Sustainability as a smokescreen

The inadequacy of certifying fuels and feeds

An assessment of the expected effectiveness of applying sustainability criteria to agrofuel and animal feedstock production in the Mercosur region.

A report by Friends of the Earth Europe based on research by AIDEnvironment

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Friends of the Earth Europe

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Sustainability as a smokescreen

The inadequacy of certifying fuels and feeds

Executive Summary

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Growing vast monocultures of sugarcane and soy causes serious environmental and social problems in developing countries like Latin America. The negative impacts of the large-scale growing of soy for cheap animal feed are already well documented. In response to criticisms certification schemes have been promoted as a solution to manage or reduce these impacts.

More soy and increasing amounts of sugarcane are being grown to meet the growing demand for biofuels, which are plants grown to make fuel not food. Where they are grown in intensive agricultural systems, such as environmentally-damaging large-scale monoculture plantations, they are called agrofuels, and their development will create even more pressure on land, and further exacerbate existing problems.

The criticism of the rising use of agrofuels has given certification schemes further impetus. The European Union (EU), for example, has proposed a "10% biofuel target" for transport fuels on the basis that it can be met sustainably. It is highly likely that this target will rely on agrofuels. The EU along with a number of member states will be relying on existing certification schemes or schemes under development to verify the sustainability of agrofuels, a so-called "meta-standards" approach.

This research looks at the production of sugarcane and soy in the Mercosur countries[1] in Latin America and whether the existing or proposed certification systems are strong enough to manage the risks associated with their production.

Sugarcane and soy production have increased substantially in the past decade. Most of this growth has occurred in Brazil (sugarcane and soy) and Argentina (soy). Soy production is also increasing rapidly in Paraguay. The growth of sugarcane production can be attributed to rising ethanol production. Soy production is mainly expanding because of increasing demand for high-protein animal feed. Soy oil, a by-product of feed, is increasingly used to produce agro-diesel.

Meeting the ambitious political goals to expand agrofuels, together with the increasing demand for animal feeds, will lead to a further increase in demand for commodity crops such as sugarcane and soy. Much of this is expected to come from Mercosur countries due to its favourable climate and domestic political support.

Friends of the Earth has looked at six prominent certification schemes to judge whether they would be effective in Latin America where demand for producing sugarcane and soy is the greatest. The main findings of this research are that:

- **The increasing demand for sugarcane and soy is causing serious environmental and social problems in Latin America. Sugarcane has expanded to meet the domestic agrofuel market in Brazil whereas soy has been mainly exported to supply overseas animal feed markets. The increasing demand for agrofuels in the North will exacerbate the existing problems for both sugarcane and soy and lead to further expansions.**
- **Some of the biggest environmental and social problems are caused by the actual expansions of sugarcane and soy rather than how they are grown. No certification scheme has so far come up with a solution to the deforestation, habitat loss and social conflicts caused by displacing agricultural activities elsewhere. It is likely that this will never be solved by certification.**
- **Wider societal problems created by the expansions fall outside of certification schemes and need to be addressed urgently. One immediate problem is the rise in food prices as a partial result of the increased competition for raw materials created by both agrofuels and the increasing demand for cheap animal feeds.**
- **All certification schemes in development are northern-based initiatives that civil society groups in Latin America have largely rejected or boycotted. In addition most schemes have not even attempted to consult with affected communities whilst developing their criteria.**
- **Certification schemes are currently aimed at crops grown for export and do not address the problems of growing crops for the domestic market. This is a particular problem in the production of ethanol for the Brazilian market. This may lead to the wrong impression that problems have been solved and adds weight to the arguments that certification is a green smokescreen for expanding production.**
- **Many certification schemes are heavily dominated by large international corporations that make their business from selling or using sugarcane and soy. This is clearly demonstrated by the Better Sugarcane Initiative which does not even have members from the biggest sugarcane growing region in the world, the Mercosur region.**
- **It is questionable whether any of the schemes will ever be fully implemented and enforced. So far all schemes fail to have the necessary operational requirements to guarantee compliance with the standard.**
- **The lack of transparency in many schemes introduces a considerable risk that such standards will be open to abuse.**

1 Brazil, Argentina, Uruguay, Paraguay, excluding Venezuela and including Bolivia

The negative impacts of soy and sugarcane

The increase of large-scale monocultures of sugarcane and soy in the Mercosur countries has adverse impacts on the environment leading to the destruction of natural resources such as soil, water and biodiversity. It often has a negative impact on people, such as rural unemployment, land evictions, and modern slavery working conditions.

The distinction between on-site (micro) and off-site (macro) effects has become more apparent with the agrofuel discussion. On-site effects are those that are located where the actual production of sugarcane or soy takes place. The impacts of the increased production are however mainly reflected by off-site effects. Large areas of arable land are acquired for the establishment of sugarcane or soy plantations. Previous farming activities end up being pushed towards the agricultural frontier, converting natural land such as forests into arable land. It is in the conversion stage that environmental and social conflicts are usually most intense.

A displacement effect also operates at a global level. When the price of one commodity rises or its availability is reduced, industry switches to a cheaper or more abundant commodity. For example, when US farmers switched from growing soy to growing more maize (for ethanol production), the price of soy increased thereby exacerbating the expansions of soy farming in Latin America.

The Brazilian area under cultivation for sugarcane is expected to grow from 6.2 million hectares in 2005/6 to 9 million hectares in 2011/12. The natural habitat most affected by this growth is the Cerrado, the planet's most diverse savannah, which is losing 3 million hectares per year to agricultural expansion. Sugarcane has already contributed greatly to the deforestation of the Brazilian Atlantic Forest, where less than 8% remains intact. This expansion will also cause displacement within Brazil, most notably pushing cattle ranching and soy farming into Amazon areas.

Likewise with soy, the expansion of plantations to meet the rising demand for animal feed and now agro-diesel has made it the single most important agricultural export product for Brazil, Argentina, Paraguay and Bolivia. In Argentina, for example, soy occupies more land than all the other crops together. Expansion often takes place at the expense of natural savannas and tropical forests. In Brazil, the Amazon and the Cerrado are at risk. Deforestation rates are positively correlated to the increase in soy cropping. In Argentina, 2.33 million hectares of dry and humid land have been cleared for soy cultivation since 1995.

A large percentage of the soy used is genetically modified (GM) to make it tolerant to Monsanto's Roundup herbicide (glyphosate). Despite GM crops being promoted as a means of reducing pesticide use, evidence after 10 years of commercial growing paints a very different picture. For example, a Brazilian governmental agency reported last year that the use of glyphosate increased by 80% from 2000 to 2005, much faster than the expansion in area planted to GM soya. In Argentina in 2007 a glyphosate-resistant weed called Johnson Grass had infested over 120,000 hectares. It is estimated that 25 million litres of herbicides other than glyphosate will be needed to tackle this weed, increasing production costs by $160 to $950 million per year. Furthermore, the development of GM soy has not benefited small farmers but has, as with intensively grown soy, contributed to the growing number of landless peasants as small farmers are forced off the land. As much as 50% of the land conflicts in Paraguay, especially the most violent ones, are attributed to soy expansion to the benefit of big landowners and agribusiness.

