

Promoting Sustainable Bioenergy Production and Trade



Biofuels subsidies and the law of the WTO



By Toni Harmer
Independent Consultant

ICTSD Global Platform on Climate Change, Trade Policies and Sustainable Energy



International Centre for Trade
and Sustainable Development

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International Centre for Trade and Sustainable Development (ICTSD)

International Environment House 2

7 chemin de Balexert, 1219 Geneva, Switzerland

Tel: +41 22 917 8492

Fax: +41 22 917 8093

E-mail: ictsd@ictsd.ch

Internet: www.ictsd.org

Chief Executive: Ricardo Meléndez-Ortiz

Programmes Director: Christophe Bellmann

Manager of the Global Platform on Climate Change, Trade Policies and Sustainable Energy: Marie Chamay

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ICTSD welcomes feedback and comments on this document. These can be forwarded to Marie Chamay, mchamay@ictsd.ch.

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CONTENTS

ABBREVIATIONS AND ACRONYMS	v
LIST OF TABLES	vi
FOREWORD	vii
EXECUTIVE SUMMARY	ix
1. INTRODUCTION	1
1.1 Scope of Paper	1
1.2 Policy Drivers and Government Support	1
1.3 Growing Concerns	1
1.4 Global Biofuel Production and Trade	2
1.5 International Biofuel Trade and the WTO	2
2. BIOFUEL SUPPORT POLICIES IN SELECTED COUNTRIES	3
2.1 Major Producing Countries	3
2.2 Common Biofuel Measures	3
2.2.1 Evolving policy landscape	3
2.2.2 Current biofuel measures	3
3. WTO SUBSIDY RULES	5
3.1 Industrial or Agricultural Goods?	5
3.2 WTO Agreement on Subsidies and Countervailing Measures	5
3.3 WTO Agreement on Agriculture	7
3.3.1 Amber box	7
3.3.2 Green box	7
3.4 Special and Differential Treatment	8
3.5 Analysis of Biofuels Subsidies	8
3.5.1 Output-related assistance	8
3.5.2 Support for factors of production	9
3.5.3 Downstream subsidies	12
3.5.4 Support for distribution and use	12
3.6 Current Trade Issues	12
3.6.1 US ethanol tariff and producers tax credit	12
3.6.2 WTO-US agricultural cases	13
3.6.3 US biodiesel blenders tax credit	13

4. POLICY SPACE	14
5. IMPLICATIONS AND CONCLUSIONS	15
5.1 Some Implications of WTO Subsidy Rules	15
ANNEX I:	17
SELECTED BIOFUEL MEASURES IN MAJOR PRODUCING COUNTRIES	17
A1.1 Output-Related Assistance	17
A1.1.1 Mandates and targets	17
A1.1.2 Volume-related subsidies	17
A1.2 Support for Factors of Production	18
A1.2.1 Loans, loan guarantees and financing incentives	18
A1.2.2 Feedstock assistance	18
A1.2.3 Research and development	19
A1.3 Distribution and Use	19
A1.3.1 Fuel tax reductions	19
A1.3.2 Assistance with the cost of purchasing vehicles	20
A1.3.3 Refuelling and storage assistance	20
ANNEX 2:	21
RELEVANT PROVISIONS FROM THE AGREEMENT ON AGRICULTURE	21
A2.1 Article 6: Domestic Support Commitments	21
A2.2 Article 7: General Disciplines on Domestic Support	22
A2.3 Agreement on Agriculture: Annex 2	22
Domestic support: the basis for exemption from the reduction commitments	22
Government service programmes	22
ANNEX 3:	26
RELEVANT PROVISIONS FROM AGREEMENT ON SUBSIDIES AND COUNTERVAILING MEASURES	26
A3.1 Article 1: Definition of a Subsidy	26
A3.2 Article 2: Specificity	26
A3.3 Part II: Prohibited Subsidies – Article 3: Prohibition	27
ENDNOTES	28
REFERENCES	32

ABBREVIATIONS AND ACRONYMS

AMS	aggregate measurement of support
AoA	Agreement on Agriculture
CAP	Common Agricultural Policy
EC	European Community
ECA	Energy Crop Aid
ecoABC	ecoAgricultural Biofuels Capital Initiative
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GSI	Global Subsidies Initiative
HS	Harmonized Commodity Description and Coding System
OECD	Organisation for Economic Co-operation and Development
SCM	Agreement on Subsidies and Countervailing Measures
R&D	research and development
USA	United States of America
VEETC	Volumetric Ethanol Excise Tax Credit
WTO	World Trade Organization

LIST OF TABLES

Table 1: Top producing countries by total biofuel production in 2007	3
Table 2: Framework for SCM analysis	6
Table 3: Policy categories for green box support from Annex 2 of the WTO Agreement on Agriculture	7
Table 4: Biofuel mandates by major producer	17

FOREWORD

To produce, trade on or use agricultural products as fuel—a practice as old as human history—has become a policy riddle spawning emotional debate and multiple, sometimes competing and conflicting, measures and actions. Today, many see fuel derivatives from agricultural produce and forests as a new frontier in energy supply. In a context of action against climate change, the carbon emissions efficiency of some energy crops has emerged as a promising, powerful alternative to the use of fossil fuels. Against a backdrop of energy scarcity, particularly in cash-dry economies, excitement on the prospect of producing cheap fuels from un-edible crops at large scale seems unarguable. Especially if crops are grown on marginal lands, if new policies both at home and abroad are generating fresh capital and investment flows, and if, on top, energy resulting may match otherwise unattended demand and neglected populations.

A promissory outlook, except that at this very time, successfully steering action on agrofuels as a tactic in combating climate change, or as energy or developmental strategy, is complicated by critical factors; primarily, a lack of consensus on how to deal with the emerging flows of trade and investment and the ensuing trade-offs in the allocation of implicated resources, from land, to work force, to capital. Compounding the issue are ill-equipped existing regulatory frameworks at both domestic and international levels. And, equally crippling is perceived deficiency in science and metrics to demonstrate effects. Not insignificant is the realization that current technologies limitations of scale render the whole idea less attractive or, at best, relegate its relevance to a niche use.

Yet, OECD countries and most major demanders of energy for transport or otherwise, have in the past few years adopted policies and measures that have spurred enormous demand and stimulated investment in production and growth. Evidence shows that these policies have created or significantly and rapidly expanded trade flows and production at home and abroad; in particular measures introducing mandates of agrofuel use in the mix of liquid fuel for transportation or the energy grid. Activity on technological development has also surged in recent years in response to prospects and stimuli; indeed, high expectation of an eventual technological fix to the shortcomings of existing possibilities for ethanol and bio-diesel, specifically in the use of biotechnology in the conversion of cellulose fibres into energy, has served in contradictory ways as both incentive or deterrent for further development of existing feedstock. The fact is that given that energy crops are based on the basic conversion of sunlight into energy by means of plants, natural comparative advantages rest for the moment in tropical crops; a key factor determining the current geography of production and trade. However, technological applications at advanced stages of development may soon alter all this and with it, the accompanying political economy orbiting policy-making.

Net gains and losses from use of biomass as energy are hard to estimate, particularly in a long-term assessment. Odds for a future of improved energy efficiency, lower carbon emissions, reasonable and sustainable use of lands for the production of food, fibre, forests or fuel, and larger developmental and social gains, may be enhanced or doomed by options on policy made now; especially those aiming at long term targets and changes and regulatory frameworks in the form of international rules that limit and lock-in our possibilities.

It is in this context that ICTSD has decided in the past two years to engage in policy dialogue, research and analysis and problem-solving activity that contribute to societies' very pressing and real need to come to grips with the reality of energy crops. We do so, conscious of the dynamism of the policy environment, together with the intended and unintended consequences of policy development; the actual impact of decisions on use of resources in the daily lives of communities

and individuals, even if on trial or temporarily terms, and the need to find solutions from the policy perspective that are durable and supportive of the sustainable aspirations of societies and global welfare.

The issue paper you are holding, authored by Toni Harmer, seeks to contribute to the policy dialogue on biofuels and, in particular, to discussion of the implications of World Trade Organization (WTO) subsidy disciplines for national biofuel policies. It also raises a number of issues that warrant further examination in order to clarify the interaction between biofuels and these trade rules. The first section discusses the policy context driving government support for biofuels and considers current production and trade trends. The second section considers the evolving policy landscape for biofuels and identifies key policy measures used by major producing countries to support their industries. The third section considers the application of WTO subsidy disciplines to common biofuel measures and raises a number of questions of how those disciplines might affect national policies. The fourth section briefly outlines the emerging discussion about the adequacy of WTO rules to deal with biofuels, and climate-change measures more generally. The paper concludes with some policy implications for national approaches.

This issue paper is part of ICTSD's project on Promoting Sustainable Bioenergy Production and Trade, published under its Programme on Agricultural Trade and Sustainable Development, which seeks to promote food security, equity and environmental sustainability in agricultural trade.

The ICTSD teams involved in these fascinating issues and myself, very much hope that this paper is of interest and, indeed, a contribution to the current debate and the definition of policy options.

Thank you,



Ricardo Meléndez-Ortiz
Chief Executive, ICTSD

EXECUTIVE SUMMARY

In recent years, biofuels have been eagerly embraced by governments as a home-grown solution to a range of complex policy challenges, including climate change, dependence on foreign energy, and rural development. Biofuels have also been promoted to developing countries as opening new markets for their agricultural goods.

Government subsidies and other incentives have played a fundamental role in shaping domestic biofuel industries. This support has promoted and supported investment in biofuels where such businesses would not otherwise have been commercially viable.

The growth of biofuel production has also attracted attention for its negative impact on global food prices. Less attention has been paid, however, to the broader trade and economic impacts of the subsidies and incentives underlying this growth in production and, in particular, their World Trade Organization (WTO) implications. Considering these subsidies through a WTO prism is not an end in itself. Rather, the WTO disciplines on subsidies provide an important framework to constrain the proliferation of trade-distorting subsidies that can lead to global inequities, particularly for developing and least-developed countries. Moreover, the history of trade negotiations, especially in the agricultural sector, indicates that, once in place, trade-distorting subsidies prove very difficult to reform.

This paper reviews biofuel measures that are commonly used in major producing countries against WTO subsidies disciplines. These measures are found in a range of laws and policies relating to energy, the environment and agriculture. There is little evidence that domestic policymakers have taken into account WTO disciplines when crafting these measures. This paper identifies a number of issues for policymakers to consider, including the following:

- WTO subsidy disciplines do not prohibit all subsidies or support to biofuels. Rather, the WTO rules concern themselves with subsidies that have a trade-distorting effect.
- Although often cited in discussions about the WTO and biofuel subsidies, the green box provisions of the WTO Agreement on Agriculture (AoA) do not provide a broad category sheltering measures on the basis that they offer some environmental benefits. To qualify as green box support, specific requirements must be met. For example, payments under environmental programmes must be limited to the costs of compliance with the programme.
- The issue of whether subsidies have been passed on to the benefit of other participants in the biofuel production chain may be particularly relevant in a biofuels context, where subsidies are provided at various stages of the production and use chain.
- Attempts to provide assistance by way of decoupled payments are likely to be scrutinized closely and the requirement that a payment not be “related to” production will be applied strictly. Importantly, if there is some condition attached to the payment that would have an impact on production - positive or negative, direct or indirect - then it is not likely to qualify as a decoupled payment.
- Many countries have sought to foster domestic production and use of biofuels, raising the prospect of policies that favour domestically sourced biofuels. For this reason, biofuel policies that express a preference for domestic over foreign-sourced biofuels raise may present problems as prohibited on local content subsidies.

