, environmental scholars became less worried when state environmental authority lost some of its power, as long as other authorities – with enough power – were put in place to (partly) take over environmental protection.

One of the key environmental and sustainability worries today concerns the rapid production and consumption of liquid biofuels, most notably bioethanol and biodiesel. Biofuels is related to major environmental devastations and food insecurity for the poor. As such, there is a widely felt need for the environmental regulation of biofuels. But with a globalising and increasingly complex biofuel system, nation-state authorities face difficulties in governing biofuel developments so that biofuels become more sustainable. Are state authorities able, capable and leading the environmental governance of biofuels? Or are we witnessing the emergence of other, alternative environmental authorities? And how do we assess such a diversity of environmental authorities in the regulation of biofuel controversies?

In dealing with these questions, I start with an overview of developments in biofuels and related sustainability challenges. Section three elaborates on the concept of environmental authorities, formulating an analytical framework. Subsequently, that framework is used in section four to analyse current developments in the environmental regulation of biofuels. The final section draws conclusions on the diversity in environmental authorities that can be witnessed today.

### **Biofuels trends and controversies**

Biofuels are fuels that are directly derived from biomass, either as liquid or as gas. Within liquid biofuels, we distinguish two types: bioethanol and biodiesel. Bioethanol is the most widely used liquid biofuel, accounting for some 94% of global biofuel production in 2007. Bioethanol production is concentrated in the

US, Brazil and China (Figure 1). Around 60% of bioethanol comes from sugarcane and 40% from other crops, mostly maize. As Figure 1 shows, bioethanol is less produced in Europe. In Europe, Germany, France and Italy dominate biodiesel production from rape seed and sunflower (Figure 2). At the turn towards the twenty-first century, biofuels were predominantly produced for national markets, but a few years ago a global biofuel system started to emerge, with global trade, global investments and global standards. Imports of bioethanol in the US tripled between 2004 and 2006 (United States International Trade Commission data), exports of ethanol from Brazil equally skyrocketed (cf. Figure 3) and trade in biofuels increased in numerous other countries (Junginger *et al.* 2008). Currently, research focuses on developing a second generation of technologies, producing biofuels from non-crop organic material such as wood and organic waste. Organic solar cells and biofuels from algae are envisioned as a desirable third generation of biofuels.

There are five main reasons behind the current remarkable boost in first generation (crop-based) biofuels. First, the idea exists that we are at the peak of fossil fuel exploitation and use. Not only environmentalists but now also major oil companies warn that decreasing fossil fuel reserves and growing energy consumption necessitate new energy sources. Second, the continuing attention about the role of fossil fuels in climate change creates a favourable condition for increased attention to and stimulation of all sorts of alternative energy systems, including biofuels. Third, the dependencies of major fossil fuel importing countries (most notably the US and the EU member states) on unstable fossil fuel producing and exporting regions (Russia, the Middle East, Venezuela) trigger increased pressure to lower fossil fuel dependencies. Fourth

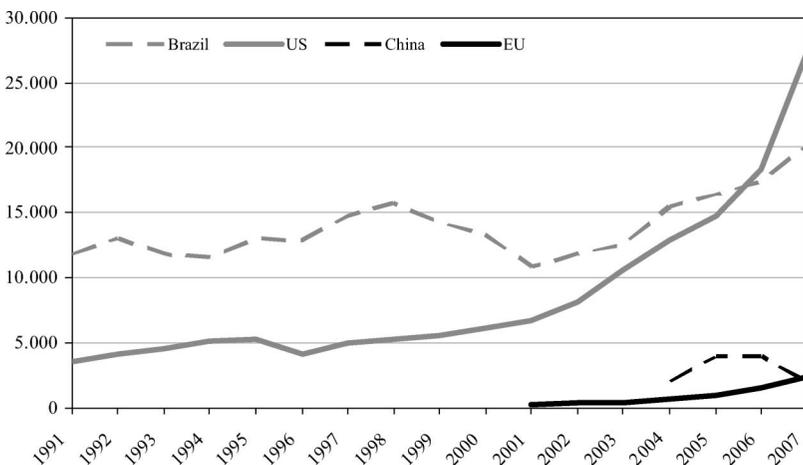


Figure 1. Bioethanol production in some major regions, 1991–2007 (million litres) (Source: Renewable Fuels Association data ([www.ethanolrfa.org/](http://www.ethanolrfa.org/)); China Statistical Yearbook; European Bioethanol Fuel Association data ([www.ebio.org/home.php](http://www.ebio.org/home.php))).