The status of sustainability schemes

Sustainability schemes are often promoted as a solution for preventing or managing negative impacts. All schemes but one are still at the development stage and some are many years away from implementation. Small quantities of certified soy meeting the Basel Criteria are available. In contrast, the Better Sugarcane Initiative (BSI) has not yet agreed to any principles or criteria, let alone started the development of the operational requirements. Despite its primitive status other schemes recommend that membership of the BSI is an acceptable level to meet their "sustainable" standards (e.g. RTFO).

table 1. Status of certification schemes March 2008

Scheme	Status
Roundtable on Sustainable Biofuels	Criteria aimed for June 2008.
Cramer Criteria (NL)	Reporting suspended.
RTFO (UK)	Mandatory reporting to start April 2008. Meeting the standard is not mandatory; "Don't know' reporting' is permitted.
Better Sugarcane Initiative	No draft standard has been published.
Basel Criteria	One scheme operational (ProTerra), second scheme (Grünpass) operational but doesn't meet all the standards (it allows GM crops). Limited volumes of Basel soy are available on the market.
Roundtable on Responsible Soy	Final criteria and indicators not yet published.

Executive Summary

Sustainability not guaranteed

None of these schemes can guarantee sustainable production of sugarcane and soy. It remains questionable whether this will ever be feasible, as no sufficient methodology for measuring the macro (off-site) impacts has yet been developed. Although some schemes acknowledge that macro-impacts can be severe, none of them have adequately addressed them.

Most sustainability schemes have theoretical principles and criteria for dealing with micro-impacts, i.e. on-farm environmental impacts (soil, water, air, on- or near-farm impacts on nature) and labour standards. The use of GM crops remains a controversial issue and only the Basel Criteria has so far forbidden them. Other schemes have failed to address the concerns surrounding GM crops, thereby undermining any definition of what is sustainable.

All schemes require consultation of relevant stakeholders, but little guidance is given as to which procedures should be followed. This increases the risk of insufficient or inadequate consultation, which may spur conflicts with local communities. This is a serious issue, particularly in countries with weak governance structures and land use planning, like Mercosur countries.

Lack of support from civil society organisations and affected communities

The schemes proposed for sugarcane and soy are all northern-based initiatives that have been largely opposed by civil society in Mercosur countries. Many Latin-American civil society organisations (CSOs) do not trust the intentions behind the schemes and have in most cases refrained from participating in any stakeholder dialogues (e.g. the Roundtable on Responsible Soy). In addition, schemes such as the RTFO or Cramer Criteria have not seriously attempted to engage with potentially affected communities or peoples in producer countries in drawing up their standards. This has increased suspicions that certification schemes are aimed at continuing the existing trends of rapid expansion, environmental degradation and social conflict. Most private schemes are also dominated by large corporations involved in the commodity trade, e.g. the BSI is made up of companies such as Coca-Cola, Tate & Lyle and Cargill and includes no one representing sugarcane growers or workers from Mercosur countries, the world's biggest sugarcane growing region.

Why they won't be implemented fully

None of the sustainability schemes have fulfilled the necessary operational requirements to guarantee compliance with the standard: audit procedures and requirements of verification bodies are undefined, unclear or only have to guarantee limited assurance. Requirements to ensure transparency in the supply chain are undefined or do not have to adhere to a standard. Governance bodies are absent or undeveloped.

National schemes are too weak

The two national schemes from the UK and Netherlands have been so weakened that they now have been reduced to basic reporting requirements for companies. Even "Don't know' reporting' is permitted, allowing companies to simply plead ignorance and thereby avoiding even these basic requirements. There is also a lack of a clear unified methodology for verification at farm level and the absence of independent third party verification of the reported information.

There is a considerable risk that the lack of transparency provides companies with the opportunity to claim that their feedstock is sustainable, while in fact it is not.

Applicability to Mercosur countries

It is highly questionable if any of the schemes can be applied in the practical reality of Mercosur countries for various reasons:

1. It is unlikely that the required information is available and free of bias. Cases in Colombia, Uruguay, Peru and Brazil show that even a well-established certification system like the Forest Stewardship Council can be subject to fraud or misinterpretation by certifying bodies.
2. Strong focus on legal compliance and land use planning may be deceptive: in many Mercosur countries laws and regulations as well as qualitative land use planning are not sufficiently in place, contradict each other or insufficiently enforced.
3. As mentioned above, support for the sustainability schemes is extremely low within CSOs in Latin America.

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Conclusion

Certification fails to address the biggest problems associated with the expansion of sugarcane and soy, namely the displacement of agriculture into other areas and macro-effects such as rising food prices.

Whilst certification may lead, in theory at least, to some improvements at a farm or plantation level, the bigger problems caused by sugarcane and soy are left unsolved. It is unlikely that any of the schemes will be fully implemented in the Mercosur countries. Therefore, **certification alone cannot guarantee that agrofuels are being produced sustainably.**

Both of these serious problems relate to the increased demand, either through political initiatives to increase the use of agrofuels, or the increasing use of soy as an animal feed. It is therefore crucial that these new mandates are urgently reviewed and existing drivers such as the need for cheap high-protein animal feeds are re-evaluated. **Creating sustainable levels of demand is the only way of guaranteeing sustainable production.**

Friends of the Earth Europe therefore recommends that:

- **The European Union and individual national Governments suspend targets to increase the use of agrofuels and reconsider whether existing agrofuel policies can be achieved sustainably**
- **Dependency on high-protein animal feeds such as soy is reduced. Reduced meat consumption coupled with a reform of agriculture and trade policies will help reduce imports of commodities such as soy.**
- **Wider policy mechanisms that go beyond certification are introduced that control demand, especially where it depends increasingly on resources in developing countries, and encourages a more sustainable use of land that guarantees food sovereignty and the protection of natural resources.**
- **Real solutions to the energy and climate crisis are developed that reduce the demand for fuel such as a modal shift to public transport, cleaner cars and energy efficient electricity production.**

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Sugar cane in Latin America.

Introduction

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1.1. Fuelling the debate on sustainability schemes

The European Union (EU) has proposed ambitious mandatory goals for the use of transport agrofuels. In order to reach these goals, the EU will have to resort to import of agrofuels or agrofuel feedstock. It is expected that Mercosur[2] countries will provide a substantial share of EU imports. Many of these countries have excellent natural and economic conditions for the production of agrofuel feedstock (i.e. sugarcane and soy). In response to increasing cost-driven competition, the current trend is to increase acreage of monoculture cropping. Monoculture cropping is strongly associated with negative social and environmental impacts, particularly in Latin America.

At the same time, there is a growing recognition that the uncontrolled increase in the use of agrofuels is likely to have adverse sustainability impacts in feedstock production countries. To accommodate these worries, governments and private organisations have resorted to the creation of sustainability schemes. These schemes should guarantee that feedstock production has no negative external effects or has net beneficial effects on sustainability. There is currently a lively debate on the effectiveness of such schemes.

Although the current debate has been given new impetus by the agrofuels debate in Europe, the environmental and social problems associated with sugarcane and soy in the Mercosur are not new. Sugarcane has increased substantially over recent years to meet the demands made by the domestic market in Brazil for ethanol. Soy, on the other hand has increased largely to meet the overseas market for cheap high-protein animal feeds. Soy oil, a by-product of soy, is increasingly being used in the production of agro-diesel but the main driver for the expansion is currently animal feeds. Therefore, whilst this report focuses on the current agrofuels debate, the same arguments arise over the certification of soy as animal feeds.

1.2. The EU's agrofuel approach

In January 2008 the European Commission (the European Union's executive arm) revealed its proposals to regulate the trade in agrofuels. This followed endorsement by the European member states in March 2007 of a mandatory target that 10% of all transport fuels should be made up of biofuels by 2020. In supporting the target the member states introduced the conditions that production had to be sustainable and that so-called second-generation fuels were commercially available.