In addition, this paper identifies some complex issues that arise from the interaction between trade rules and biofuel subsidies that warrant further examination. These include the following:

- How ethanol subsidies should be notified under the WTO, in particular the scope of ethanol subsidies that should be properly included in a WTO Member's aggregate measurement of support (AMS) calculation. Given that ethanol is an agricultural product, it is conceivable that some subsidies to ethanol producers are provided "in favour of the producer of the basic agricultural feedstock" and thus should be included in the AMS.
- The multiplicity of biofuel subsidies and other incentives can lead to situations where the interaction between two measures has a trade-distorting impact. In such a case, a question arises as to whether the combination of the measures could be an actionable subsidy, where taken individually neither measure would meet the threshold requirements.
- Given the shifting focus of support in many countries to second- and third-generation biofuels, how would these biofuels and their feedstocks, such as switchgrass, be classified for WTO purposes?

INTRODUCTION

1.1 Scope of Paper

This paper seeks to contribute to the policy dialogue on biofuels and, in particular, to discussion of the implications of World Trade Organization (WTO) subsidy disciplines for national biofuel policies. It also raises a number of issues that warrant further examination in order to clarify the interaction between biofuels and these trade rules. Section 1 discusses the policy context driving government support for biofuels and considers current production and trade trends. Section 2 considers the evolving policy landscape for biofuels and identifies key policy measures used by major producing countries to support their industries. Section 3 considers the application of WTO subsidy disciplines to common biofuel measures and raises a number of questions of how those disciplines might affect national policies. Section 4 briefly outlines the emerging discussion about the adequacy of WTO rules to deal with biofuels, and climate-change measures more generally. The paper concludes with some policy implications for national approaches.

1.2 Policy Drivers and Government Support

Government subsidization for biofuels is significant, and these policies have played a major role in shaping domestic industries. Steenblik (2007) estimates that in 2006 the combined support provided by governments in the European Union (EU), the United States of America (USA) and Canada totalled \$US11 billion.

1.3 Growing Concerns

Despite enthusiasm for biofuels, the news has not all been positive. The growth in biofuel production fuelled by government policies has driven up food prices. This impacts particularly on developing countries, which spend proportionately more of their household incomes on food (Mitchell 2008).

It also appears that initial claims about the environmental advantages of some biofuels may have been overblown. Depending on the underlying feedstock, biofuel production and use generate very different greenhouse gas

A review of the policy approaches of major producing countries reveals significant support provided by governments at all stages of the biofuel production and use cycle. This paper discusses these measures under three broad categories: production-related assistance; support for factors of production; and support for distribution and use. This categorization is based upon the framework utilized in a series of excellent studies conducted by the Global Subsidies Initiative (GSI) on government support for ethanol and biodiesel.¹

The main focus of this paper is on subsidies for so-called “first-generation” liquid biofuels,² specifically ethanol and biodiesel, which are produced mainly from food crops such as corn and sugar. These liquid biofuels can be used in the transportation sector to replace petrol, diesel and jet fuel.³

Governments justify their subsidization of biofuels with reference to a number of policy goals. Although priorities may differ between countries, frequently cited policy drivers are the desire to reduce greenhouse gas emissions, ensuring a secure and affordable energy supply by creating a domestic source of energy, and stimulating rural development.⁴

savings, ranging from savings of 30 percent to 80 percent, depending on the feedstock used.⁵

The Food and Agriculture Organization of the United Nations (FAO) has called for an urgent review of biofuel policies and subsidies to ensure that they are not having a negative impact on world food security, or the environment, and are contributing to rural development rather than disadvantaging poor farmers.⁶ The World Bank has raised similar concerns (International Bank for Reconstruction and Development and World Bank 2008).

These concerns are important for policymakers implementing domestic biofuel policies, as they contribute to decision-making about

the opportunity cost of devoting limited government funds and resources to the subsidization of biofuels.

1.4 Global Biofuel Production and Trade

Despite the enthusiasm with which biofuels have been embraced, global production and trade is relatively small. The Organisation for Economic Co-operation and Development (OECD) estimates that global biofuel production in 2007 was 62 billion litres, the equivalent of 1.8 percent of total global fuel consumption. Global trade is also limited, with only about one-tenth of global production traded annually.⁷ The low levels of international trade are generally attributed to the fact that most countries subsidize domestic production and use of biofuels or impose import tariffs (or both).

That said, both ethanol and biodiesel production have grown rapidly in recent years, and biofuel production is projected to double over the decade to 2017.⁸ A major unknown, however, is how the current global financial crisis will impact on the biofuels industry. In the USA, for example, falling oil prices, over-capacity and the credit crunch have resulted in the closure of many ethanol plants. One estimate puts the number of US ethanol plant closures at 25 out of some 170, reducing annual ethanol production by 2 billion gallons.⁹

1.5 International Biofuel Trade and the WTO

At the time of the Uruguay Round of WTO negotiations, biofuels had little profile, with few countries having significant biofuel interests. Biofuels have gained greater profile in the WTO Doha Round, however, due largely to the efforts of Brazil to pursue accelerated liberalization for ethanol in the negotiations over environmental goods (WTO 2005) and to have ethanol included in any final WTO Doha Round agreement (International Herald Tribune 2008).

Also, despite the relatively low levels of international biofuel trade, there is tension between some major producers over subsidies. The European Commission (EC) has imposed countervailing and anti-dumping duties on US

biodiesel imports to counter what it considers to be unfair US tax incentives. Canada and Brazil have taken a WTO dispute against the USA over agricultural subsidies, including corn, the major US feedstock for ethanol production. Also, Brazil continues to protest against a US ethanol tariff that, Brazil claims, operates to deny foreign producers the benefit of the US ethanol tax credit.

Although this paper focuses on WTO subsidy rules, the biofuels trade has the potential to raise a range of other WTO issues, including differences in tariff treatment, non-tariff barriers, and the place of biofuels in the current WTO Doha Round, that also warrant deeper consideration.

2. BIOFUEL SUPPORT POLICIES IN SELECTED COUNTRIES

2.1 Major Producing Countries

The top six major biofuel-producing countries are set out in Table 1. The USA and Brazil dominate ethanol production, accounting for some 79 percent of global production in 2007. The EU, on the other hand, tops world biodiesel production, accounting for some 60 percent of global production.

Canada, India and China have lower biofuel outputs, but governments in each of these countries are actively promoting greater biofuel production.

Table 1. Top producing countries by total biofuel production in 2007

Country	Ethanol (million litres)	Biodiesel (million litres)	Total (million litres)
USA	26 500	1688	28 188
Brazil	19 000	227	19 227
EU	2253	6109	8361
China	1840	114	1954
Canada	1000	97	1097
India	400	45	445
World	52 009	10 204	62 213

Source: OECD (2008)

2.2 Common Biofuel Measures

2.2.1 Evolving policy landscape

A review of the biofuel policies of each of the major producers shows that these policies continue to evolve. With the exception of Brazil, each of the top six producers undertook policy reviews or introduced significant new measures over the past 12-18 months.

Both India and China made policy changes in 2008 in response to concerns about the impact of biofuel production on food prices and availability. Both made a policy shift away from the growth of food-based feedstocks in favour of growing non-food feedstocks on marginal land. China's policy is also evolving away from direct subsidies in favour of tax incentives and loans (GSI 2008).

The EU and the USA both expanded their biofuel mandates in 2008,¹⁰ and Canada implemented a federal mandate for the first time, making mandates an important way for governments to guarantee a domestic market for biofuels (Laan et al. 2009).

It is unclear how the current global financial crisis will impact on the short- to medium-term prospects of the biofuels industry or domestic biofuel policies. The US government, for example, has provided struggling ethanol producers with further loan assistance, and US Agriculture Secretary Vilsack has indicated that the administration may be willing to assist producers, including through an increase in the maximum blended rate for ethanol in petrol, if necessary.¹¹

2.2.2 Current biofuel measures

A review of the biofuel regimes of the major producing countries shows government assistance at all stages of the biofuel production and use chain, from growing agricultural feedstocks through to consumption of the end product. Further details about these measures are set out in Annex 1 of this paper.¹²

The policies of the major producers show a number of commonly used measures. In particular, all major producers have

implemented targets or mandates for the blending of biofuels with petrol or diesel. In addition, fuel-tax reductions and financial assistance for infrastructure costs and research and development (R&D) are common.

Subsidies to the agricultural producers of biofuel feedstocks are also a significant source of support through general agricultural policies. In addition, some countries have programmes designed to increase the production of crops specifically for use in biofuel production.

The developed countries of the USA, the EU and Canada have a complex overlay of federal, sub-national and local level incentives, often implemented with little reference to one another (Steenblik 2007). Tax incentives also play a more substantial role in the regimes of developed countries.

Brazil in many respects stands apart from the other major producers. The Brazilian government's support for a domestic ethanol industry dates from a national programme in the 1970s. Although Brazil's early industry enjoyed a range of government subsidies and controls, these were deregulated in the 1990s. Today, Brazil does not provide direct assistance to ethanol, but it has a blending mandate and provides some credit assistance to producers. Brazil is generally considered to be the world's most viable and efficient ethanol producer.

In summary, the types of measures used include the following:

- Output-related assistance:
 - Mandates or targets that require a particular percentage of ethanol or biodiesel be included in the total fuel supply
 - Tax credits for ethanol or biofuel production
 - Producer incentives and operating grants
- Support for factors of production:
 - Loans, loan guarantees and tax incentives to assist with infrastructure costs (e.g. accelerated depreciation)
 - Infrastructure capital grants, business-planning and market development (grants and interest-free loans)
 - General agricultural subsidy programmes for feedstocks, such as sugar and corn, and subsidies for indirect inputs such as fertilizer, water and seeds
 - Specific biofuel feedstock policies targeted at the production of crops for energy use, including programmes that provide payments for land used to grow energy crops
 - Research and development support
- Distribution and use:
 - Fuel-tax reductions that compensate consumers for the higher costs of biofuel production compared with fossil fuels
 - Incentives for the purchase of vehicles that can run on biofuels, generally through rebates or tax incentives
 - Assistance with the costs of refuelling and storage infrastructure.

3. WTO SUBSIDY RULES

Any analysis of the application of WTO rules to individual biofuel subsidies is a complex task. There is no WTO jurisprudence dealing specifically with biofuels. Moreover, any analysis requires a detailed examination of the measure, its implementation and the market impacts. It is not the purpose of this paper to draw conclusions

about WTO consistency of specific national measures. Rather, the following section provides a general consideration of the operation of WTO subsidy disciplines in the context of some key biofuel support measures and raises a number of questions about the possible application of those rules for further discussion.

3.1 Industrial or Agricultural Goods?

A critical first step in examining the WTO consistency of a government biofuel measure is to establish the appropriate classification of each product. In addition, any analysis of biofuels subsidies requires consideration of subsidies provided for biofuel feedstocks, particularly as these may be passed on for the benefit of biofuel producers.

As Steenblik (2006) makes clear, biodiesel falls under Chapter 38 of the Harmonized Commodity Description and Coding System (HS), which covers chemicals not listed elsewhere:

A ... decision by the WCO's Harmonized System Committee (35th session, March 2005) confirmed that biodiesel should be classified under HS 3824.90, which refers to chemical products and preparations of the chemical or allied industries (including those consisting of mixtures of natural products), not elsewhere specified or included.¹³

Accordingly, biodiesel is an industrial good governed by the WTO Agreement on Subsidies and Countervailing Measures (SCM).

Ethanol is classified as an agricultural good. The Agreement on Agriculture (AoA) applies to products covered by Chapters 1-24 of the HS14 (less fish and fish products) and a range of other goods specified in Annex 1 of the AoA. Ethanol is not referred to explicitly in the HS, but it is classified according to its chemical makeup as "ethyl alcohol" in Chapter 22 of the HS.15 Agricultural goods are subject to both the SCM and to the specific provisions of WTO AoA.¹⁶ As a result, it is possible that there could be subsidies for ethanol that are permissible under the AoA but that would contravene the SCM if they were provided for biodiesel.