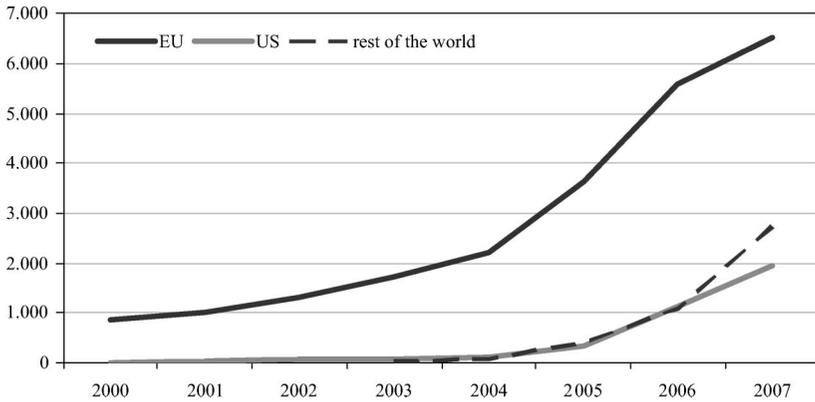


Figure 2. Global biodiesel production, 2000–2007 (million litres) (*Source: National Biodiesel Board (www.biodiesel.org), European Biodiesel Board (www.ebb-eu.org/)*).

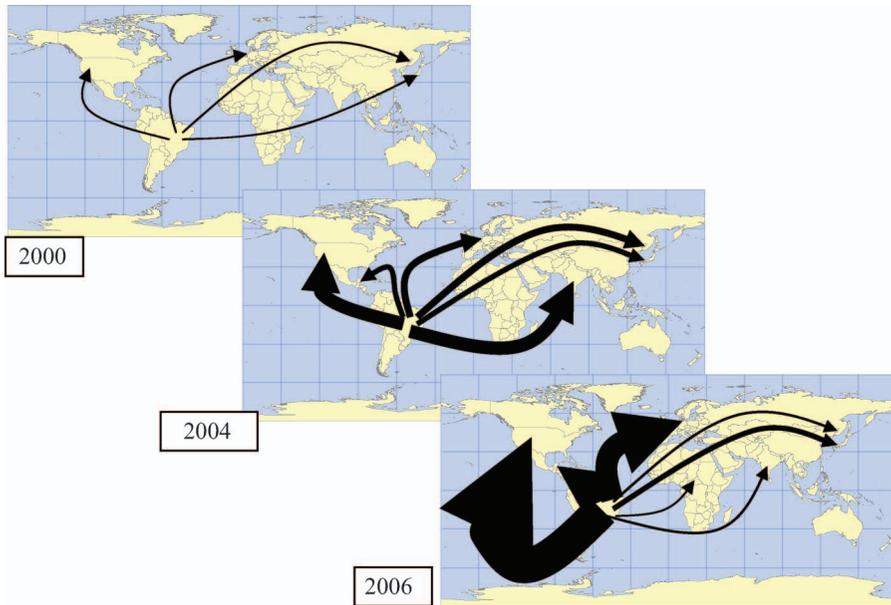


Figure 3. Globalisation of biofuel: international trade of bioethanol from Brazil 2000–2006.

and partly related to the previous point, the 2008 oil price increases have given a further boost to interests in and production of biofuels. This comes together with the fact that biofuels can largely use the existing fossil fuel infrastructure (such as distribution and retailing systems, cars and combustion systems),

making biofuels more competitive than other alternative energy sources. And finally, the crisis in rural areas of many OECD (organisation for economic cooperation and development) countries following over-production of agricultural commodities, overall low crop prices, land set asides and low income levels for farmers provided fertile ground for a new market for agricultural commodities.

Governments throughout the world have strongly stimulated the development of biofuel markets, among others by means of market creation via setting mandatory targets for biofuel use;<sup>2</sup> by subsidising farmers, ethanol and biodiesel processing companies and biofuel users; by protecting domestic markets against imports via tariff and non-tariff trade barriers; by installing large subsidised R&D programmes; and by financing experiments with various transport technologies and programmes. Currently, the biofuel support is wide: agribusiness, oil and energy companies, car companies, investment funds, farmer organisations and various international organisations have joined governments in the promotion of this new market. Only recently the national biofuel systems in a few countries (mainly Brazil and the US) have evolved into a truly global biofuel system, in which almost all countries are involved. But the large investments, market creation and globalisation of biofuels are paralleled by sharp controversies on (i) the environmental sustainability of biofuels and (ii) the effects of biofuels on food security, especially of the poor in developing countries. Let us look at both controversies.

Biofuels are part of the renewable energy family, which are generally believed to have a better environmental profile than fossil fuels and nuclear energy. But more recently critics started to question the environmental profile of biofuels. First, there is considerable diversity in energy efficiencies and greenhouse gas savings from biofuel use, depending on the type of feedstock, cultivation methods, conversion technologies, energy efficiency assumptions and even calculation methods. This diversity comes together with major debates on the uncertainties regarding the energy/climate change profile of biofuels. Second, biofuel expansion comes with biodiversity destruction, for instance when tropical rain forests in Indonesia and Brazil are converted into arable land for oil palm and soy production. Third, large-scale biofuel production endangers soil and water conservation. Especially, biofuels derived from large-scale monocultures, such as US maize-based bioethanol, Malaysian and Indonesian palm oil-based biodiesel and Brazilian soy-based biodiesel, are increasingly seen as unsustainable. Small-scale production of crop-based biofuels (such as *Jatropha* in Tanzania or sunflower in Uganda) is more environmentally sustainable (van Eijck and Romijn 2008). But in those cases, energy balances and cost structures show remarkable inefficiencies, making this only attractive in peripheral localities not well served by the conventional fossil fuel infrastructure.