In order to meet these conditions, the draft law announced by the Commission in January introduced its own "sustainability" criteria. Meeting these criteria would allow a given biofuel to be counted towards the EU target and also be eligible for financial support. The criteria however are very weak and are limited to preventing damage only to areas of high biodiversity and high carbon value.

The European Commission's "sustainability" proposals

The greenhouse gas emission saving from the use of biofuels and other bioliquids... shall be at least 35%.

Biofuels and other bioliquids...shall not be made from raw material obtained from land with recognised high biodiversity value, that is to say land that had one of the following statuses in or after January 2008, whether or not the land still has this status:

a) forest undisturbed by significant human activity, that is to say, forest where there has been no known significant human intervention or where the last significant human intervention was sufficiently long ago to have allowed the natural species composition and processes to have become re-established;

b) areas designated for nature protection purposes, unless evidence is provided that the production of that raw material did not interfere with those purposes;

c) highly biodiverse grassland, that is to say grassland that is species-rich, not fertilised and not degraded.

Biofuels and other bioliquids...shall not be made from raw material obtained from land with high carbon stock, that is to say land that had one of the following statuses in January 2008 and no longer has this status:

a) wetlands, that is to say land that is covered with or saturated by water permanently or for a significant part of the year, including pristine peatland;

b) continuously forested areas, that is to say land spanning more than 1 hectare with trees higher than 5 metres and a canopy cover of more than 30%, or trees able to reach these thresholds in situ;

The provisions in this paragraph shall not apply if at the time the raw material was obtained, the land had the same status as it had in January 2008.

In order to monitor whether agrofuels meet these criteria the Commission indicates that other voluntary national or international certification schemes could be used. This is commonly known as the "meta-standards approach" – using existing or proposed schemes to verify the sustainability of agrofuels. This approach is also popular with EU member states and is central to schemes being developed in the UK, Germany and the Netherlands.

So what are these other certification schemes? Will they help ensure that only sustainable agrofuels are used and how successful are they?

2 Brazil, Argentina, Uruguay, Paraguay, excluding Venezuela and including Bolivia

Soy bean and irrigation system.

Introduction

1.2.1. Scope and limitations

This report provides an overview and assessment of existing or proposed schemes used to manage the risks for agrofuel production in Mercosur countries. In order to do this the report answers the following questions:

1. What are current impacts of monoculture soy and sugarcane production in Mercosur member countries?
2. Do consecutive sustainability standards cover the main sustainability impacts of monoculture soy and sugar production topically?
3. To what extent are operational requirements of currently proposed sustainability schemes appropriate to guarantee sustainability?
4. To what extent is the governance framework of these schemes sufficient to guarantee sustainability?
5. To what extent are the currently proposed sustainability schemes appropriate in the Mercosur context?

The assessment is largely a desk study based on theoretical analysis and relevant third-party literature.

Agrofuels constitute a wide range of feedstock and applications. This assessment will focus on sugarcane and soy as a feedstock for transport fuel. These are the major inputs for most domestic markets (especially Brazil) and are associated with the most far-reaching sustainability impacts. Neither sugarcane-based ethanol nor soy oil is currently imported into the EU in large quantities for agrofuel use. Due to its product characteristics and costs, it is uncertain if soy will develop into agrofuel for transport on a substantial scale but is currently being used by a number of companies. The competitively priced Brazilian ethanol is foreseen to constitute an increasing fraction of EU transport fuels in the future. This assessment will include on-site effects of monoculture cropping and sustainability schemes as well as off-site effects. The latter are often referred to as macro-effects or displacement effects.

The study will be geographically restricted to the Mercosur member countries: Brazil, Argentina, Uruguay, Paraguay, excluding Venezuela and including Bolivia. Specific attention will be paid to the appropriateness of sustainability standards with regards to characteristics of these focus countries.

Only sustainability schemes with the ambition to service mainstream feedstock markets will be considered. The combined magnitude of their impact will largely determine the extent to which sustainability risks associated with monoculture agrofuel-feedstock production. To our current knowledge, the following sustainability standards are relevant:

- **Roundtable on Sustainable Biofuels (RSB)**
- **Roundtable on Responsible Soy (RTRS)**
- **Basel Criteria**
- **Better Sugarcane Initiative (BSI)**
- **Cramer Criteria (Netherlands)**
- **UK Renewable Transport Fuel Obligation (RTFO) Sustainability Standard.**

Sugarcane worker in brazil after burning crop before harvest.

Agrofuels in Latin America: 'booming' business

2

Agrofuels in Latin America: 'booming' business

2.1. Introduction

Sugarcane and soy production has increased enormously over the past ten years. In this chapter we give a background on this development. We present the market developments of both crops for the five South American countries and show the most important negative consequences of the production of both sugarcane and soy.

2.2. Impacts of monoculture

A sugarcane plantation is a monoculture of perennial grass and does not permit any mix with natural vegetation. Soy is often grown in monoculture plantations as well; although it could be an option for small-scale farmers[3], Carvalho states however that *'the enormous oscillations to which the commodities market is subject and the high degree of mechanisation required make small scale soybean farming unfeasible. To be commercially viable, soy needs to be produced on a commercial scale'*.[4]

Monoculture which is not part of a rotation scheme depletes the soil. Therefore, more fertilizers will be needed over time and the quality of the soil will diminish. Most of the adverse impacts of sugarcane and soy described below are associated with large-scale monoculture cropping. This is when monoculture becomes problematic; small-scale farmers planting monoculture soy or sugar in rotation on small parcels of land will not generally lead to rural problems or climate change (although small farmers may also pollute the environment by planting their crops on unsuitable lands, by deforesting the Cerrado or overusing agrochemicals). The negative consequences of large-scale monoculture cropping would apply to most monocultures, not just for sugar and soy. For example, the removal of peasants from their lands, large-scale deforestation in the search for more plantation areas and the overuse and spillage of agrochemicals is not the consequence of the planting of soybeans or sugarcane in itself, but of the fact that these specific crops are planted in such large areas for years on end.

Socio-economically, large-scale monoculture means that a country's agricultural land is concentrated in the hands of a few. This leads to extreme income inequality and large numbers of landless farmers. Moreover, the acquisition of this land is often done illegally and with violence. In addition, large-scale monoculture cropping is associated with high rural unemployment, as there is a lower demand for plantation workers due to mechanisation. Moreover, monoculture also leads to higher dependency on this one crop, which makes local economies vulnerable.

2.3. Sugarcane-based ethanol

2.3.1. Market developments

a) Sugarcane

With regard to sugarcane, Brazil is by far the most important of the five selected countries in this study. Figure 1 shows the sugarcane production of the five countries, and figure 2 the area on which sugarcane is produced. The difference between Brazil and the other four countries is clear. The total world production of sugarcane was 1,289,820 (1000T) in 2005.

figure 1. Sugar cane production (1000T)[6]