It is also pertinent to consider the classification of biofuel feedstocks given their significance in biofuel production. First-generation biofuels are overwhelmingly produced from agricultural crops such as corn and sugar, making their classifications as agricultural goods straightforward. Less clear, however, is how some of the feedstocks for second- and third-generation biofuels would be treated. It is not readily apparent, at least to this author, that switchgrass or miscanthus, for example, would fall within the categories covered by the AoA.

3.2 WTO Agreement on Subsidies and Countervailing Measures

The SCM does not outlaw all subsidies; rather, it disciplines subsidies that distort trade. Table 2 sets out a framework for analysis of a measure under the SCM.

The SCM establishes two categories of subsidy: (1) prohibited subsidies that are outright WTO

illegal; and (2) actionable subsidies that may be outlawed, depending on their impact.

Both prohibited and actionable subsidies must meet the three basic elements of a subsidy: (1) a financial contribution, (2) provided by government and (3) that confers a benefit.

Further, a subsidy will not be subject to the disciplines of the SCM unless it is specific. A prohibited subsidy is deemed to be specific under the SCM.¹⁷ To be actionable, a subsidy must be targeted or available only to particular recipients.¹⁸

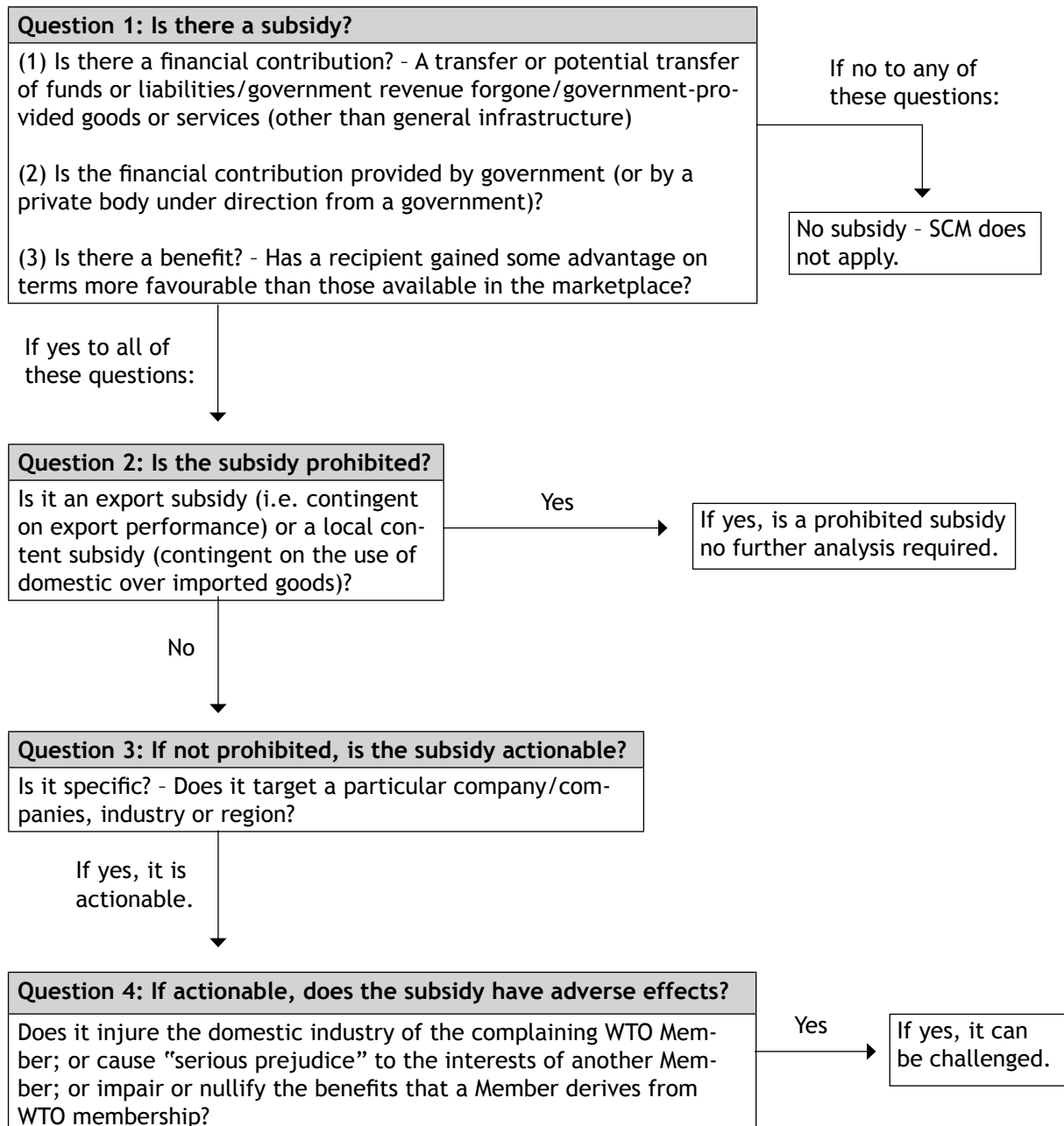
Prohibited subsidies are (1) subsidies contingent on export performance (export subsidies); and (2) subsidies contingent on the use of domestic over imported goods (local content subsidies).

Export subsidies are not a common source of support to biofuels, but the prohibition on local

content subsidies may pose a bigger hurdle for policymakers as many national policies seek to foster the domestic production of biofuels and their feedstocks.

Many biofuel subsidies fall within the category of actionable subsidies. These subsidies will fall foul of the SCM only if they can be proven to have certain adverse effects, specifically (1) injury to the domestic industry of another WTO Member; (2) serious prejudice to the interests of another WTO Member; or (3) the measure nullifies or impairs a benefit that a WTO Member expected from its WTO membership.

Table 2: Framework for SCM analysis



3.3 WTO Agreement on Agriculture

The AoA divides agricultural support into three categories, or “pillars”: export competition, market access and domestic support. Each of these pillars is subject to different disciplines. In the case of biofuels, the most relevant category is that of domestic support.

Domestic support is divided into three categories, or “boxes” - amber, blue and green¹⁹ - according to the trade-distorting effects of a payment. The box into which a particular biofuel measure is categorized is the key to determining whether that subsidy must be eliminated or reduced.

3.3.1 Amber box

The amber box covers subsidies that are the most trade-distorting, such as price supports and production subsidies. WTO Members have not agreed to stop providing all amber box support. Rather, they have agreed to cap their annual total expenditure on domestic support (expressed in a single figure, known as the aggregate measurement of support, AMS²⁰) and to reduce this domestic support over time. If a WTO Member exceeds its AMS ceiling in any year, the Member will have breached its obligations under the AoA and may become the subject of a WTO dispute.

WTO Members determine which of their measures are amber box supports and notify the WTO accordingly. This method of categorization adds

to the complexity and a lack of clarity about whether a particular biofuel subsidy would be subject to reduction or elimination. It can also lead to controversy between Members as to the appropriate categorization, potentially leading to WTO disputes.

3.3.2 Green box

The green box is meant to capture subsidies that have no (or minimal) trade- or production-distorting effects. These subsidies are not counted in a Member’s AMS and there is no requirement for a Member to limit or reduce such payments.

Categorization of a subsidy or payment as green box is subject to strict requirements that are set out in Annex 2 of the AoA. There are both general requirements, which all green box payments must meet, and policy-specific requirements, which differ depending on the nature of the payment in question. The general requirements are that a measure must:

- have no (or minimal) trade-distorting effects or effects on production;
- be part of a publicly funded government programme;
- not involve transfers from consumers;
- not have the effect of providing price support.

Table 3 sets out the 12 policy-specific categories contained in the green box.

Table 3: Policy categories for green box support from Annex 2 of the WTO Agreement on Agriculture

1	General services (Paragraph 2)
2	Food security (Paragraph 3)
3	Domestic food aid (Paragraph 4)
4	Direct payments to producers (Paragraph 5)
5	Decoupled income support (Paragraph 6)
6	Income insurance and income safety net programmes (Paragraph 7)
7	Natural disaster relief (Paragraph 8)
8	Producer retirement programmes (Paragraph 9)
9	Resource retirement programmes (Paragraph 10)
10	Investment aids (Paragraph 11)
11	Environmental programmes (Paragraph 12)
12	Regional assistance programmes (Paragraph 13)

3.4 Special and Differential Treatment

The AoA and the SCM contain a number of provisions to assist developing countries in implementing their obligations and to take account of their development needs. Least-developed countries, however, have no commitments to reduce tariffs, domestic support or export subsidies under the AoA.²¹ The agreement also contains a number of provisions that provide flexibility and assistance to developing countries to implement their obligations. These include the following:²²

- Certain subsidies do not have to be counted towards a developing country's AMS, such as investment subsidies, which are generally available to agriculture, and agricultural input subsidies, which are generally available to low-income or resource-poor producers (Article 6.2, AoA).
- The *de minimis* level of trade-distorting domestic support for developing in countries is 10 percent for developing countries, compared with 5 percent for developed countries (Article 6.4b, AoA).
- Developing countries have lower reduction commitments in relation to tariffs, export subsidies and domestic support.

- Developing countries have an extended time period for implementation of their reduction commitments (Article 15.2, AoA).

Article 27 of the SCM recognises that subsidies can be important to economic development for developing countries. This Article includes a number of special and differential provisions, some of which have now lapsed. Least developed countries and countries do not meet a certain threshold level of Gross National Product are exempt from the prohibition on export subsidies (Article 27.2 and 27.3 SCM). Developing countries also enjoy more favourable treatment with respect to actionable subsidies. For example, the multilateral WTO dispute resolution process is not available for a developing country's actionable subsidies unless there is: injury to the domestic industry of the complaining party; or a WTO member has suffered a nullification or impairment of the benefits its expected from WTO membership, such that the imports of the complaining WTO member's industry are impacted in the market of the subsidising member (Article 27.9 SCM).

3.5 Analysis of Biofuels Subsidies

3.5.1 Output-related assistance

Tax credits and reductions

Tax credits and reductions linked to biofuel production are a common form of government support. For example, in the USA, the volumetric tax credit provided to ethanol producers has been a major factor in the strong growth of US ethanol industry (Koplow 2006).

A financial contribution under SCM includes not only a transfer of funds or the provision of goods and services but also revenue that would otherwise be due to the government but that has been forgone or not collected.²³ A tax measure that operates to reduce the amount of tax owed by a taxpayer would, on its face, appear as a clear case of the government forgoing revenue that was otherwise due. A WTO panel has said, however, that

a forgoing of revenue (and thus the existence of a financial contribution) cannot be presumed.²⁴

In order to determine whether such a tax measure is a financial contribution, a benchmark must be established against which the measure can be assessed. The Appellate Body has said that an appropriate benchmark should be based on the tax rules of the WTO Member in question. As the WTO agreements do not impose a particular tax regime on WTO Members, the appropriate benchmark will depend entirely on the specific tax rules of the individual WTO Member.²⁵

In considering the national regime, the search is not for a general rule of taxation; rather, the appropriate comparison, according to the Appellate Body, is between "the fiscal treatment of legitimately comparable income".²⁶ It

is impossible to draw any general conclusion about what a suitable benchmark would be for a tax credit relating to biofuels in a vacuum. For example, in some cases it might be legitimate to use income from other fuels or from other renewable energies, or the relevant comparison might be the type of income taxed rather than the tax treatment of a particular category of product.

Operating grants and other output-linked payments

Payments calculated on the basis of biofuel output can take a number of forms. Laan and colleagues (2009) identify a number of operating grants and producer payments available to biofuel producers in Canada at the federal level and in some provinces. For example, under the federal ecoENERGY for Biofuels Initiative, volumetric payments are available for ethanol and biodiesel production (subject to certain limitations).