The second biofuel controversy relates to interactions with the food system and the poor in developing countries. The assessment of this food–fuel relation, and the consequences for the poor in developing countries, varies among scholars. Proponents of free trade, advocates of large-scale biofuel

programmes and some development institutes often celebrate the potentials of biofuels for accelerating rural development in developing countries. Biofuels enable developing countries to enter new export markets (as we see in for instance Indonesia; Ernsting 2007); they can provide local farmers a better income; and they may boost national economies via a model of both import substitution (of fossil fuels) and export growth (of biomass/biofuels). Tropical regions have a comparative advantage in growing biofuel stocks because these regions have often favourable natural conditions, wide land availability and low labour costs, and sugarcane and oil palm (the most cost-efficient and least climate change causing crops) grow best under tropical conditions. But there are three major worries. Large-scale energy crop production may impact strongly on food supply, food prices, food scarcity and with that social stability, as witnessed in 2008 (cf. IMF 2008). This is also the reason why the Chinese government tries to restrict the growth of energy crops (but increase imports). Second, there is also the danger that the poorest developing countries become biomass-, rather than biofuel-exporting regions (cf. UNCTAD 2008). Or that foreign investors rather than domestic citizens in these countries gain the economic benefits. African countries and firms do not have a well-developed technological, knowledge and management infrastructure necessary for large-scale biofuel processing and exports. And last but not least, large energy plantations in developing countries can (and do in Mozambique and Indonesia) affect land availability and thus income sources for small farmers and indigenous people. The questions are then whose land will be turned into energy plantations, under what kind of arrangements and dependencies, and where the profits will go.

To summarise, current global biofuel developments are heavily debated, as they are often not considered sustainable. But this is not inherent to biofuels. Biofuels can be beneficial for the poor and the environment, for instance, when organic waste from agriculture, households or industry is converted into fuels; when biofuel production triggers local sustainable development in poor regions; or when the promise of synthetic biology for organic solar cells becomes reality. The challenge for governance and biofuel regulation is than to transform the current global biofuel system in the direction of what I label 'fair fuels'. Fair fuels – biofuels as much as other fuels – are fuels that fulfil social and environmental conditionalities throughout the production chain. Hence, fair fuels refer not to a particular source of energy but to the fulfilment of legitimate social and environmental criteria. But are state – or other – authorities well placed, legitimate and powerful to govern the current globalising biofuel system towards fair (bio)fuels? Before analysing current trends in biofuel regulation, the next section develops a perspective on environmental authorities.

### **Diversifying environmental authority**

The foundation of any concept or idea of authority today still relates back to Max Weber's theory of authority (Weber 1947). Authority is interpreted by

Weber as the power to command or rule and the duty to obey. But authority is different from coercive power as it rests on a certain degree of voluntary compliance, and it exercises legitimate social control through a belief system with shared norms. Thus authority is closely bound up with legitimacy. As Ruggie puts it (1982, p. 398): ‘authority represents a fusion of power with legitimate social purpose.’ Weber distinguished three forms of authority: legal authority, charismatic authority and traditional authority. In modern organisations, bureaucracies and states, legal authority through impersonal principles dominates. Traditional and charismatic authorities are less important. Weber’s notion of authority has been debated widely and has been understood in its specific historical context of early twenty century Europe. Although the essence of Weber’s interpretation of authority still remains valid, others have added new forms or categories of authority to Weber’s classification. In understanding the diversification of environmental authority with respect to biofuel regulation, I first elaborate on the notions of private and moral authority and then turn back to the environment.

Recent debates on – environmental and other – authority questions especially the idea that authority is very much bound up with the public domain. Limiting authority – or the legitimate right to rule – to the public domain, which is much in line with a Weberian notion of authority, would make private authority impossible. Authors as diverse as Cutler *et al.* (1999), Hall and Biersteker (2002) and Sassen (2006), among others, have argued forcefully that the disassociation between authority and private spheres cannot be maintained. With much empirical and historical detail, these authors have shown that private market authority has existed for long in various forms: guilds, cartels, business associations and private regimes. These private authorities were mainly meant to legitimately regulate market interactions and prevent further state intervention in the market.

There seems to be growing consensus around the idea that at least since the 1990s private market authority is gaining ground vis-à-vis public authority. Three explanations clarify this shift from public authority to private market authority (cf. Cutler *et al.* 1999). Strongly based in institutional economics is the explanation of higher efficiency and lower transaction costs of private market authority above public authority, especially in settings with international transactions where no centralised political authority exists. The second explanation relates to the powers of the architects of private market authority (i.e. transnational companies and their allies). Inequalities and structural advantages enable the construction of private market authority structures, especially in times and situations where (specific) private actors dominate. Third, the increasing importance of market authority has been explained from a historical perspective. The historic expansion of markets vis-à-vis states, the furthering of economic globalisation and the loss of state sovereignty have facilitated and enabled a larger role of private authorities, while public authority became under pressure. The first two explanations elucidate why also in previous historical periods market authority existed, and why and how

actors press for or seize private market authority. The latter – globalisation – explains why currently private market authority seems to be on the rise. As our interest here is especially on current changes in environmental authorities, we zoom in a little further on globalisation.