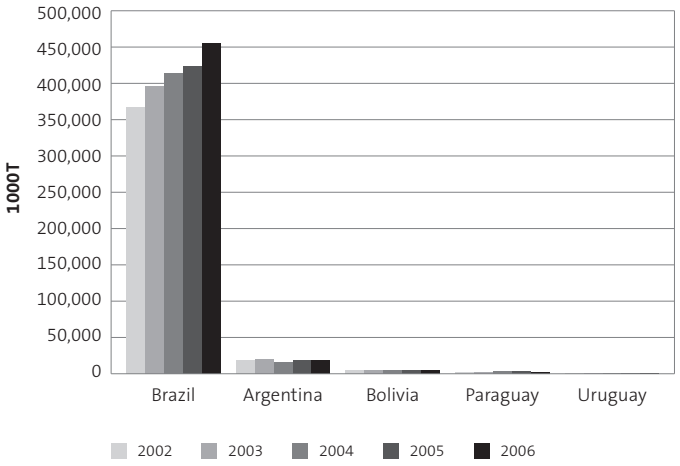
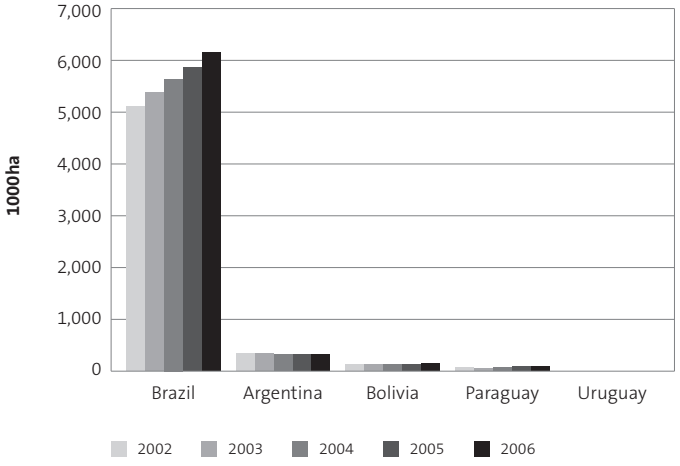


figure 2. Area harvested (1000 ha)[7]



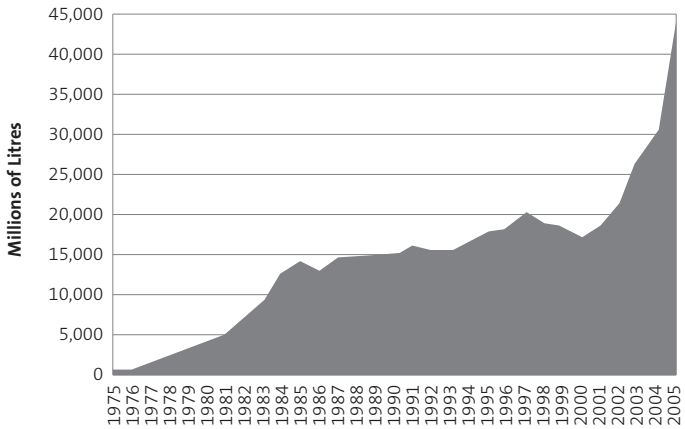
3 Kessler et al., 2007B
4 Carvalho, 1999, page 7
5 Berkem et al., 2006
6 FAOSTAT | © FAO Statistics Division 2007 | 12 December 2007
7 FAOSTAT | © FAO Statistics Division 2007 | 12 December 2007

Overall, the leading sugarcane producers are Brazil (33%), India (18%) and China (7%), followed by Thailand, Pakistan and Mexico. Hence, a third of the world's sugarcane comes from Brazil, especially from the centre-south region. This area has ideal conditions for sugarcane; a long growing season, natural rainfall and appropriate soils. Another reason why Brazil uses such a large area for sugarcane is that the Brazilian government actively promotes sugarcane production by making it a national priority to build distilleries that ferment sugar into ethanol, and requiring 20 to 25 percent ethanol blends in all regular gasoline sales.[8]

b) Sugarcane based ethanol

World ethanol production has been rising steadily over the years, especially in the last decade, as can be seen in Figure 3.

figure 3. World fuel ethanol production 1996-2006[9]



In recent years, nearly half of Brazil's annual sugar cane harvest (2.75 million out of 5.5 million planted hectares) has gone to producing ethanol. This comes down to 5% of Brazilian croplands[10]. Taking into account that Brazil is such a large sugarcane producer, it is not surprising that world ethanol production, which reached a record 38.2 billion litres in 2006, is dominated by Brazil – and the USA – which can be seen in table 2. In Brazil sugarcane provides 40% of the non-diesel fuel. Ethanol produced in the USA is mainly made from corn[11].

table 2. World fuel ethanol production, 2006[12]

Country	Production (Million litres)	Share of total (%)
United Sates	18,300	47.9
Brazil	15,700	41.1
European Union	1,550	4.1
China	1,300	3.4
Canada	550	1.4
Total	**38,200**	**100**

2.3.2. Adverse impacts of sugarcane production

Clay states that 'the production of sugarcane has caused more misery than any other crop on the planet'[13]. In this section we discuss the most important negative impacts of sugarcane, which is mostly grown in large monoculture plantations. These adverse impacts can be divided into environmental impacts and socio-environmental impacts. Moreover, both categories know micro-effects – direct effects on the area where the sugarcane is being produced and the people who produce it – and macro-effects – indirect effects of the production which can nevertheless be attributed to it.

Environmental impacts – Micro

- *Carbon saving*
  The use of sugarcane-based ethanol leads to 80-90% greenhouse gas emissions savings compared with conventional fossil fuels. This makes sugarcane based ethanol from Brazil the most carbon-efficient agrofuel currently available.[14]
- *Deforestation*
  Sugarcane production is associated with the conversion of forests into production areas. In Brazil especially, growth has remained significant and sugarcane has contributed greatly to the deforestation of the Atlantic Forest of Brazil.[15] Currently, only some 10% of the original Atlantic Forest remains, as a result of industrial and agricultural development.[16] Moreover, fires are often used for deforestation, which have their own negative impact on the environment as they pollute the air.

8 Worldwatch Institute, 2007
9 www.rise.org.au/info/Res/biomass/ethanol002.JPG
10 Worldwatch Institute, 2007
11 Worldwatch Institute, 2007
12 Worldwatch Institute, 2007
13 2004, page 161
14 World Watch Institute, 2007
15 Noronha et al., 2006
16 Smeets et al., 2005

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- *Biodiversity and habitat loss*
  The Brazilian area under sugarcane cultivation is expected to grow from 6.2 million hectares in 2005/6 to 9 million hectares in 2011/12. The natural habitat most affected by this growth is the Cerrado, the planet's most diverse savannah, which is losing 3 million hectares per year to agricultural expansion.[17] According to Clay, it is quite likely that the 'production of sugarcane has caused a greater loss of biodiversity on the planet than any other single agricultural crop.'[18] Sugarcane is able to grow in places where other crops do not. These places are often high in biodiversity, unique habitats and valuable ecosystems.[19]
- *Erosion and soil degradation*
  Laying the lands bare to plant them with cane has a tremendous impact on the soil. The protective cover is stripped away, the soils dry out and the essential micro-organism diversity and mass is affected. Exposed topsoil is easily washed away, taking away essential nutrients. This leads to a loss of soil health and fertility. This, in turn, leads to an increased need for fertilizers and may again lead to soil acidification and further deterioration of microbiological soil life. Soil depletion is also caused by the fact that all cane is removed from the land and only some of the nutrients are returned to the soil (such as phosphor and potassium, but not nitrogen).
- *Air pollution*
  Sugarcane is burned before manual harvesting in order to remove sharp leaves and snakes. Sugarcane burning leads to serious air pollution and has proven hazardous for human health. Mechanized harvesting (currently around 35%) does not require burning.
- *Water pollution*
  Sugarcane production requires high nutrient inputs, which may enter the aquatic system due to leakage and run-off, leading to eutrophication. Aerial spraying of pesticides and herbicides also leads to water pollution, as does waste water from the mills and from cleaning the equipment, when quantities of plant and sludge matter enter the aquatic system and absorb all available oxygen through decomposition.
- *High water use*
  Producing sugarcane needs a large amount of water (growing and processing one kilo of sugar requires 1500 to 3000 litres of water ,so water resources are being overexploited. There is an excessive use of groundwater and riverbeds are being exposed. Poor drainage and inefficient use of water leads to water-logging and salinisation of soils.
- *Use of GMOs*
  Genetically modified sugarcane has not been commercialised yet, but research and field testing of several varieties is taking place and some are very close to commercialisation. Other genetically modified crops have led to the further intensification of agriculture. For example, the use of genetically modified soy in Brazil has led to an 80% increase in the use of the herbicide glyphosate (see later section on soy).