Payments that involve a direct transfer of funds from the government to biofuel producers are likely to meet the requirements for an actionable subsidy. Clearly there would be a financial contribution and establishing a benefit would also seem straightforward. Also, such payments are generally targeted to particular industries or industry sectors and thus are likely to be specific.

In order to determine whether an actionable subsidy is prohibited under the SCM, the subsidy must be shown to have adverse effects on the interests of another WTO Member. This might arise, for example, if the subsidy enabled producers to export ethanol or biodiesel at low cost, causing injury to the domestic industry of the importing WTO Member, or the measure had the impact of impeding the exports of another WTO Member.

Mandates

As noted above, mandates and targets are pervasive in national regimes. A mandate, in and of itself, does not raise subsidies concerns, as mandates do not generally involve a financial contribution within the meaning of the SCM. It is, however, important to examine whether the rules established to implement or enforce a mandate constitute some form of subsidy.

Given the focus of many national regimes on the production and use of biofuels domestically, this may be an area in which there is a temptation for policymakers to include preferences for locally sourced biofuels.

For example, Louisiana's Advanced Biofuel Industry Initiative requires that 2 percent of the ethanol contained in fuel that is sold in Louisiana must originate from non-corn crops produced in that state (once biofuel production reaches a certain level) (Kojima et al 2007). Requirements such as these run the risk of being prohibited local-content subsidies.²⁷

3.5.2 Support for factors of production

Loans, loan guarantees and other forms of financial assistance

Loans and loan guarantees to assist with infrastructure costs are another common form of assistance. Unlike a tax credit, the central issue with these measures is generally not whether there is a financial contribution but whether a benefit exists.

The Appellate Body has made clear that financial contribution and benefit are separate legal elements, each of which must exist for a particular loan or other such financial assistance to be a subsidy. According to the Appellate Body, the relevant question is whether the recipient has received a contribution "on terms more favourable than those available to the recipient in the market".²⁸

The term "benefit" is not defined, but guidance is provided in Article 14 of the SCM.²⁹ For example, a loan will have conferred a benefit where the amount that the recipient pays on the government loan is less than the amount that would have been paid on a comparable commercial loan that the recipient could have obtained.³⁰ In the case of loan guarantee, the guarantee does not need to be invoked before there can be a benefit. Rather, there will be a benefit where there is a difference in the amount the recipient pays on the loan guarantee and the amount that a comparable commercial loan would have cost without the guarantee.³¹

If there is a benefit and the particular measure is specific, then the subsidy will be an actionable subsidy and the complaining party would need to demonstrate that the measure had adverse effects within the meaning of the SCM.

Feedstock subsidies

The cost of biofuel feedstocks is a major component of biofuel production costs. Accordingly, feedstock subsidies have the potential to have a significant impact on production costs and output. An examination of subsidies at the agricultural producer level is therefore essential to any biofuel subsidy analysis.

Ethanol subsidies and the AMS

It is relevant to consider the scope of the ethanol subsidies that should properly be included in a WTO Member's AMS calculation. Subject to certain exemptions, the AMS is:

... the annual level of support, expressed in monetary terms, provided for *an agricultural product in favour of the producers of the basic agricultural product* or non-product-specific support provided in favour of agricultural producers (authors' italics).³²

Further, Annex III of the AoA, which provides guidance on the calculation of the AMS, states that "measures directed at agricultural processors shall be included to the extent [they] benefit producers of the basic agricultural product".³³

Payments to agricultural producers that grow biofuel feedstocks, such as corn or sugar, which are basic agricultural products, clearly fall within the AMS definition. The definition is, however, not limited to payments made to producers of the basic agricultural product but extends to payments "in favour of producers of the basic agricultural crops" and also to "measures directed at agricultural processors". Ethanol is an agricultural product. If, for example, a subsidy to an ethanol producer had the effect of increasing the price of the feedstock, then it is arguable that the subsidy should be included in the AMS calculation.

Certainly, the inclusion of a broader range of ethanol subsidies in the AMS calculation is likely

to significantly affect the total AMS of some WTO Members and, depending on how much a country spends on such subsidies, could put a WTO Member at risk of exceeding its AMS ceilings and thereby exposed to possible WTO dispute action.

Green box payments

With green box payments sheltered from reduction or elimination, there is considerable incentive for policymakers to argue that their biofuel policies are green box supports. That said, however, an examination of the green box provisions of the AoA shows that this is not a broad and expansive category for subsidies that have some environmental, energy or rural development objective or outcome. Rather, the green box provisions present a number of hurdles and, at least with respect to decoupling, are likely to be applied strictly.

Of the 12 policy-specific categories set out in the AoA for green box payments, the following may be particularly relevant to the types of policy used by major producers: (1) general services (R&D), (2) environmental programmes, (3) removal of land from marketable agricultural production and (4) decoupled income support.

General services - research and development

As identified in Section 2, all of the major producers provide some form of R&D assistance. Often this assistance is provided for R&D related to agricultural feedstock production and conversion into ethanol.

The general services category of green box support covers services that benefit agriculture or the rural community, including "general research, research in connection with environmental programmes and research relating to particular products" (Annex 2, Paragraph 2, AoA). Although the categories of research covered by this provision appear broad, they are subject to an important limitation: direct payments to producers or processors are excluded from this category. Accordingly, if an R&D programme were too specific in directing payments to particular producers or processors, then the programme would not be green-box-compliant.

Decoupled income support

A further area of green box payments that may be relevant to biofuels subsidies is that of decoupled income support. The decoupling of payments from production is an important aspect of the green box, as it ensures that payments do not impact on or influence what or how much of a crop is produced.

Paragraph 6(b) provides that “payments ... shall not be related to ... the type or volume of production”. Accordingly, if a biofuel subsidy is completely unrelated, both directly and indirectly, to production, then it may be permissible green box support. The only WTO case to have considered green box subsidies was the WTO US Upland Cotton dispute.³⁴ This WTO dispute provided important guidance on the interpretation of decoupled support.

The contested measure in Upland Cotton that is relevant to this analysis was a US provision that provided payments to farmers with a history of planting certain crops on their land. The payment was contingent on farmers not growing fruits, vegetables or wild rice on that land. Farmers could grow other crops on the land, or no crops. The USA argued that the payment was not “related to” production, as the payment did not require or encourage production of fruit, vegetables or wild rice; rather, the payment was contingent on these crops not being produced. Brazil prevailed, however, with the Appellate Body finding that a requirement not to produce certain crops also created a connection between payment and production. The payments were not decoupled from production as they had the potential to channel production into other crops to ensure that a farmer received the payment, thereby affecting production.

Structural adjustment - removing land from marketable agricultural production

Another biofuel policy used to encourage the production of biofuel feedstocks is payments made to farmers in return for them using a portion of their land to grow biofuel feedstocks. For example, under the EU’s set aside and energy crop schemes, which expire in 2009, farmers received up to €45 per hectare for land that is set aside to grow energy crops (including for biofuels).³⁵

Such policies may implicate the green box provision for structural adjustment payments for “programmes designed to remove land ... from marketable agricultural production” (authors’ italics). Such payments must not require or specify that the land in question be used “for the production of marketable agricultural products” (Annex 2, Paragraph 10, AoA).

Whether a particular programme falls within Paragraph 10 would depend, therefore, on whether a payment is conditioned in any way on growing marketable agricultural products on the land in question. On a straightforward reading “marketable agricultural product” means a product covered by the AoA that can be marketed.

If this interpretation is correct, then it would be difficult to make a case that growing agricultural crops, such as sugar and corn, for energy uses (as opposed to food) would amount to taking land out of “marketable agricultural production”. As Blandford and Josling (2007) note, many agricultural crops have industrial uses but Members have never sought to adjust their WTO notifications on the basis of the end use of these products.

If the crop being grown for energy purposes was, however, not covered by the AoA, as may be the case for some second- and third-generation biofuel feedstocks, then there would be a stronger argument that land had been removed from marketable agricultural production.³⁶

Environmental programmes

The green box provides for payments associated with certain environmental programmes to be sheltered. Given the weight that many governments place on climate change or other environmental objectives, the possibility of categorizing such payments as green box environmental programmes is superficially attractive. Such payments, however, “must be limited to the extra costs or loss of income involved in complying with the programme” (Annex 2, Paragraph 12).

It would be difficult to argue that many of the government policies supporting for biofuels are limited to covering compliance costs. Certainly it would be necessary to show a direct relationship between those additional costs of complying with requirements of the programme and the payments provided to producers.

3.5.3 Downstream subsidies

Given the prevalence of support throughout the biofuel production and use chain in many countries, it is conceivable that subsidies provided at one point in the production chain could benefit an industry participant elsewhere in the chain.

The Appellate Body has made clear that a financial contribution need not be bestowed directly on a recipient in order for that recipient to benefit from the subsidy. In effect, one company can be found to benefit from a financial contribution conferred on another company.³⁷

An example in a biofuel context might be a feedstock subsidy provided to an agricultural producer (the upstream subsidy), which is passed on, by way of lower feedstock prices, to the benefit of a biofuel producer (the downstream producer). The passing on of such a benefit is known as a downstream subsidy.

In analysing the possibility of a downstream subsidy, the Appellate Body has said that if the downstream producer and the upstream producer are identical (i.e. the same legal entity), then

3.6 Current Trade Issues

A number of trade issues have arisen between the major biofuel producers over subsidies.

3.6.1 US ethanol tariff and producers tax credit

Brazilian producers are vocal in their opposition to a US tariff on ethanol, which operates as an additional duty or secondary tariff of 54 cents a gallon on imported ethanol.³⁹ This tariff issue arises in a discussion about biofuel subsidies because of the context in which the tariff was implemented. The US Congress introduced the tariff for the specific purpose of ensuring

there is no need to examine whether the benefit has been passed on: it will be assumed. If the two producers are unrelated - for example, the farmer growing the corn feedstock and the ethanol producer were unrelated legal entities transacting at arm's length - then it will be necessary to conduct an analysis to determine whether, and to what extent, the benefit of the subsidy to the corn has been passed on to benefit the ethanol producer.³⁸

3.5.4 Support for distribution and use

The costs of biofuel production and distribution are generally higher than their fossil-fuels counterparts. This has led policymakers to provide assistance with the additional costs of distribution or consumption. For example, a retailer may need to install specific and costly refuelling equipment. Further, the higher costs of biofuel production may result in higher costs to consumers, prompting governments to offer fuel tax reductions to compensate for the additional costs to encourage consumption.

If these tax reductions compensate for higher costs relative to fossil fuels, then it may be difficult to make a case that the tax reduction confers a benefit. From the perspective of a consumer, they may not have gained any particular advantage in the marketplace if the exemption merely equalizes the price of the biofuel with fossil fuels. In addition, such tax reductions are generally available to all consumers and thus are unlikely to meet the specificity requirement for an actionable subsidy.

that foreign producers did not benefit from a US ethanol tax credit that, under US law, was available to both domestic and foreign sourced ethanol (Renewable Fuel Association). Brazil claims that the US tariff is above the bound rate that the USA agreed to in the WTO.⁴⁰

From an SCM perspective, a tariff, of itself, would not amount to a financial contribution. But this example does raise an interesting question about whether an actionable subsidy could arise where the operation of two related (or unrelated) measures effectively subsidizes

domestic producers only.⁴¹ A key question would be whether the two measures, taken together, would be a financial contribution.

3.6.2 WTO-US agricultural cases

Two pending WTO disputes may have direct implications for the US ethanol industry, as they will place scrutiny on US subsidies for agricultural products (WTO 2007a,b). Canada has asked the WTO to consider the WTO consistency of a range of US subsidies and other domestic support for agricultural products, with specific reference to corn. Brazil subsequently commenced a WTO dispute on similar grounds, and the two cases will be considered by a single WTO panel.