### ***Globalisation and state authority***

There is wide agreement among social scientists that globalisation is fundamentally – rather than marginally – re-shaping modern society and not in the least the position of the state in that. The general conclusion of most globalisation scholars is that under conditions of globalisation the state is losing sovereignty, governing capacity and authority. Sassen's (2006) recent work *Territory, Authority, Rights* helps us to understand the changing authority structures in what she calls the shift from a nation-state assemblage to a new global assemblage. With her strong basis in the analysis of global financial markets, Saskia Sassen shares the conclusion of many scholars: there exists a growing loss of state authority through a destabilisation of the nation-state system or assemblage. But she refuses to interpret this simply in terms of the irrelevance of governability and the withering away of the state. From Sassen's work, five specifications can be derived, which are key to a more balanced understanding of the changing nature of authority.

First, economic globalisation results not in the irrelevance of the state. Rather it leads to the partial replacement of state authority by market authority, and the denationalising of state capacities (through growing authorities beneath and beyond the national state). For instance, we witness the shift of public regulatory functions to the private sector; the proliferation of private agents – with their rules and norms – to handle domains once exclusive to governments and the circulation of private norms and aims through the public domain, where they are represented as being public.

Second, the deterritorialisation of authority (i.e. the delinking of authority from a national territory) and its shift from state to market still implies that such authority must be shaped, channelled and enabled by institutions and networks which are rooted in (the territory of) nation-states. While flows of global capital, money, biofuels and information seem to become independent of place and territory, they are not foot-loose and are still (also) based in the space of place: in localities where local cultures, local networks and local conditions matter in shaping, enabling, handling and channelling global flows.

Third, in emphasising an overall loss of state authority, we should not lose sight of major internal transformations in authority and their differential consequences for various state sectors. Some state sectors (e.g. the president, the treasurer) get strengthened through globalisation, others become weak (representative institutions, agencies).

Fourth, in various cases, the mounting market authority is activated for governing public goods – such as the environment – or the common good. Private authority of business associations, private waste collection systems and

market-based systems of standardisation, accounting and control cannot be invalidated by just referring to them as being market authority. They need to be judged in their own right, by criteria of effectiveness, efficiency, fairness and democracy.

And finally, globalisation does not only result in infringements of market authorities on public authority. Networks of NGOs and globally shared civil society norms and values facilitate private ‘counter-authority’ against the increasing power, logic and authority of the market. We can label this private moral authority. Globalisation opens up new spaces for such private moral authority of civil society actors and institutions outside the established political and economic system, as will be illustrated below for biofuel regulation.

### *Authority and environment*

These insights are helpful in understanding how environmental authority – in the 1980s still fully belonging to the (formal) public realm and exercised by the state – has been both transformed and relocated under conditions of globalisation (Spaargaren and Mol 2008) and facing global challenges such as biofuels. Under globalisation, the change, diversification and relocation of environmental authority away from the national state and the political sphere follow also from the deterritorialisation and globalisation of environmental problems. Different forms of authority have ‘jurisdiction’ over different territorial stretches. State authorities have jurisdiction over the national territory, which is adequate when environmental polluters and pollution remain restricted to a national territory. But with globalisation polluters, pollution and biofuels are no longer restricted to and contained in national entities; they are to be found in the global arena, in inter/supra-national arrangements and in networks and flows that criss-cross borders. Hence, environmental authority cannot be limited to what Ulrich Beck calls the ‘nation-state container’. Besides international and supra-national authorities such as the various Multilateral Environmental Agreements and the EU, other forms of authority that have a geographically wider stretch become relevant. Market authorities and moral authorities can govern multiple small localities/actors within multiple nation-states; hence, localised biofuel production and consumption practices. But multiple small localities can also be governed by the authority of city-networks (local agenda 21, climate city networks) and epistemic communities with their scientific authority. Thus the de-monopolisation of state environmental authority comes together with the growing importance of other, non-state forms of environmental authority. It is not that these non-state environmental authorities did not exist under the nation-state assemblage; but they worked largely within, and were subsumed by, a dominant state environmental authority. These new environmental authorities are equally tied up with demands of legitimacy in exercising environmental control. Figure 4 schematically illustrates the development in environmental authority, when moving from the nation-state assemblage to the global

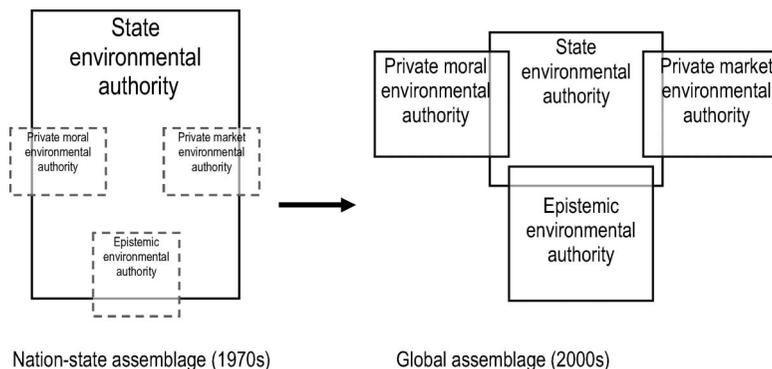


Figure 4. Developments in environmental authority.

assemblage. I will use this conceptual framework of shifting environmental authorities in analysing the regulation of environmental controversies in a globalising biofuel system.