Environmental impacts – Macro

- *Further deforestation by displaced cattle farmers*
  Sugarcane is often being produced on land that was previously owned by cattle farmers. These cattle farmers may then convert forest, savannas and other areas of natural vegetation into pastures. That way, sugarcane production will indirectly lead to deforestation and the conversion of natural habitats. Even though many authors give attention to this problem of indirect deforestation, it is difficult to find precise numbers or percentages, especially since the distinction between sugar, soy and other crops is not always made and because it is unknown how many displaced farmers will open up new land and how many will start a new life in the city. The section on soy discusses this kind of indirect deforestation in more detail.
- *Climate change*
  Burning fields and bagasse contributes to the emission of carbon dioxide. Decomposition of bagasse – an alternative to burning – leads to the emission of methane, which is an even more powerful greenhouse gas.
- *Droughts*
  Sugarcane production can lead to droughts for two main reasons. First, deforestation may result in changes in precipitation patterns. Second, the irrigation needed for the sugarcane production requires large amounts of water.

Socio-economic impacts – Micro

- *Land conflicts*
  With increasing market standards of refined sugar processing, the ability of smallholders to compete in sugar processing has declined and been replaced by more and more large sugarcane monocultures. Landless people regularly occupy land, resulting in violent conflicts with the legal owner, who is often supported by the police. The rate of conflicts is said to have gone up as a result of the increased sugar production.[23]
- *Human health risks*
  Using large amounts of agrochemicals leads to run-offs and spillage. Local communities face health problems as they drink contaminated water or live too close to fields that are being (air) sprayed. As the use of agrochemicals is less in sugarcane than in soy production, more details and examples about agrochemicals in relation to human health risks are given in the soy section.

17 Conservation International Brazil (2004)
18 2004, page 166
19 Clay, 2005
20 Clay, 2005
21 Clay, 2005
22 Clay, 2005
23 Kenfield, 2006

2

› *Modern slave labour*
Workers on some estates are being used as 'modern slaves'; they are not free to leave the plantations and receive very low or no wages. Although the Brazilian government is making an effort to improve the situation – by carrying out freedom operations – the problem remains and numbers are still alarming. In the Brazilian agricultural sector as a whole, nearly 35,000 cases of slavery have been reported between 1995 and 2005. The trend is rising worryingly; at the end of the 90s, the annual amount of reported cases was between 500 and 2,500 – since 2002, the number has risen to more than 5,000.[24] Figures 4 and 5 show the number of farms reported to make use of slave labour, and the total amount of slaves found on these Brazilian farms (again, these numbers are for the whole of the agricultural sector).[25]

figure 4. Number of farms reported to make use of slaves

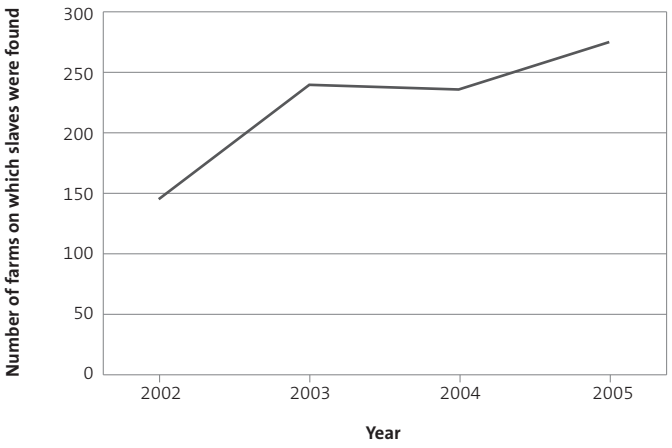
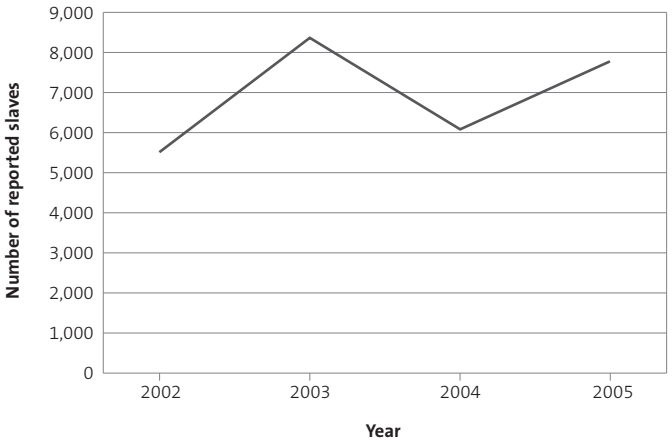


figure 5. Number of slaves found in Brazil



With regard to sugarcane specifically, Repórter Brasil states that although sugarcane producers represent only 1% of the number of producers on the 'dirty list' - containing all producers known to make use of slaves – sugarcane is the third worst sector when it comes to the amount of slaves (Brazil). This is due to the fact that sugarcane estates are very large, and often use large groups of slaves (Repórter Brasil mentions three estates on which 626, 1064 and 318 slaves had been found), whereas in other sectors that may use slaves, like animal husbandry and coffee, estates would generally have less than 10 slaves.[26]

There has also been a history of child labour being used on plantations. Exact numbers are unknown, but it is clear that child labour is being used in sugarcane production. In 1993, for example, approximately 25% of the sugarcane cutters in Pernambuco (Brazil) were between 7 and 17 years old.[27] In 2005, 12 child labourers were found on Brazilian farms (all sectors).[28]

› *Bad working conditions*
Working conditions in sugarcane production are amongst the most hazardous of any agricultural industry. In Northeast Brazil sugarcane workers have the lowest life expectancy of any group, and their children have the highest infant mortality rates. Living conditions on the plantations are reported to be degrading: workers share small, overcrowded cabins, with sub-standard sanitary conditions and medical provisions and workers have to rely on the company shop for their supplies. The cutters work long hours under very tough physical conditions and are lowly paid.[29]

Socio-economic impacts – Macro

› *Rural unemployment*
Mechanisation and increasing monoculture cropping lead to a lower demand for plantation workers. With the arrival of migration workers looking for jobs, there is even less employment for the local rural people.[30]

› *Rural underdevelopment*
Due to rural unemployment, rural workers migrate to new frontier areas. This again leads to destabilisation of the communities in the frontier areas. Rural unemployment and underdevelopment leads people to start moving to the cities in order to look for work, so urban slums start growing. Living conditions are bad. There are reports of the kidnapping of women and children for prostitution and of high alcohol and drug use.[31]

24 Dutch Soy Coalition, forthcoming
25 Commissão Pastoral da Terra, 2003, Commissão Pastoral da Terra, 2004, Commissão Pastoral da Terra, 2005 and Commissão Pastoral da Terra, 2006
26 Repórter Brasil, 2007
27 Aparecida de Moraes Silva, M., 2006
28 Commissão Pastoral da Terra, 2005 and Commissão Pastoral da Terra, 2006
29 Clay, 2005
30 Friends of the Earth Brazil, 2006
31 Aparecida de Moraes Silva, M. (2006)

Agrofuels in Latin America: 'booming' business

2.4. Soy-based agro-diesel

2.4.1. Market developments

a) Soy

Soybeans are the single most important oilseed worldwide: in 2006/2007, soybeans accounted for 58.6% of the total world production of oilseeds. In that same year soy oil was the most important oil meal (60.9%) and the second most important vegetable oil (after palm oil)[32].