The disputes are of particular interest in the biofuel context, as both Canada and Brazil allege that the USA has failed to include a range of subsidies in its AMS calculations and that properly doing so would put the USA in violation of its commitment not to exceed its AMS ceiling. Brazil's claims cover a broader range of measures, including certain tax reductions for on-farm use of gasoline and diesel. There have been reports that Brazil may include ethanol production subsidies that indirectly increase demand for corn in its claim, but this has not occurred to date.⁴²

3.6.3 US biodiesel blenders tax credit

In March 2009, the European Commission began levying additional duties on US biodiesel imports after finding that federal and state tax credits amounted to unfair subsidies under EC law.⁴³ EU biodiesel producers had complained about a practice known as "splash and dash". This practice enabled US refiners to import foreign diesel and blend it with a small amount of biodiesel ("a splash") in order to qualify for the tax credit. The blended biodiesel was then re-exported to the EU ("the dash"). EU producers claimed that US imports were being unfairly subsidized.

Before the imposition of these additional duties, the US Congress amended the tax credit, and it is now no longer available for fuel "produced outside the US for use as a fuel outside the US".⁴⁴ The European biodiesel producers are, however, not appeased. They claim that because the tax credit is still available for US biodiesel, the measure is "even one step more discriminatory ... clearly breaching WTO rules and threatening the concept of international trade in biodiesel".⁴⁵

4. POLICY SPACE

As the review of subsidy rules in Section 3 shows, the AoA and SCM do not outlaw all forms of government assistance to biofuels. They do, however, place restrictions on the ability of policymakers to implement trade-distorting measures. The WTO agreements seek to strike a balance between giving policymakers flexibility to achieve domestic policy goals and not providing scope for WTO Members to erect a slew of new trade barriers.

Neither the AoA nor the SCM operates to prevent policymakers from taking any account of policy objectives when they design their biofuel regimes, but they do this in different ways. The AoA green box provisions contain a range of policy-specific criteria for domestic support that enable policymakers to shelter certain payments from reduction commitments providing they are not (or are only minimally) production-distorting.

By contrast, the SCM does not explicitly provide for domestic policy interests to be considered; nor does it contain general exceptions. In fact, when the SCM entered into force, it contained a specific category of non-actionable subsidies

for research and development, regional inequality and environmental protection, which were exempt from actionability (Article 8). This carve-out expired five years after the SCM entered into force and has not been renewed.⁴⁶ Nonetheless, the SCM does not outlaw all support; instead, its provisions are designed to target assistance that distorts trade, allowing policymakers to provide support that meets their policy objectives, provided that support does not distort trade.

The convergence of policy interests around biofuels, particularly the interest of some policymakers in using biofuels as a tool to tackle climate change, has led some commentators to speculate about whether existing WTO rules provide sufficient flexibility or “policy space” to achieve domestic objectives.

This speculation underlines the importance of greater transparency with respect to existing biofuel measures, as well as a robust policy dialogue on the application of existing WTO rules, both of which would be essential first steps before any conclusions can be drawn about the adequacy of existing rules.

5. IMPLICATIONS AND CONCLUSIONS

Government policies have played a fundamental role in developing and shaping the domestic biofuel industries of major producers. It seems that, at least for the foreseeable future, most countries will need to continue to support domestic industries if they are to be viable, particularly in light of the current global financial turmoil.

The ongoing negotiations for a post-2012 international climate-change agreement will

further increase focus on the need for governments to find new means of reducing greenhouse gas emissions.

Likewise, concerns about energy independence and a desire to assist agricultural producers to exploit new markets are likely to intensify only as domestic economies become more vulnerable to external influences.

5.1 Some Implications of WTO Subsidy Rules

Biofuels offer both opportunities and risks for developing countries. International trade rules can play an important role in ensuring that trade barriers are not erected that deprive them of opportunities to participate in new markets.

As governments put in place new measures, or fine-tune existing ones, care is needed in crafting these measures. This is important both to ensure that biofuel policy objectives are achieved in an efficient and effective way and to avoid distorting trade. Some specific issues for policymakers to consider include the following:

- WTO subsidy disciplines do not prohibit all subsidies or support to biofuels. Rather, the WTO rules concern themselves with subsidies that have a trade-distorting effect.
- Although often cited in discussions about the WTO and biofuel subsidies, the green box provisions of the WTO AoA do not provide a broad category sheltering measures on the basis that they offer some environmental benefits. To qualify as green box support, specific requirements must be met. For example, payments under environmental programmes must be limited to the costs of compliance with the programme.
- The issue of whether subsidies have been passed on to the benefit of other participants in the biofuel production chain may be particularly relevant in a biofuels context, where subsidies are provided at various stages of the production and use chain.

- Attempts to provide assistance by way of decoupled payments are likely to be scrutinized closely, and the requirement that a payment not be "related to" production will be applied strictly. Importantly, if there is some condition attached to the payment that would have an impact on production - positive or negative - then it is not likely to qualify as a decoupled payment.
- Many countries have sought to foster domestic production and use of biofuels, raising the prospect of policies that favour domestically sourced biofuels. For this reason, biofuel policies that express a preference for domestic over foreign-sourced biofuels raise may present problems as prohibited on local content subsidies.

In addition, this review has identified some complex issues that arise from the interaction between trade rules and biofuel subsidies that warrant further examination. These include:

- how ethanol subsidies should be notified under the WTO, in particular the scope of ethanol subsidies that should be properly included in a WTO Member's AMS calculation. Given that ethanol is an agricultural product, it is conceivable that some subsidies to ethanol producers are provided "in favour of the producer of the basic agricultural feedstock" and thus should be included in the AMS;

- the multiplicity of biofuel subsidies and other incentives, which can lead to situations where the interaction between two measures has a trade-distorting impact. In such a case, the question arises as to whether the combination of the measures could be an actionable subsidy, where taken individually neither measure would meet the threshold requirements;
- how these biofuels and their feedstocks, such as switchgrass, would be classified for WTO purposes, given the shifting focus of support in many countries to second- and third-generation biofuels.

ANNEX I: SELECTED BIOFUEL MEASURES IN MAJOR PRODUCING COUNTRIES

A1.1 Output-Related Assistance

A1.1.1 Mandates and targets

As Table 4 shows all major producing countries use mandates or targets as part of their biofuel policy. Generally, mandates require

that ethanol or biodiesel form a minimum percentage of the total fuel supply. These measures operate to guarantee a market for biofuel producers.

Table 4. Biofuel mandates by major producer

Country	Mandate
USA	Mandatory target of 9 billion gallons of biofuels by 2008, rising to 36 billion by 2022 (of the 36 billion gallons, 21 billion to be from advanced biofuels)
Brazil	Mandatory blend of 20-25 percent anhydrous ethanol with petrol; mandatory minimum blend of 3 percent biodiesel with diesel by July 2008 and 5 percent by end 2010
EU	Mandatory target of 10 percent share of renewables (including biofuels) in transport fuels by 2020
China	15 percent of transport energy needs from biofuels by 2020
Canada	5 percent renewable content in petrol by 2010; 2 percent renewables in diesel fuel and heating oil by 2012
India	Proposed blending mandates of 5-10 percent for ethanol and 20 percent for biodiesel

Source: FAO (2008b)

A1.1.2 Volume-related subsidies

In the USA, excise tax credits have formed the largest subsidy to biofuels to date (Yacobucci 2008). Until 1 January 2009, the Volumetric Ethanol Excise Tax Credit (VEETC) provides ethanol blenders with a tax credit of \$0.51 per gallon (applicable to both domestic and imported ethanol). It is now US\$0.45 per gallon. Biodiesel blenders also enjoy a volumetric tax credit of \$US1.00 per gallon of biodiesel blended with diesel. In addition, further tax credits are available to small ethanol and biodiesel producers, and the 2008 Farm Bill added a new tax credit for cellulosic biofuel (second-generation) production at a rate of \$US1.01 per gallon.

For some years, China favoured fixed production subsidies for ethanol production. In 2007 a

subsidy of \$196 (RMB1373) per tonne was provided for ethanol production, but from 2008 the government introduced a flexible subsidy scheme under which the final payments will be calculated on the basis of an annual evaluation of each plant's profitability (USDA 2008c).

At the federal level and in a number of provinces, Canadian ethanol producers enjoy producer payments or operating grants calculated according to the output. At the federal level, Canada's ecoENERGY for Biofuels Initiative provides volumetric producer payments for ethanol and biodiesel (subject to certain limitations). In addition, Alberta, Manitoba, Ontario and Saskatchewan provide direct payments calculated on output (Laan et al. 2009).

A1.2 Support for Factors of Production

A1.2.1 Loans, loan guarantees and financing incentives

The investment costs of producing biofuels are generally higher than the production costs of traditional fossil fuels. It is common for governments to provide financial assistance or incentives such as reduced interest-rate loans, government-backed loan guarantees and tax incentives (e.g. accelerated depreciation) to encourage investment.

The US government provides a mixture of loans, loan guarantees and other assistance with the cost of infrastructure for biofuel production. State governments also provide an array of economic development grants and loans (Koplow 2007). For example, under the Rural Energy for America Program, grants and loan guarantees are available for renewable energy facilities, including those using biomass fuels and facilities producing ethanol or biodiesel (US 2008 Farm Bill, Section 9006). A biorefinery assistance programme provides loan guarantees and grants for the construction or conversion of biorefineries for advanced biofuel production. The Business and Industry Program provides guarantees of up to 90 percent of a loan made by a commercial lender for loans for working capital, machinery, buildings and real estate. Biofuel producers are also able to accelerate depreciation of capital.

Brazil provides financing incentives for the construction of new mills or modernisation of existing ones through the National Bank for Social and Economic Development (Abreu et al. 2006).

India also provides subsidized loan funds. For example, through the Sugar Development Fund, loans for up to 40 percent of the project cost of establishing ethanol production plants can be obtained at 2 percent below the market rate. Subsidies to assist with credit financing are also available to biodiesel producers. The scheme provides a 30 percent credit-linked subsidy with a 50 percent term loan taken from a bank and 20 percent beneficiary share in the form of land, labour, etc. (USDA 2007).

Canada has tended to take a slightly different approach to the other major producers in relation to loans by making repayment contingent on prevailing market conditions (Laan et al. 2009). Canada's ecoAgricultural Biofuels Capital Initiative (ecoABC), for example, provides repayable contributions for the construction or expansion of biofuel production facilities. The initiative is designed to aid agricultural producers to diversify their economic base and participate in the biofuels industry through equity investment or ownership in biofuels production facilities.

A1.2.2 Feedstock assistance

The feedstocks used in biofuel production are overwhelmingly agricultural crops, such as corn, sugarcane and oilseeds. With feedstock accounting for more than half of the production cost of biofuels, government support for these agricultural crops can be an important subsidy to the final biofuel product (Kojima et al. 2007).

A number of the key feedstocks for biofuels benefit from general agricultural support policies. For example, in the USA corn and soybeans, and the EU, sugar beets and rapeseed oil, receive significant levels of government support (Kojima et al. 2007). It is also common for countries to provide support for agriculture production by subsidizing indirect inputs such as fertilizer, water and seeds.

In addition to general agriculture support, many governments have specific policies targeted at the production of crops for energy use.

The US government recently added two programmes that are aimed specifically at the biofuel feedstock production: the Feedstock Flexibility Program for Bioenergy Producers, and the Biomass Crop Assistance Program. The Biomass Crop Assistance Program provides financial assistance for crop establishment costs and annual payments for biomass production. Under the Feedstock Flexibility Program for Bioenergy Producers, the Credit Commodity

Corporation is authorized to fund the purchase of surplus sugar to be resold as feedstock to produce bioenergy (2008 US Farm Bill).