### **Environmental regulation of biofuels**

With the globalisation in biofuel production and consumption, the rather uncritical biofuel support of many state authorities over the past decade and the increasing controversies on the environmental and food security consequences of first generation biofuels, national state authorities face a difficult time in biofuel regulation.

#### ***State authorities on biofuels***

While national governments can no longer dictate biofuel developments, they remain important governing agents and authorities in materialising fair fuels. To push fair fuels, governmental authorities have to switch from general support, subsidies and market creation for all biofuel production and use, towards conditional support for the production and use of specific biofuels. Within their territory governments have a fair amount of power and instruments to push for the production of fair fuels, for instance by setting strict production standards for energy crops and biofuels, followed by close monitoring and enforcement; by removing subsidies on inefficient energy crops (such as corn); by discouraging first generation and stimulating R&D on second and third generation biofuels or by giving preference to other renewable energy sources if fair biofuels are not (yet) available (see also, Thornley and Copper 2008). But state authorities face a number of complexities in moving ahead with such fair fuel regulatory actions. With a lack of scientific consensus on the environmental and food security consequences of large-scale biofuel programmes, states are vulnerable and thus reluctant to set and implement

stringent environmental and social conditionalities. Second, not all state authorities have the willingness and interest to implement preferential fair fuel policies (whether that be in the form of a favourable tax regime, removal of first generation biofuel subsidies, mandatory sustainability standards for biofuels, or any other policy). This has been particularly clear for the US, at the moment one of the major bioethanol producers. The US political, business and farmer interests in continuing current first generation biofuels are high, partly following major past investments in notably unsustainable, corn-based biofuels. Brazil seems a little more open for setting conditions, while some of the European countries (Germany, the UK) and the EU are more active in developing and introducing criteria for fair fuels and insisting on further regulation. Third, biofuel production increasingly moves into developing countries in Asia and Africa; state capacities in these regions are more than incidentally limited and states are sometimes very dependent on foreign capital moving into the poor rural areas. Hence, Indonesia, Laos and Mozambique, for instance, have a clear lack of state capacity and power to monitor and regulate the devastating effects of large-scale biofuel developments. And last but not least, increasingly biofuels (or biomass for producing biofuels) come from the global rather than the national market, making state regulatory activities difficult. How can states make sure that the growing amount of biofuels or biomass imported is produced in an environmentally and socially sound and fair way? And how can costly fair fuels compete on a global market with cheaper 'conventional' biofuels (that have different production, processing and product standards)?

The globalisation of biofuels and limitations in state authority push strongly towards international and global collaboration on standards and specifications related to biofuel quality and a demand for lifting protectionism and moving into liberalisation (cf. Jank *et al.* 2007). Since 2007, we see clear developments in this direction and one can expect the World Trade Organisation (WTO) to try to develop into the leading framework for global biofuel regulation (Howse *et al.* 2006, Jull *et al.* 2007).<sup>3</sup> Biofuels could then become a vehicle to help overcome the current agricultural trade negotiations impasse within the WTO.<sup>4</sup> And it could legitimise the existence of WTO, now that bilateral trade agreements often are an alternative for multilateral trade agreements. But there are still questions – and debate – as to how biofuels will fit into the existing WTO trade regime. Will biofuels be defined as agricultural, industrial, environmental or even energy goods (with far-reaching consequences for the subsidies allowed and the kind of import tariffs that will fall upon biofuels; Jull *et al.* 2007)? Governments in biofuel producing countries are increasingly convinced that protective measures in terms of import tariff barriers need to be broken down (in order to ease incoming flows of biomass and biofuel), but they seem less willing to lift subsidies for their domestic primary producers, processors and user categories. In addition, current controversies with biofuels are especially related to the process of biofuel production (rather than the product), an area where WTO does not allow much environmental regulation and discrimination; and even less with respect to labour conditions and food security (UNCTAD

2008, p. 37–45). And what would be the consequences of a WTO trade regime for domestic regulations and standards (e.g. mandatory use of biofuels, fuel content requirements, environmental sustainability import criteria) (Loppacher 2005, Howse *et al.* 2006, Oosterveer and Mol forthcoming)? Up till now, these questions have not been clarified and the legitimacy of the WTO to rule on sustainability of biofuels is even questioned – as it has been on other energy products. At the same time, various other multilateral institutions engage in biofuel governance, among which the Food and Agriculture Organisation (FAO 2008), UN Environment Program (UNEP), UN Conference on Trade and Development (UNCTAD 2008), the IMF (2008), the G8,<sup>5</sup> and the OECD (Doornbosch and Steenblik 2007). As these institutions often lack the conventional authority that states and the WTO (and the EU; see below) have, they make use of other sources of authority to impact of biofuel regulation. Scientific studies, forming coalitions with non-state actors, agenda setting through major conference, information dissemination and framing are the unconventional routes through which multilateral institutions engage with biofuel controversies.