World production of soybeans was 234.98 million tonnes in 2006/2007, of which Brazil produced 25% and Argentina 20%. After the USA, these two countries are the biggest soybean producers worldwide[33]. Not surprisingly, soy occupies large areas of land. In Argentina, for example, soy occupies more land than all the other crops together[34]. Figures 6 and 7 show the development of soy production and soy acreage over the last five years, for the five countries in this study.

figure 6. Soy production (1000 T)[35]

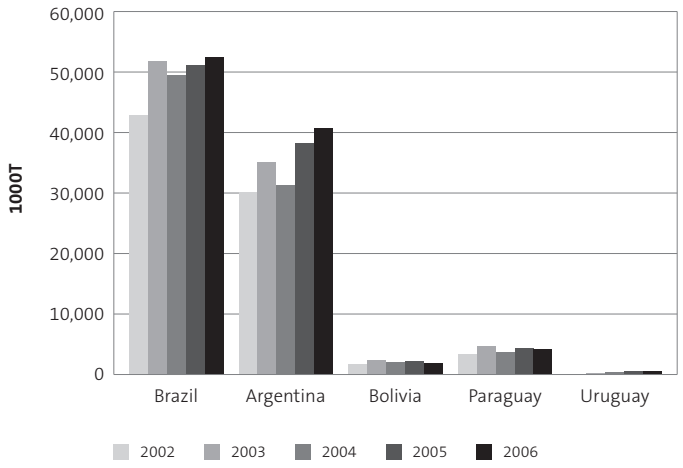
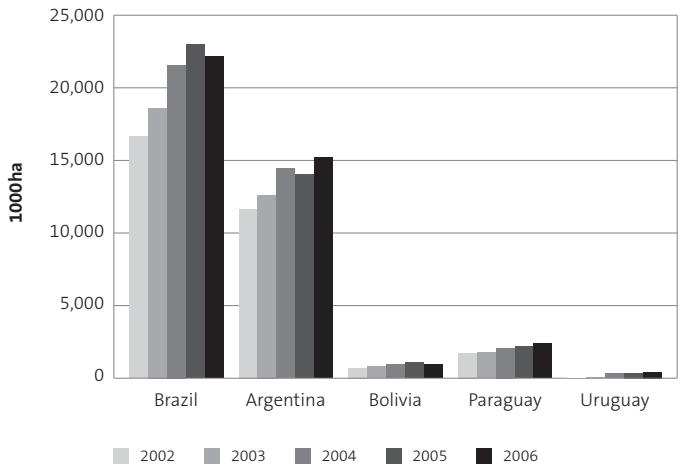
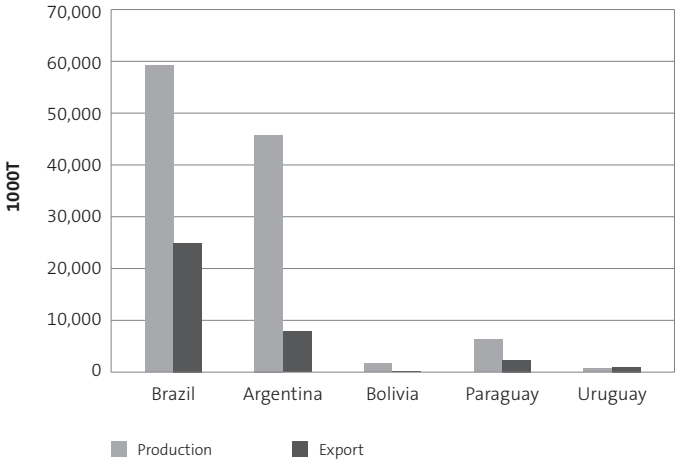


figure 7. Area harvested (1000 ha)[36]



A large amount of the South American soybeans are exported (see figure 8) and crushed abroad. All five countries crush some of their beans domestically, after which both soybean meal and soybean oil are exported. Soy is therefore an important export product for all countries in this study. It has become the single most important agricultural export product for Brazil, Argentina, Paraguay and Bolivia[37]. In Brazil, soy accounts for 20% of the agrarian income, a third of the agrarian export revenues and 10% of the total export revenues. In Argentina soy is even more important, as in 2003 the export value of soy was more than half of the agrarian revenues, and a quarter of total export revenues[38].

figure 8. Soybean production and soybean export[39]



Soy became an export commodity in the 1990s – the tremendous growth of the South American soybean acreage is largely export driven[40]. Two important markets for South American soybeans are China and the EU: 65% of China's and 78% of the EU's soybean imports come from South American countries. Of the combined soybean exports of Brazil, Argentina, Paraguay and Uruguay, 33% is destined for Europe, and 49% for China. Of Argentina's soybean exports, 80% goes to China and hardly anything is exported to Europe. This concerns only unprocessed beans, however in terms of soy meal the EU is an important consumption market for Argentina. Paraguay does not export much to China and exports 69% of its soybeans export quota to the EU. Brazil exports beans to both countries; 43% to China and 40% to the EU. 54% of Uruguay's soybeans for export are exported to China, and 40% to Europe[41].

32 Mielke, 2007
33 Mielke, 2007
34 Kessler et al., 2007B
35 FAOSTAT | © FAO Statistics Division 2007 | 12 December 2007
36 FAOSTAT | © FAO Statistics Division 2007 | 12 December 2007
37 Dros, 2004
38 Berkem et al., 2006
39 Mielke, 2007
40 Van Gelder and Dros, 2002
41 Mielke, 2007

figure 9. Brazilian, Argentinean, Paraguayan and Uruguayan soybean exports to China and the EU

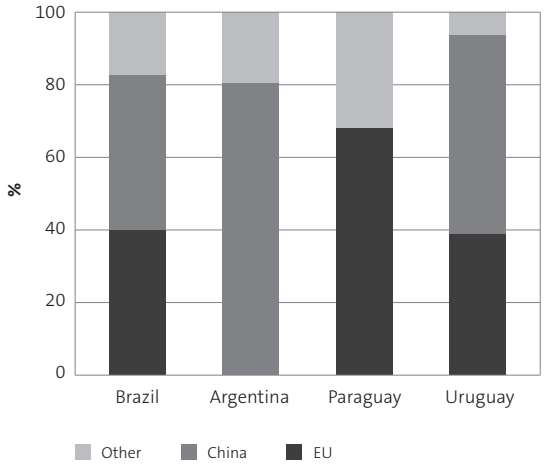
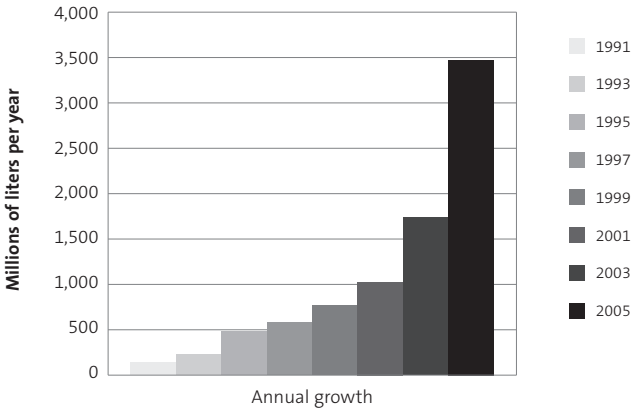


figure 10. World biodiesel (agro-diesel) production 1991-2005[44]