The EU's Common Agricultural Policy (CAP) provides support to farmers to grow biofuel feedstocks. The CAP provided important indirect support to the EU biofuels industry early in its development. In addition to providing support through minimum guaranteed prices and per-hectare payments, two programmes specific to energy crops have been established. Reforms to the EU's CAP required cereal and oilseed producers to "set aside" a portion of their land (i.e. not grow arable crops on the land) in order to receive payments. The objective of the policy was to reduce agricultural surpluses. In addition to a compulsory requirement to set aside land, farmers could gain a further payment if they voluntarily set aside additional land for the growth of industrial or energy crops. A second programme, the EU's Energy Crop Aid scheme, provides an area payment of €45 per hectare for the production of energy crops on up to 2 million hectares, which includes crops used for biofuel production. This scheme is designed specifically to encourage the growth of energy crops (Kutas et al. 2007).

China provides farmers with a subsidy of RMB3000 (\$US435) per hectare of forestry plantations used to grow biofuel feedstocks and a subsidy of RMB2700 (\$US394) per hectare for non-grain feedstocks such as cassava (GSI 2008).

A1.3 Distribution and Use

A1.3.1 Fuel-tax reductions

Fuel-tax reductions (or exemptions) are the most widely used form of government support for biofuels (Kojima et al. 2007). Such reductions can be used to compensate for the higher cost of biofuels production relative to fossil fuels, or to make biofuels more attractive than fossil fuels.

The EU's policy framework includes a directive on energy taxation (Directive EC 2003/96 on Energy Taxation), which allows Member States to provide reductions or exemptions from fuel

A1.2.3 Research and development

All major producers provide some form of R&D support. It is common for governments to fund R&D efforts to improve aspects of biofuel production or use, including through the establishment of demonstration facilities. The focus of these programmes is increasingly on accelerating the commercialization of second-generation biofuels.

Canada's Agricultural Bio-products Innovation Program provides capped payments to research networks for work on research on effective and efficient technologies for biomass conversion and product diversification. The NextGen Biofuels Fund provides funding for large-scale demonstration facilities for second-generation biofuels.

The USA provides significant funds for biofuels R&D. For example, the Biomass Research and Development Initiative provide grants and other assistance for R&D and the demonstration of biofuel technologies (2008 US Farm Bill, Section 9008). Six cellulosic plant projects have been sponsored by the Department of Energy.

China also subsidizes demonstration projects for non-grain biofuel and second-generation biofuel production. For example, 20-40 percent of the investment in demonstration projects for the production of ethanol from cellulose, sorghum or cassava, and biodiesel from forest products, is subsidized by the government (GSI 2008).

excise taxes for biofuels in order to compensate for higher costs of biofuel production (Kutas et al. 2007). EU Member States have taken different policy approaches in providing these tax exemptions:

- Full or partial exemptions to all biofuels, irrespective of blending
- Full or partial exemptions proportionate to the level of biofuel blend
- Production quota system limiting the quantity of biofuels entitled to the exemptions.

Fuel excise tax reductions or exemptions from sales tax are used widely in US states for ethanol and biodiesel.⁴⁷

In India, biodiesel is exempt from the central excise tax of 4 percent. China also exempts biodiesel from its consumption tax (OECD 2008).

Brazil provides tax exemptions or reductions at both the federal and state levels (OECD 2008) for ethanol and biodiesel.

A1.3.2 Assistance with the cost of purchasing vehicles

Many countries provide some form of rebates to tax incentives to encourage the purchase of vehicles that run on biofuels.

Brazil provides tax reductions to encourage the purchase of vehicles that can run on

pure ethanol or ethanol-gasoline blends, the availability of which has been a major boost to biofuel consumption (USDA 2008a).

EU Member States have taken various approaches to support the distribution and use of biofuels, including reduced fuel taxes, reduced vehicle registration fees and tax credits for the purchase of flex-fuel vehicles (Kutas et al. 2007).

A1.3.3 Refuelling and storage assistance

Biofuels have special storage requirements and need particular refuelling equipment, which can be costly. Assistance for refuelling and storage can enhance the distribution and hence consumption of biofuels. For example, the USA has a Renewable Fuel Infrastructure Tax Credit that provides an income tax credit for the installation of alternative fuelling equipment.

ANNEX 2: RELEVANT PROVISIONS FROM THE AGREEMENT ON AGRICULTURE

A2.1 Article 6: Domestic Support Commitments

1. The domestic support reduction commitments of each Member contained in Part IV of its Schedule shall apply to all of its domestic support measures in favour of agricultural producers with the exception of domestic measures which are not subject to reduction in terms of the criteria set out in this Article and in Annex 2 to this Agreement. The commitments are expressed in terms of Total Aggregate Measurement of Support and "Annual and Final Bound Commitment Levels".
2. In accordance with the Mid-Term Review Agreement that government measures of assistance, whether direct or indirect, to encourage agricultural and rural development are an integral part of the development programmes of developing countries, investment subsidies which are generally available to agriculture in developing country Members and agricultural input subsidies generally available to low-income or resource-poor producers in developing country Members shall be exempt from domestic support reduction commitments that would otherwise be applicable to such measures, as shall domestic support to producers in developing country Members to encourage diversification from growing illicit narcotic crops. Domestic support meeting the criteria of this paragraph shall not be required to be included in a Member's calculation of its Current Total AMS.
3. A Member shall be considered to be in compliance with its domestic support reduction commitments in any year in which its domestic support in favour of agricultural producers expressed in terms of Current Total AMS does not exceed the corresponding annual or final bound commitment level specified in Part IV of the Member's Schedule.
4. (a) A Member shall not be required to include in the calculation of its Current Total AMS and shall not be required to reduce:
 - (i) product-specific domestic support which would otherwise be required to be included in a Member's calculation of its Current AMS where such support does not exceed 5 per cent of that Member's total value of production of a basic agricultural product during the relevant year;

and
 - (ii) non-product-specific domestic support which would otherwise be required to be included in a Member's calculation of its Current AMS where such support does not exceed 5 per cent of the value of that Member's total agricultural production.

(b) For developing country Members, the *de minimis* percentage under this paragraph shall be 10 per cent.
5. (a) Direct payments under production-limiting programmes shall not be subject to the commitment to reduce domestic support if:
 - (i) such payments are based on fixed area and yields; or
 - (ii) such payments are made on 85 per cent or less of the base level of production;

or
 - (iii) livestock payments are made on a fixed number of head.

(b) The exemption from the reduction commitment for direct payments meeting the above criteria shall be reflected by the exclusion of the value of those direct payments in a Member's calculation of its Current Total AMS.

A2.2 Article 7: General Disciplines on Domestic Support

1. Each Member shall ensure that any domestic support measures in favour of agricultural producers which are not subject to reduction commitments because they qualify under the criteria set out in Annex 2 to this Agreement are maintained in conformity therewith.
2. (a) Any domestic support measure in favour of agricultural producers, including any modification to such measure, and any measure that is subsequently introduced that cannot be shown to satisfy the criteria in Annex 2 to this Agreement or to be exempt from reduction by reason of any other provision of this Agreement shall be included in the Member's calculation of its Current Total AMS.
- (b) Where no Total AMS commitment exists in Part IV of a Member's Schedule, the Member shall not provide support to agricultural producers in excess of the relevant *de minimis* level set out in paragraph 4 of Article 6.

A2.3 Agreement on Agriculture: Annex 2

Domestic support: the basis for exemption from the reduction commitments

1. Domestic support measures for which exemption from the reduction commitments is claimed shall meet the fundamental requirement that they have no, or at most minimal, trade-distorting effects or effects on production. Accordingly, all measures for which exemption is claimed shall conform to the following basic criteria:
 - (a) the support in question shall be provided through a publicly-funded government programme (including government revenue foregone) not involving transfers from consumers; and
 - (b) the support in question shall not have the effect of providing price support to producers;

plus policy-specific criteria and conditions as set out below.

Government service programmes

2. General services

Policies in this category involve expenditures (or revenue foregone) in relation to programmes which provide services or benefits to agriculture or the rural community. They shall not involve direct payments to producers or processors. Such programmes, which include but are not restricted to the following list,

shall meet the general criteria in paragraph 1 above and policy-specific conditions where set out below:

- (a) research, including general research, research in connection with environmental programmes, and research programmes relating to particular products;
- (b) pest and disease control, including general and product-specific pest and disease control measures, such as early-warning systems, quarantine and eradication;
- (c) training services, including both general and specialist training facilities;
- (d) extension and advisory services, including the provision of means to facilitate the transfer of information and the results of research to producers and consumers;
- (e) inspection services, including general inspection services and the inspection of particular products for health, safety, grading or standardization purposes;
- (f) marketing and promotion services, including market information, advice and promotion relating to particular products but excluding expenditure for unspecified purposes that could be used by sellers to reduce their selling price or confer a direct economic benefit to purchasers; and

(g) infrastructural services, including: electricity reticulation, roads and other means of transport, market and port facilities, water supply facilities, dams and drainage schemes, and infrastructural works associated with environmental programmes. In all cases the expenditure shall be directed to the provision or construction of capital works only, and shall exclude the subsidized provision of on-farm facilities other than for the reticulation of generally available public utilities. It shall not include subsidies to inputs or operating costs, or preferential user charges.

3. Public stockholding for food security purposes⁴⁸

Expenditures (or revenue foregone) in relation to the accumulation and holding of stocks of products which form an integral part of a food security programme identified in national legislation. This may include government aid to private storage of products as part of such a programme.

The volume and accumulation of such stocks shall correspond to predetermined targets related solely to food security. The process of stock accumulation and disposal shall be financially transparent. Food purchases by the government shall be made at current market prices and sales from food security stocks shall be made at no less than the current domestic market price for the product and quality in question.

4. Domestic food aid⁴⁹

Expenditures (or revenue foregone) in relation to the provision of domestic food aid to sections of the population in need.

Eligibility to receive the food aid shall be subject to clearly-defined criteria related to nutritional objectives. Such aid shall be in the form of direct provision of food to those concerned or the provision of means to allow eligible recipients to buy food either at market or at subsidized prices.

Food purchases by the government shall be made at current market prices and the financing and administration of the aid shall be transparent.

5. Direct payments to producers

Support provided through direct payments (or revenue foregone, including payments in kind) to producers for which exemption from reduction commitments is claimed shall meet the basic criteria set out in paragraph 1 above, plus specific criteria applying to individual types of direct payment as set out in paragraphs 6 through 13 below. Where exemption from reduction is claimed for any existing or new type of direct payment other than those specified in paragraphs 6 through 13, it shall conform to criteria (b) through (e) in paragraph 6, in addition to the general criteria set out in paragraph 1.

6. Decoupled income support

- (a) Eligibility for such payments shall be determined by clearly-defined criteria such as income, status as a producer or landowner, factor use or production level in a defined and fixed base period.
- (b) The amount of such payments in any given year shall not be related to, or based on, the type or volume of production (including livestock units) undertaken by the producer in any year after the base period.
- (c) The amount of such payments in any given year shall not be related to, or based on, the prices, domestic or international, applying to any production undertaken in any year after the base period.
- (d) The amount of such payments in any given year shall not be related to, or based on, the factors of production employed in any year after the base period.
- (e) No production shall be required in order to receive such payments.