Of all these multilateral organisations, at the moment the EU is arguably the most active, powerful and legitimate ‘state’ environmental authority for developing fair biofuel policies and regulation; especially, for its internal market and member states but with wider influence on and implications for outside markets (cf. Jank *et al.* 2007). We have seen more examples where the EU sets sustainability restrictions on trade and investment, against WTO logic. The emphasis of the EU Commission biofuel policies and regulation (e.g. EU Directive 2003/30/EC and the 2008 draft Renewable Energy directive<sup>6</sup>) has been very much on stimulating biofuels (and other renewables), a little on regulating environmental side-effects of biofuels, and hardly on addressing the relation between biofuels production and food prices or other social effects. But things have been changing dramatically in 2008. Non-governmental organisations (such as Biofuelwatch, Oxfam and Greenpeace), scientists, the European Parliament and some member states (e.g. Germany, Italy, France and the UK) have put the Commission under strong pressure. With respect to biofuels, the EU debate centres on two points: (i) setting the currently proposed standard of mandatory biofuel use in EU gasoline (10% in 2020) at a lower level; (ii) developing criteria, standards and certification schemes for biofuels. The December 2008 draft of the Renewable Energy Directive, as agreed upon by the European Parliament, has moved in these directions, compared with the January 2008 draft.<sup>7</sup>

### *Non-state authorities on biofuels*

In the absence of strong state authorities that prove to be able, capable and willing to regulate biofuel controversies and a hesitating international collaboration, non-state authorities move to the fore, alone or in partnerships and coalitions with state-authorities.

When biofuels stayed contained with national territories, state authority could remain dominant in organising biofuel scapes. But the globalisation of

biofuels and their controversies in this millennium gave other authorities more room for co-determining biofuel developments. From 2004 onwards, a blossoming of scientific studies illustrating the controversial sides of large-scale biofuel production, use and trade gained increasing (media, NGO, political and business) attention and momentum. Such studies had been published in the US and Brazil before but remained marginal in quantity and effect. Environmental and development NGOs used these scientific studies to redefine and reframe biofuels in the public debate: from a renewable solution to fossil fuel scarcity to a major cause of biodiversity destruction, food insecurity, rural poverty and climate change. Environmental NGOs such as Friends of the Earth International, Greenpeace, Oxfam, Biofuelwatch<sup>8</sup> and many other national and international NGOs launched (often international) campaigns to draw attention to the environmental and food security dimensions of biofuels. They linked up with large (food and other) companies in various multi-stakeholder arrangements, called for renegotiations of state mandatory targets for biofuels, and provided moral authority to (scientific) studies on and calls for sustainability criteria. The moral authority and legitimacy capital of NGOs proved to have considerable power and impact in reframing biofuels and resetting the terms of the debate.<sup>9</sup> By now, all major actors in the biofuel system – advocates and critics, governments, international organisations, farmer organisations, industry associations, (transnational) corporations – have become engaged in defining and framing sustainable biofuels (or fair fuels as I have called it), but all these actors lack the specific moral environmental authority that NGOs have.

With the globalisation of biofuels production and consumption, business and market actors have gained in power vis-à-vis states. They have moved to the fore in organising and structuring the globalising biofuel scape through global trade, foreign and domestic investments, private standardisation of biofuels, R&D, influencing cropping patterns, contracting of farmers, etc. But do they also play a role as a new, private, environmental authority? Experiencing the changing frames around biofuels, multinationals are developing corporate environmental policies and sustainable product standards with respect to biofuels. Most of the websites of the major multinationals involved in biofuels pay ample attention to the environmental and food scarcity dimensions of biofuel production and use. Some companies, such as Electrabel and Essent, are developing their own sustainability criteria (van Dam *et al.* 2008); others link with various stakeholders in coalitions. At the moment, we witness a blossoming of national and international Round Tables (e.g. on responsible soy, on sustainable palm oil, on sustainable biofuels<sup>10</sup>) and international networks/arrangement in which a variety of economic and civil society actors work together (sometimes with governments) in defining what sustainable biofuels are or should be, what could/should private actors do to move in the direction of fair fuel production, and how this can be certified and verified (Verdonk *et al.* 2007, Mol 2007a, van den Hombergh 2008). What kind of authoritative impact follows from such Round Tables and other