Furthermore, Argentina exports relatively large amounts of soybeans to Thailand, Egypt, Malaysia and Chile; Brazil to Iran, Thailand, South Korea and Taiwan and Paraguay to Argentina. Within the EU, the Netherlands, Spain and Germany are the most important destinations. With regard to soybean meal, Europe is again the most important market for South American production (62%) with France, Italy, the Netherlands and Spain as the most important markets. The largest export markets for South American soybean oil are Iran, India and Bangladesh. Only minimal amounts of soybean oil are being exported to the European Union[42], as most member states import oil from soybeans crushed within the Union. The Netherlands, for example, imports 58% of its soybeans and 97% of its soybean meal from Brazil and Argentina, but hardly any soybean oil[43].

b) Soy-based diesel

Agro-diesel production has grown enormously over the last five years, as can be seen in Figure 10. This has been mainly achieved by the growth of rapeseed and sunflower seed. Together they have a world market share of well over 90%. Soy is the feedstock for about 4% of the world production of agro-diesel. This is set to increase as Brazilian, USA and Argentinean governments have formulated ambitious goals to achieve this.

2.4.2. Adverse impacts of soy production

A lot has been written about the negative impacts of soy. In this section we discuss the most important adverse impacts, again divided into environmental and socio-economic impacts, both on the micro and macro level.

Environmental impacts – Micro

- *CO_2 efficiency*
  Carbon savings resulting from the substitution of fossil fuel-based diesel with soy-based agro-diesel are below 30%. This is due to the fact that soy is a low yielding variety (low energy yield per hectare), whilst requiring high inputs to grow (fertilizers, pesticides, etc). Ploughing and conversion of land further decreases the carbon balance of this feedstock.

- *Deforestation*
  Unlike in the United States and Europe, where soybeans are mostly planted in areas previously used for agriculture, in tropical countries the cultivation of soybeans is often part of the process of converting extensive areas of natural habitat for agriculture for the first time. This is true for Brazil, Argentina, Paraguay and Bolivia, and often takes place at the expense of natural savannas and tropical forests. In Brazil, the Amazon and the Cerrado are at risk[45]. The deforestation is often illegal, and fires are used to clear the land, causing air pollution whilst threatening a spread to adjoining areas[46].

  Kessler et al. found that in Brazil and Argentina deforestation rates are indeed positively correlated (50%) to the increase in soy cropping – this correlation is extremely significant from the statistical point of view (>99% probability)[47]. Furthermore, Moron et al found a strong correlation between the area deforested and the mean annual soybean price and suggested that as soybean prices rise, deforestation rates could return to the higher levels seen in 2003-2004. This is particularly worrying as the soybean prices reach record levels, aided in part by US farmers reducing soy production to grow more maize for ethanol whilst demand for soy-based animal feeds and agro-diesel increases[48].

42 Van Gelder and Dros, 2002
43 Kessler et al., 2007B

44 www.emerging-markets.com/biodiesel
45 Clay, 2004
46 van Gelder and Dros, 2006
47 Kessler et al,. 2003
48 http://news.mongabay.com/2007/1213-amazon_corn_sub.html

Agrofuels in Latin America: 'booming' business

In Argentina, 2.33 million hectares of dry and humid land have been cleared for soy cultivation since 1995. In Santa Cruz, Bolivia, annual deforestation increased more than 200,000 hectares between 1993 and 2000[49].

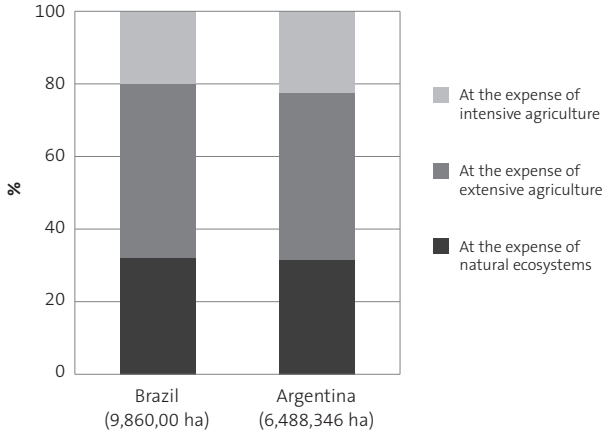
- *Erosion and soil degradation*
  In soy production areas the water infiltration capacity of the soil is lowered because of deforestation and warming of the soil. Complete deforestation of large areas makes the soil more vulnerable to wind and water erosion and desertification is a serious threat as well[50]. In the search for areas to be planted with soy, soils unsuitable for soy are sometimes being used. The end result is that more fertilizers are needed[51].
- *Water pollution*
  Pesticides pollute drinking water and the environment. Aerial spraying in particular disseminates active ingredients over much larger areas than intended[52]. Springs and rivers get polluted, which leads to fish mortality[53].
- *Biodiversity loss*
  As explained above, monoculture soy plantations often come at the cost of natural habitats and therefore biodiversity.
- *Use of large amounts of agrochemicals*
  The use of large amounts of agrochemicals leads to resistance of crops, leading to the use of ever more pesticides[54].
- *Use of GMOs*
  It is known that Brazil, Argentina and Paraguay make use of genetically engineered soy. GM soy was already being used in Brazil before it became legal in 2005. Argentina uses almost only GMO soybeans – estimates of the Brazilian ministry of agriculture show that at least 40% of the soy area is planted with GMO beans[55]. Notwithstanding the unknown health consequences of GMO soybeans their use in the field has increased herbicide use and led to the development of herbicide-resistant weeds. For example, last year, a study by a Brazilian governmental agency found that the use of glyphosate, the herbicide used in association with the GMO soybeans, increased 80 per cent from 2000 to 2005, much faster than the expansion in area planted to GMO soya. In Argentina in 2007 a glyphosate-resistant weed called Johnson Grass had infested over 120,000 hectares. It is estimated that 25 million litres of herbicides other than glyphosate will be needed to tackle this weed, increasing production costs of between $160 to 950 million per year[56].

Environmental impacts – Macro

- *Further deforestation by displaced cattle farmers*
  Expanding soy production often pushes farmers further into the Amazon region, thereby indirectly causing deforestation. Small farmers are more or less forced to cultivate new land for their small scale agriculture and cattle farms.[57] Several studies point out that in Brazil most soy-related deforestation is indirect and caused by displaced cattle farmers: 'Soybean farms cause some forest clearing directly. But they have a much greater impact on deforestation by consuming cleared land, savanna, and transitional forests, thereby pushing ranchers and slash-and-burn farmers ever deeper into the forest frontier'.[58]

This can be illustrated with figure 11, which shows to what extent soy increase in Brazil and Argentina is at the expense of three types of land use (natural ecosystems, extensive agriculture and intensive agriculture). Hence, 50% of the soy increase in Argentina is at the direct expense of natural ecosystems.

figure 11. Soy increase in Brazil and Argentina, 1995-2004[59]



The figure illustrates that not all soy expansion is (directly) at the expense of natural ecosystems; some is at the expense of agriculture. However, when soy expands into agricultural areas, farmers will often start their agricultural activities elsewhere. This is called the multiplier effect, which is 87% in Brazil, and 20% in Argentina. Thus, the multiplier effect is the loss of natural ecosystems as an indirect result of soy increase. The total – direct and indirect – loss of natural ecosystems because of soy expansion is 74% in Brazil and 60% in Argentina[60].