7. Government financial participation in income insurance and income safety-net programmes

- (a) Eligibility for such payments shall be determined by an income loss, taking into account only income derived from agriculture, which exceeds 30 per cent of average gross income or the equivalent in net income terms (excluding any payments from the same or similar schemes) in the preceding three-year period or a three-year average based on the preceding five-year period, excluding the highest and the lowest entry. Any producer meeting this condition shall be eligible to receive the payments.
- (b) The amount of such payments shall compensate for less than 70 per cent of the producer's income loss in the year the producer becomes eligible to receive this assistance.
- (c) The amount of any such payments shall relate solely to income; it shall not relate to the type or volume of production (including livestock units) undertaken by the producer; or to the prices, domestic or international, applying to such production; or to the factors of production employed.
- (d) Where a producer receives in the same year payments under this paragraph and under paragraph 8 (relief from natural disasters), the total of such payments shall be less than 100 per cent of the producer's total loss.

8. Payments (made either directly or by way of government financial participation in crop insurance schemes) for relief from natural disasters

- (a) Eligibility for such payments shall arise only following a formal recognition by government authorities that a natural or like disaster (including disease outbreaks, pest infestations, nuclear accidents, and war on the territory of the Member concerned) has occurred or is occurring; and shall be determined by a production loss which exceeds 30 per cent of the average of production in the preceding three-year period or a three-year average based on the preceding five-year period, excluding the highest and the lowest entry.

- (b) Payments made following a disaster shall be applied only in respect of losses of income, livestock (including payments in connection with the veterinary treatment of animals), land or other production factors due to the natural disaster in question.
- (c) Payments shall compensate for not more than the total cost of replacing such losses and shall not require or specify the type or quantity of future production.
- (d) Payments made during a disaster shall not exceed the level required to prevent or alleviate further loss as defined in criterion (b) above.
- (e) Where a producer receives in the same year payments under this paragraph and under paragraph 7 (income insurance and income safety-net programmes), the total of such payments shall be less than 100 per cent of the producer's total loss.

9. Structural adjustment assistance provided through producer retirement programmes

- (a) Eligibility for such payments shall be determined by reference to clearly defined criteria in programmes designed to facilitate the retirement of persons engaged in marketable agricultural production, or their movement to non-agricultural activities.
- (b) Payments shall be conditional upon the total and permanent retirement of the recipients from marketable agricultural production.

10. Structural adjustment assistance provided through resource retirement programmes

- (a) Eligibility for such payments shall be determined by reference to clearly defined criteria in programmes designed to remove land or other resources, including livestock, from marketable agricultural production.
- (b) Payments shall be conditional upon the retirement of land from marketable agricultural production for a minimum of three years, and in the case of livestock on its slaughter or definitive permanent disposal.

- (c) Payments shall not require or specify any alternative use for such land or other resources which involves the production of marketable agricultural products.
- (d) Payments shall not be related to either the type or quantity of production or to the prices, domestic or international, applying to production undertaken using the land or other resources remaining in production.

11. Structural adjustment assistance provided through investment aids

- (a) Eligibility for such payments shall be determined by reference to clearly-defined criteria in government programmes designed to assist the financial or physical restructuring of a producer's operations in response to objectively demonstrated structural disadvantages. Eligibility for such programmes may also be based on a clearly-defined government programme for the privatization of agricultural land.
- (b) The amount of such payments in any given year shall not be related to, or based on, the type or volume of production (including livestock units) undertaken by the producer in any year after the base period other than as provided for under criterion (e) below.
- (c) The amount of such payments in any given year shall not be related to, or based on, the prices, domestic or international, applying to any production undertaken in any year after the base period.
- (d) The payments shall be given only for the period of time necessary for the realization of the investment in respect of which they are provided.
- (e) The payments shall not mandate or in any way designate the agricultural products to be produced by the recipients except to require them not to produce a particular product.
- (f) The payments shall be limited to the amount required to compensate for the structural disadvantage.

12. Payments under environmental programmes

- (a) Eligibility for such payments shall be determined as part of a clearly-defined government environmental or conservation programme and be dependent on the fulfilment of specific conditions under the government programme, including conditions related to production methods or inputs.
- (b) The amount of payment shall be limited to the extra costs or loss of income involved in complying with the government programme.

13. Payments under regional assistance programmes

- (a) Eligibility for such payments shall be limited to producers in disadvantaged regions. Each such region must be a clearly designated contiguous geographical area with a definable economic and administrative identity, considered as disadvantaged on the basis of neutral and objective criteria clearly spelt out in law or regulation and indicating that the region's difficulties arise out of more than temporary circumstances.
- (b) The amount of such payments in any given year shall not be related to, or based on, the type or volume of production (including livestock units) undertaken by the producer in any year after the base period other than to reduce that production.
- (c) The amount of such payments in any given year shall not be related to, or based on, the prices, domestic or international, applying to any production undertaken in any year after the base period.
- (d) Payments shall be available only to producers in eligible regions, but generally available to all producers within such regions.
- (e) Where related to production factors, payments shall be made at a degressive rate above a threshold level of the factor concerned.
- (f) The payments shall be limited to the extra costs or loss of income involved in undertaking agricultural production in the prescribed area.

ANNEX 3: RELEVANT PROVISIONS FROM AGREEMENT ON SUBSIDIES AND COUNTERVAILING MEASURES

A3.1 Article 1: Definition of a Subsidy

1.1 For the purpose of this Agreement, a subsidy shall be deemed to exist if:

(a) (1) there is a financial contribution by a government or any public body within the territory of a Member (referred to in this Agreement as “government”), i.e. where:

(i) a government practice involves a direct transfer of funds (e.g. grants, loans, and equity infusion), potential direct transfers of funds or liabilities (e.g. loan guarantees);

(ii) government revenue that is otherwise due is foregone or not collected (e.g. fiscal incentives such as tax credits);⁵⁰

(iii) a government provides goods or services other than general infrastructure, or purchases goods;

(iv) a government makes payments to a funding mechanism, or entrusts or directs a private body to carry out one or more of the type of functions illustrated in (i) to (iii) above which would normally be vested in the government and the practice, in no real sense, differs from practices normally followed by governments;

or

(a) (2) there is any form of income or price support in the sense of Article XVI of GATT 1994;

and

(b) a benefit is thereby conferred.

1.2 A subsidy as defined in paragraph 1 shall be subject to the provisions of Part II or shall be subject to the provisions of Part III or V only if such a subsidy is specific in accordance with the provisions of Article 2.

A3.2 Article 2: Specificity

2.1 In order to determine whether a subsidy, as defined in paragraph 1 of Article 1, is specific to an enterprise or industry or group of enterprises or industries (referred to in this Agreement as “certain enterprises”) within the jurisdiction of the granting authority, the following principles shall apply:

(a) Where the granting authority, or the legislation pursuant to which the granting authority operates, explicitly limits access to a subsidy to certain enterprises, such subsidy shall be specific.

(b) Where the granting authority, or the legislation pursuant to which the granting authority operates, establishes objective criteria or conditions⁵¹ governing the eligibility for, and the amount of, a subsidy, specificity shall not exist, provided that the eligibility is automatic and that such criteria and conditions are

strictly adhered to. The criteria or conditions must be clearly spelled out in law, regulation, or other official document, so as to be capable of verification.

(c) If, notwithstanding any appearance of non specificity resulting from the application of the principles laid down in subparagraphs (a) and (b), there are reasons to believe that the subsidy may in fact be specific, other factors may be considered. Such factors are: use of a subsidy programme by a limited number of certain enterprises, predominant use by certain enterprises, the granting of disproportionately large amounts of subsidy to certain enterprises, and the manner in which discretion has been exercised by the granting authority in the decision to grant a subsidy.⁵² In applying this subparagraph, account shall be taken of the extent of diversification of

economic activities within the jurisdiction of the granting authority, as well as of the length of time during which the subsidy programme has been in operation.

2.2 A subsidy which is limited to certain enterprises located within a designated geographical region within the jurisdiction of the granting authority shall be specific. It is understood that the setting or change of generally applicable

tax rates by all levels of government entitled to do so shall not be deemed to be a specific subsidy for the purposes of this Agreement.

2.3 Any subsidy falling under the provisions of Article 3 shall be deemed to be specific.

2.4 Any determination of specificity under the provisions of this Article shall be clearly substantiated on the basis of positive evidence.

A3.3 Part II: Prohibited Subsidies – Article 3: Prohibition

3.1 Except as provided in the Agreement on Agriculture, the following subsidies, within the meaning of Article 1, shall be prohibited:

(a) subsidies contingent, in law or in fact,⁵³ whether solely or as one of several other conditions, upon export performance, including those illustrated in Annex I;⁵⁴

(b) subsidies contingent, whether solely or as one of several other conditions, upon the use of domestic over imported goods.

3.2 A Member shall neither grant nor maintain subsidies referred to in paragraph 1.

ENDNOTES

- 1 The GSI of the International Institute for Sustainable Development has published a series of comprehensive studies on government support for the ethanol and biodiesel. This paper draws heavily on the examples and framework used by GSI in those authoritative studies, which are available at www.globalsubsidies.org/en/research/biofuel-subsidies (accessed 2 June 2009).
- 2 There are two emerging categories of biofuels: “second-generation biofuels” refers to biofuels produced from cellulosic feedstocks, and “third-generation biofuels” refers to fuels produced from algae. These biofuels are not considered in detail in this paper as they are yet commercially viable. These emerging technologies do, however, offer the prospect of less negative environmental and food impacts than their first-generation counterparts, and for this reason they are attracting increased attention and government R&D support.
- 3 Ethanol is ethyl alcohol, an alcohol fermented from plant materials, such as sugarcane and corn. Biodiesel is an esterified fuel produced from fatty-acid feedstocks such as vegetable oils, animal fats and cooking wastes.
- 4 Statistics in Section 1 are drawn from OECD (2008) unless otherwise stated.
- 5 Ethanol from sugarcane, the key feedstock used in Brazil, is estimated to reduce greenhouse gas emissions by 80 percent over the production and use lifecycle. Other feedstocks, however, such as sugar beets, wheat and vegetable oils, offer lower savings, estimated to be in the 30-60 percent range. Corn, the key feedstock for ethanol in the USA, has the lowest estimated savings, at less than 30 percent (OECD 2008).
- 6 FAO Director-General Jacques Diouf has expressed concern that “current policies tend to favour producers in some developed countries”: FAO press release, “Reviewing biofuel policies and subsidies”, 7 October 2008, following the release of FAO (2008b).
- 7 Only 1.9 percent of global ethanol production was traded in 2006, and 12 percent of global biodiesel production was traded in 2007 (OECD 2008). It is difficult to obtain firm figures for global ethanol trade, as trade data do not distinguish between ethanol used for fuel and ethanol used for other purposes such as beverages and chemicals (Kojima et al. 2007).
- 8 Ethanol production has tripled since 2000, to reach 52 billion litres in 2007. Biodiesel production grew by 43 percent over 2006-2007, to reach 10.2 billion litres.
- 9 Testimony of Nathan Kimpel, President and Chief Operating Office, New Energy Corp, before the US House of Representatives Small Business Committee Hearing, “The State of the Renewable Fuels Industry in the Current Economy”, 4 March 2009.
- 10 The EU agreed to expanded binding targets in late 2008 after it became clear that indicative targets established in 2003 would not be met. The USA also announced a significant expansion to its renewable fuels standard and Canada implemented a federal biofuels mandate for the first time.
- 11 The US ethanol industry is also pushing for the federal government to increase the maximum blended rate for ethanol in petrol from its current 10 percent cap. The administration has indicated support for some increase. Transcript of press availability with Agriculture Secretary Tom Vilsack on how the American Recovery and Reinvestment Act funding will stimulate the economy, create jobs and impact on rural communities, 9 March 2009, obtained from www.usda.gov (accessed 21 March 2009).