arrangements? These arrangements seem to be more than just green wash and inconsequential discussion forums, as perceived by NGO (van den Hombergh 2008) and business participants in these Round Tables and proven by the first shipments of sustainable palm oil certified via the Round Table on Sustainable Palm Oil in 2008. But whether the newly developed guidelines/standards, criteria, and certification and verification schemes will be massively incorporated in the private sector (not unlike the Forest and Marine Stewardship Councils have accomplished) is not yet clear. In these and other biofuel arrangements, as well as outside them, some companies – such as Unilever – take active positions against crop-based biofuels; others are more moderate in discussing actively sustainable production and policy practices (such as some of the oil companies: Shell, BP, Petrobras); while again others that have invested strongly in crop-based biofuels develop into strong defenders of any biofuels (by continuing investments, lobbying activities and coalition building; such as Archer Daniels Midlands and Cargill). But in all cases, these emerging private governance arrangements develop into new environmental authorities, with some legitimacy and impact on the environmental governance of biofuels.<sup>11</sup> And this private authority may have stronger impact – lacks legitimacy – in regions where conventional state environmental authority and moral authority lack capacity, are weak or even absent: in the more peripheral regions in developing countries. By the same token, these private market authorities are hardly involved in regulating the food scarcity consequences of crop-based biofuels. Here, we seem to touch upon the limits of private market authority.

### *Hybrid authorities on biofuels*

The various powers to regulate the environmental consequences of biofuels seem to come together around the issue of standardisation, certification and labelling. There exists a mushrooming of scientific and policy-oriented studies and research projects, which focus on the development of indicators, certification and verification systems, and labels. Such indicators, labels and certification schemes are aimed at distinguishing sustainable or fair biofuels from those that are not sustainable and not fair. For instance, Brazil developed at an early stage a Social Fuel Seal for sugar cane-based biofuels, guaranteeing biofuels produced in the benefit of poor farmers (cf. Smeets *et al.* 2008, UNCTAD 2008). On behalf of the government of the Netherlands, the multi-stakeholder Cramer commission (2006) was one of the first to develop criteria for sustainable biofuels in 2006. In the UK, the Low Carbon Vehicle Partnership – a coalition of state organisations, business and NGOs – has developed an indicator system for biofuels. And in the US, the National Ethanol Vehicle Coalition has done the same. Many companies, non-governmental organisations, scientists and coalitions have followed since then (van Dam *et al.* 2008). Interestingly, most of these attempts are not just academic studies but rather efforts to bring various public and private organisations together to discuss, negotiate and agree upon fair fuels. As most

stakeholders perceive the absence of one dominant authority that can define the situation and regulate biofuels, combining state, moral, scientific and market environmental authorities seems to prevail. Because certificates and labels work relatively well in cross-boundary systems and are – certainly in their private form – often allowed by the WTO, they are preferred. There are five challenges for developing a fair fuel labelling system:

- First, how to operationalise sustainability and social criteria that distinguish fair fuels from conventional/regular fuels?
- Second, which public and private actors or arrangements should be in charge of implementing and verifying the label?
- Third, how to harmonise and merge the dozens and dozens biofuel certification initiatives into a few or even one globally accepted system?
- Fourth, how to fit such certification schemes into the WTO rules, especially if they are combined with import restrictions, or favourable tax or subsidy regimes (UNCTAD 2008); and
- Finally, how to ensure that major markets – such as the US and EU but also India and China – are receptive and responsive to such fair fuel labels; and that developing countries are not disadvantaged in their exports?

Although certificates and labels are no panacea, research into other eco- and fair-trade labels does show that they do have authority: they do change markets, implement new standards and overcome stalemate positions around controversies. The environmental authority – the legitimate power to change practices – of such labels is sometimes based on the state, if such systems are legally founded; but equally often it is based on the market power of major producers/suppliers and consumers, and on the moral superiority of NGOs and civil society.

### **Conclusion**

From the above analysis, it becomes clear that the environmental authority structure around global biofuel regulation has not yet stabilised. Yet, the contours are clear: biofuel will face multiple environmental authorities. As states lose environmental tasks and functions due to globalisation processes, lack of state capacity, a high level of complexity, new power balances between state and market and/or a changing ideology, other actors and institutional arrangements step in and seize environmental authority. Especially when market authority in environmental protection prevails, the initial reaction is always critical: we often believe that public goods such as the environment cannot be safeguarded by private market authority. But our theory-informed analysis of biofuels clarifies that we cannot just conclude that diminishing state environmental authority always and automatically goes against the interest of stringent and effective environmental protection, for four reasons:

- First, diminishing state environmental authority is not only replaced by private market environmental authority. Several other non-state forms of environmental authority are equally likely candidates, such as moral and scientific authority.
- Second, where private market environmental authority is emerging it is often still related to and legitimised by state environmental authority or by moral authority. In biofuels, the market did not gain an absolute monopoly in environmental authority.
- Third, it proves also too simple to equate private market environmental authority with poor environmental records (one of the key insights ecological modernisation scholars have learnt us). The market does seem to be able to articulate environmental interests, for instance in private or hybrid standards and labels and through Round Tables.
- Fourth, as state environmental authority runs to its limitations in an era of globalisation and deterritorialisation, more state authority is not always better environmental protection.