- 12 See also GSI (2008).
- 13 Steenblik (2006) goes on to note that the “decision helped in standardizing the classification of biodiesel across countries, but did not deal with the problem of lack of specificity: biodiesel shares the same subheading with numerous other chemical products completely unrelated to it. For example, the 2005 edition of the Harmonized Tariff Schedule of the United States lists 25 chemical mixtures at the 10-digit level under 3824.90, ranging from cultured crystals to “electroplating chemical and electrolessplating solutions and other materials for printed circuit boards, plastics and metal finishings”.
- 14 The HS system is the internationally standardized nomenclature system for the description, naming and coding of goods established by the World Customs Organization.
- 15 It is important to note that this classification does not distinguish between the various uses for ethanol. It covers both denatured (HS220710) and undenatured (HS220720) ethanol.
- 16 Article 21 AoA provides that the SCM is subject to the specific provisions of the AoA.
- 17 See Article 1.2 SCM. See also Article 2 SCM, which sets out the principles that will apply in determining whether a particular subsidy is specific.
- 18 Article 2 SCM.
- 19 The blue box covers subsidies that are linked to production but that are subject to certain limits (Article 6.5 AoA). The amber and green boxes are most relevant to discussion of biofuels subsidies.
- 20 If a domestic support measures falls below a *de minimis* level (5 percent of the value of production for developed countries or 10 percent for developing countries), then it does not have to be counted in a WTO Member’s AMS.
- 21 Article 15.2 AoA.
- 22 The AoA also contains provisions relating to food security and the provision of food at subsidized prices to the poor (see Paragraphs 3 and 4 of Annex 2 of the AoA and related footnotes).
- 23 Article 1.1(a)(ii) SCM.
- 24 Panel report in *US - Tax Treatment for Foreign Sales Corporations* (DS108), Paragraphs 8.17-8.19.
- 25 Appellate Body report in *US - Tax Treatment for Foreign Sales Corporations*, Recourse to Article 21.5 (DS108) (US-FSC) (Article 21.5 - EC), Paragraph 90.
- 26 Appellate Body report in *US-FSC* (Article 21.5 - EC), Paragraphs 91-92.
- 27 See also Laan et al. (2009).
- 28 Appellate Body report in *Canada - Measures Affecting the Export of Civilian Aircraft* (Canada - Aircraft), Paragraph 157.
- 29 Appellate Body report in *Canada - Aircraft*, Paragraphs 157-158.

- 30 Article 14(b) SCM.
- 31 Article 14(c) SCM.
- 32 Article 1(a) AoA: definition of AMS.
- 33 Annex III, Paragraph 7, AoA.
- 34 Appellate Body report in *US - Subsidies on Upland Cotton* (DS267).
- 35 The EU Energy Crops Scheme will expire after 2009: see Article 146 of Council Regulation (EC) 73/2009, 19 January 2009.
- 36 See earlier discussion of possible classification issues concerning feedstocks for second- and third-generation biofuels, such as miscanthus and switchgrass. See also the discussion in Howse et al. (2006).
- 37 Appellate Body report, *US - Imposition of Countervailing Duties on Certain Hot-Rolled Lead and Bismuth Carbon Steel Products Originating in the UK (US - Lead and Bismuth II)* (DS138), Paragraph 68.
- 38 Panel report, *US - Preliminary Determinations with respect to Certain Softwood Lumber from Canada (US - Softwood Lumber III)* (DS236), Paragraphs 7.71-7.72.
- 39 The US ethanol tariff has two components: a bound 2.5 percent ad valorem tariff, and an additional duty or secondary tariff of 54 cents a gallon. Some ethanol (including Brazilian ethanol) enters the USA under the Caribbean Basin Initiative.
- 40 Brazil claims that the US tariff is above the bound rate to which the USA agreed in the WTO. The USA argues that the secondary tariff is WTO-consistent, because during the Uruguay Round negotiations the USA included the secondary tariff in its schedule as an "other duty or charge". See letter from Senator Grassley to USTR Schwab dated 9 August 2008, available at <http://grassley.senate.gov> (accessed 24 March 2009).
- 41 See Laan et al. (2009) for a description of how biofuel mandates interact with tariffs to provide market price support.
- 42 See Schnepf (2007).
- 43 Commission Regulation (EC) No 194/2009 of 11 March 2009 imposing provisional countervailing duty on imports of biodiesel originating in the USA, 67/60, *Official Journal of the European Union* 12 March 2009.
- 44 Section 203 HR1242.
- 45 European Biodiesel Board press release, "Surge in B99 Exports Towards Europe - EBB Asks for Systematic Registration of Biodiesel Imports", 16 October 2008.
- 46 Although the SCM provides for Members to review and consider reinstating this exemption, this has not occurred (Article 31 SCM).

- 47 A database of US federal and state incentives for alternative fuels, including tax reductions and exemptions, can be found at the US Department of Energy Alternative Fuels and Advanced Vehicles Data Center website: www.afdc.energy.gov/afdc/progs/all_state_summary.php/afdc/0 (accessed 9 June 2009).
- 48 For the purposes of Paragraph 3 of this Annex, governmental stockholding programmes for food security purposes in developing countries whose operation is transparent and conducted in accordance with officially published objective criteria or guidelines shall be considered to be in conformity with the provisions of this paragraph, including programmes under which stocks of foodstuffs for food security purposes are acquired and released at administered prices, provided that the difference between the acquisition price and the external reference price is accounted for in the AMS.
- 49 For the purposes of Paragraphs 3 and 4 of this Annex, the provision of foodstuffs at subsidized prices with the objective of meeting food requirements of urban and rural poor in developing countries on a regular basis at reasonable prices shall be considered to be in conformity with the provisions of this paragraph.
- 50 In accordance with the provisions of Article XVI of GATT 1994 (Note to Article XVI) and the provisions of Annexes I through III of this Agreement, the exemption of an exported product from duties or taxes borne by the like product when destined for domestic consumption, or the remission of such duties or taxes in amounts not in excess of those which have accrued, shall not be deemed to be a subsidy.
- 51 Objective criteria or conditions, as used herein, mean criteria or conditions that are neutral, that do not favour certain enterprises over others, and that are economic in nature and horizontal in application, such as number of employees or size of enterprise.
- 52 In this regard, in particular, information on the frequency with which applications for a subsidy are refused or approved and the reasons for such decisions shall be considered.
- 53 This standard is met when the facts demonstrate that the granting of a subsidy, without having been made legally contingent upon export performance, is in fact tied to actual or anticipated exportation or export earnings. The mere fact that a subsidy is granted to enterprises which export shall not for that reason alone be considered to be an export subsidy within the meaning of this provision.
- 54 Measures referred to in Annex I as not constituting export subsidies shall not be prohibited under this or any other provision of this Agreement.

REFERENCES

- Abreu, F, Vieira, J. and Ramos, S. (2006). "National Program for the Production and Use of Biodiesel". *Revista de Política Agrícola* (english version) 16(3): 35-49. Brasilia. Brazil.
- Blandford, D. and Josling, T. (2007). "Should the Green Box be Modified?", International Food & Agricultural Trade Policy Council discussion paper. Washington, DC. USA.
- Food and Agriculture Organization of the United Nations (FAO) (2008b). "The State of Food and Agriculture". Food and Agriculture Organization of the United Nations. Rome. Italy.
- Global Subsidies Initiative (GSI) (2008). "Biofuels - At What Cost? Government Support for Ethanol and Biodiesel in China". International Institute for Sustainable Development. Geneva. Switzerland.
- International Bank for Reconstruction and Development and World Bank (2008). "Agriculture for Development". World Development report. Washington, DC. USA.
- International Herald Tribune (2008). "Brazil Presses US, EU to Include Ethanol in any WTO Trade Pact". *International Herald Tribune* 28 July 2008.
- Kojima, M, Mitchell, D. and Ward, W. (2007). "Considering Trade Policies for Liquid Biofuels". Energy Sector Management and Assistance Program, World Bank. Washington, DC. USA.
- Koplow, D. (2006). "Biofuels - At What Cost? Government Support for Ethanol and Biodiesel in the United States". Global Subsidies Initiative, International Institute for Sustainable Development. Geneva. Switzerland.
- Koplow, D. (2007). "Biofuels - At What Cost? Government Support for Ethanol and Biodiesel in the United States: 2007 Update". Global Subsidies Initiative, International Institute for Sustainable Development. Geneva. Switzerland.
- Kutas, G., Lindberg, C. and Steenblik, R. (2007). "Biofuels -At What Cost? Government Support for Ethanol and Biodiesel in the European Union". Global Subsidies Initiative, International Institute for Sustainable Development. Geneva. Switzerland.
- Laan, T., Litman, T. and Steenblik, R. (2009). "Biofuels - At What Cost? Government Support for Ethanol and Biodiesel in Canada". Global Subsidies Initiative, International Institute for Sustainable Development. Geneva. Switzerland.
- Mitchell, D. (2008). "A Note on Rising Food Prices", policy research working paper no. 4682. World Bank. Washington, DC. USA.
- Organisation for Economic Co-operation and Development (OECD) (2007). "A Review of Policy Measures supporting Production and Use of Bioenergy", TAD/CA/APM/WP (2007)24/FINAL. Organisation for Economic Co-operation and Development. Paris. France.
- Organisation for Economic Co-operation and Development (OECD) (2008). "Biofuels: An Economic Assessment". Organisation for Economic Co-operation and Development. Paris. France.
- Renewable Fuel Association (undated). "The Importance of Preserving the Secondary Tariff on Ethanol". URL: www.ethanolrfa.org/resource/facts/trade/documents/WebUpdateTariffandTrade.pdf (accessed 24 March 2009)

Schnepf, R. (2007). "Brazil's WTO Case Against U.S. Agricultural Support: A Brief Overview", Congressional Research Service report RS22728. Congressional Research Service. Washington, DC. USA.

Schnepf, R. and Womach, J. (2007). "Potential Challenges to US Farm Subsidies in the WTO", Congressional Research Service report RL33697. Congressional Research Service. Washington, DC. USA.

Steenblik, R. (2006). "Liberalisation of Trade in Renewable Energy and Associated Technologies: Biodiesel, Solar Thermal and Geothermal Energy", OECD trade and environment working paper 2006/1. Organisation for Economic Co-operation and Development. Paris. France.

Steenblik, R. (2007). "Biofuels - At What Cost? Government Support for Ethanol and Biodiesel in Selected OECD Countries". Global Subsidies Initiative, International Institute for Sustainable Development. Geneva. Switzerland.

US Department of Agriculture (USDA) (2007). "India - Biofuels Annual", Global Agriculture Information Network report IN7047, United States Department of Agriculture. Washington, DC. USA.

US Department of Agriculture (USDA) (2008a). "Brazil - Biofuels Annual", Global Agriculture Information Network report BR8013 United States Department of Agriculture. Washington, DC. USA.

US Department of Agriculture (USDA) (2008c). "People's Republic of China - Biofuels Annual", Global Agriculture Information Network report CH8052, United States Department of Agriculture. Washington, DC. USA

Yacobucci, B. (2008). "Biofuels Incentives: A Summary of Federal Programs", Congressional Research Service report. RL33572, Congressional Research Service. Washington, DC. USA.

World Trade Organization (WTO) (2005). "Environmental Goods for Development, Submission by Brazil", TN/TE/W/59, World Trade Organization. Geneva, Switzerland.

World Trade Organization (2007a). "United States - Domestic Support and Export Credit Guarantees for Agricultural Products, Request for Consultations by Brazil", WT/DS365/1. World Trade Organization. Geneva. Switzerland.

World Trade Organization (2007b). "United States - Subsidies and Other Domestic Support for Corn and Other Agricultural Products, Request for Consultations by Canada", WT/DS/357/1. World Trade Organization. Geneva, Switzerland.

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Founded in 1996, the International Centre for Trade and Sustainable Development (ICTSD) is an independent non-profit and non-governmental organization based in Geneva. By empowering stakeholders in trade policy through information, networking, dialogue, well-targeted research and capacity building, the centre aims to influence the international trade system such that it advances the goal of sustainable development.