At the same time, there are good reasons for a further critical inquiry into the changing environmental authority structure under conditions of globalisation. While current diversifications in environmental authority take place with respect to relatively mild environmental problems (solid waste management, labelling, standard setting of products), the question emerges whether these new environmental authorities hold under ‘high consequence risks’. Are private authorities capable of legitimately regulating climate change, Chernobyl-type disasters, global bird flue, Mad Cow Disease (BSE), or massive – biofuel induced – biodiversity destruction? Or will, for instance, private insurance structures collapse under ongoing climate catastrophes? Will the public–private partnerships structures be able to overcome conflicting interests, and push for radical climate change emission reductions and stringent over-fishing mitigation? And will the moral authorities of environmental NGOs have enough power and legitimacy to ban not just crop-based biofuels but also address our car-dependent system of transportation? After more than three decades of state environmental authority monopolies, we are now only starting to see the first steps of non-state environmental authorities, and much experiences and research lies ahead for assessing their strengths, continuity, power and limitations. We should not too easily go along with all kind of fashionable arrangements that denounce the environmental state.

Finally, there is also the question of democratic accountability of non-state authorities, often part of broader ideas of sustainability. Especially with respect to public agendas, non-state actors are often not considered normatively entitled to act with authority, because they lack the political accountability to wider constituencies than just their members. This was the case with Weber’s traditional and charismatic authority; and it is the case with contemporary private market and moral authority. Hence, the Round Tables on various agricultural commodities experience and witness these questions of

representation, accountability and democracy. But the political scientist James Meadowcroft (2007) is less straight forward in rejecting the democratic credentials of non-state authority structures. Although the democratic outlooks of – in Meadowcroft’s case – environmental partnerships can certainly not be taken for granted, he does see potentials in creating and constructing accountability mechanisms via the interaction between state and private authorities. Representation, deliberative interactions, transparency and accountability mechanisms need than become part of designing new environmental authority structures that are effective in meeting the challenges of environmental governance under conditions of globalisation. This will only be possible by establishing new interlinkages, arrangements and interdependencies between state and non-state environmental authorities. In that sense, the full replacement of state environmental authorities for a monopoly of non-state environmental authorities remains normatively undesired. But, at the very same time, ignoring the relevance of non-state authorities is no longer possible for effective environmental protection; especially not under conditions of globalisation.

## Notes

1. I use the notion of state environmental authority, rather than environmental state authority, because (i) my focus is on environmental authorities, of which state authority is one form; (ii) state authority on the environment has some particular characteristics (see Carter 2007), notably different from state authority in, for instance, transportation or finance.
2. Countries as diverse as Canada, U.S., Columbia, India, Thailand and most EU states have recently set targets for increasing the biofuel contribution to transport fuels. The Energy Policy Act of 2005 states that in 2010, 25.8 billion litres bioethanol have to be used as fuel in the US. The EU Directive 2003/30/EC requires biodiesel to account for 5.75% of the overall amount of gasoline and fossil fuel diesel in 2010.
3. Since 2000, 37 measures on biofuels have been notified by 20 WTO members in the context of the Agreement on Technical Barriers to Trade.
4. As suggested by, among others, Ted Turner – the founder of Cable news Network and head of the UN Foundation – in his speech at the WTO Public Forum in Geneva, 25 September 2006.
5. For example, the G8 initiated Global Bioenergy Partnership (<http://www.global-bioenergy.org/>). During the annual G8 summit early July 2008 in Japan, one of the main issues on the agenda was the increasing food prices and related biofuel developments.
6. Proposal for a Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources, published 23 January 2008 (2008/0016 COD).
7. European Parliament legislative resolution of 17 December 2008 on the proposal for a directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources (COM(2008)0019 – C6-0046/2008 – 2008/0016(COD)).
8. For instance: [www.foei.org/en/campaigns/climate/energy/agrofuels-declaration](http://www.foei.org/en/campaigns/climate/energy/agrofuels-declaration); [www.biofuelwatch.org.uk/](http://www.biofuelwatch.org.uk/); [www.oxfam.org/en/campaigns/climatechange](http://www.oxfam.org/en/campaigns/climatechange).

9. Evidence of this impact comes from scientists (e.g. Mol 2007a, Kurdusiewicz and Wandesforde-Smith 2008), biofuel market parties (see [www.biofuelreview.com](http://www.biofuelreview.com)), as well as NGO self reflections (e.g. van den Hombergh 2008, Oxfam 2008).
10. See for the recently established Round Table on Biofuels: <http://cgse.epfl.ch/page65660.html>; for soy see: <http://www.responsiblesoy.org/eng/index.htm>; and for palm oil: <http://www.rspo.org/>.
11. For example, the Brazilian Vegetable Oilseed Industries Association (ABIOVE) and the Brazilian Grain Exporters Association (ANEC) signed an agreement on 24 July 2006 to no longer trade soy originating from areas in the Amazon that were deforested after that date (known as the Soy Moratorium). Representatives of business and civil society organisations (such as Greenpeace, CI and WWF) formed the Soy Workgroup to monitor compliance through GIS, satellite and on the ground monitoring activities.

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