49 van Gelder and Dros, 2006
50 van Gelder and Dros, 2006
51 Greenpeace, 2005
52 Bickel and Dros, 2003
53 van Gelder and Dros, 2006
54 Greenpeace, 2005
55 Berkem et al., 2006
56 Friends of the Earth International, 2008, Who Benefits from GM crops – the rise in pesticide use
57 Gelder and Dros, 2006 and Forest Working Group of the Brazilian Forum of NGOs and Social Movements for Environment and Development, date unknown
58 news.mongabay.com/2007/0821-cerrado.html
59 Kessler et al. (2006), in Kessler et al., 2007B
60 Kessler et al. (2006), in Kessler et al., 2007B

› *Environmental instability and climate change*
In the Cerrado, the clearance of large plateaus and the subsequent planting with soy, leads to an almost fourfold increase in evaporation. This reduces infiltration and causes water tables to fall and springs to run dry. The bare soil warms up faster and dries out sooner, which results in lower atmospheric humidity, higher temperatures and eventually less rainfall[61]. Moreover, due to deforestation, the carbon sink capacity of the Brazilian forests diminishes, contributing to global climate change. On a more regional scale, deforestation may lead to drying creeks and increasing winds (in turn stimulating erosion)[62]. Soy cultivation is also rapidly expanding around the Pantanal and poses several threats to the ecosystems and the people who are depending on them. Waterways in the Pantanal become silted up and polluted by erosion and heavy use of agro-chemicals in large scale soy monocultures in the wider region.

› *Use of charcoal and fuel wood*
Apart from displaced cattle farmers looking for new land in the Amazon, there is another indirect deforestation effect; the factories processing soybeans need charcoal or wood. The Bunge factory in Uruçuí, for example, needs 400 stacked cubic metres of Cerrado wood per day as fuel wood – this is 20 to 25 hectares[63].

› *Transportation infrastructure*
Infrastructure developments required for the transportation of the soy also unleash indirect consequences, *'associated with opening up large, previously isolated environments to population migration and other land uses. This contributes directly and indirectly to habitat conversion.'*[64] For example, in order to reduce costs of shipping commodities such as soy, the water supply of the Paraguay-Parana basin which feeds the Pantanal (the world's largest tropical wetland) is threatened by plans to turn the two rivers into an industrial shipping channel[65]. In another example, the Brazilian government is planning to pave 1,000 kilometres of Highway BR-163, linking Cuiabá to Santarem. And thereby connecting Mato Grosso, the biggest soy producing state in Brazil, with the Amazon port of Santarém. This port is closer to consumer markets than the country's congested southern and south eastern ports. But environmentalists fear that paving the BR-163 will hasten the destruction of the Amazon rainforest by loggers, ranchers, soy farmers and squatters[66].

› *Dependency on the forest*
Local people who lose their source of food and income due to displacement may become more dependent on hunting in the forest or the collection of non-timber forest products. This increases pressure on these resources and increases the risk of reducing biodiversity[67]. Logging activities also become alternative sources of income for displaced people.

61 Gelder and Dros, 2006
62 Gelder et al., 2005
63 Bickel and Dros, 2003
64 Clay, 2004, page 189
65 see http://internationalrivers.org/en/node/688
66 http://philip.inpa.gov.br/publ_livres/Preprints/2006/BR-163%20EC%20comment-4.pdf
67 Van Gelder et al., 2005

Socio-economic impacts – Micro

› *Illegal land acquisition, displacement of people and land conflicts*
Land is often illegally obtained, a process which is called grilagem in Brazil. Peasants are forced off their lands, sometimes with the use of violence. They do sometimes get compensations, but these are often much less than the value or annual yield of the land. However, they are forced to accept these compensations by intimidation and violence. Reported cases of violence are murder, attempted murder and death threats, physical torture, aggression, other physical harm and imprisonment. Figures 12 and 13 show that the incidences of violence have increased in Brazil between 1995 and 2005. Violence is mainly found in areas with strong soy expansion, and where law enforcement is poor[69].

figure 12. Amount of land conflicts[70]

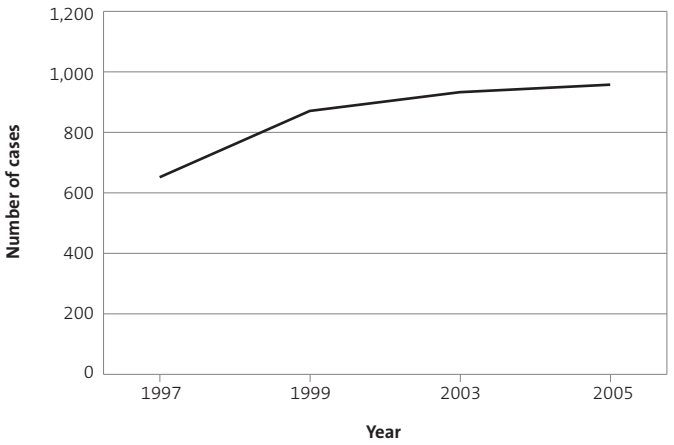
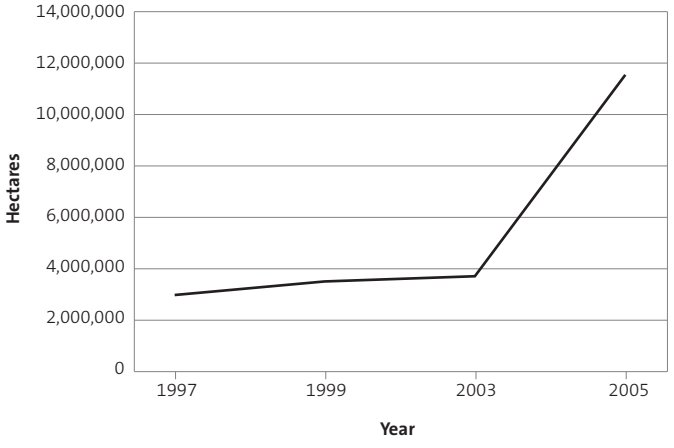


figure 13. Size of disputed land[71]



68 Van Gelder and Dros, 2006
69 Kessler et al., 2007B
70 Commissão Pastoral da Terra, Brazilia, 2006
71 Commissão Pastoral da Terra, Brazilia, 2006

Agrofuels in Latin America: 'booming' business

According to Rulli et al. (2006), the expansion of soy is one of the main reasons for the increasing number of landless peasants, and as much as 50% of the land conflicts in Paraguay, especially the most violent ones, is attributed to soy expansion. In 2004, 162 land conflicts took place in Paraguay, of which 118 involved land occupations and 66 land evictions took place.[72] Research by INTERPI (Land Institute of Piauí) and UNCRA (National Institute of Colonisation and Agrarian Reform) suggests that 80% of Brazilian land titles have been obtained illegally or fraudulently.[73]

- *Human health risks*
  The heavy use of agrochemicals is extremely unhealthy. Drinking water gets contaminated and the atmosphere in villages and cities is polluted. Moreover, due to spraying with planes and unsafe storage and transport, accidents may occur. In some cases these accidents lead to deaths. In most cases, the large-scale landowners responsible are not convicted.[74]

  In a study by Palau et al., conducted in eight communities in Paraguay, 78% of families interviewed stated that they suffered from health problems that coincided with fumigations, 63% said they were always sick and constantly affected by the soy fields and plantations. 60% of families were displaced, mainly because the water in their community was contaminated. The most common problems are related to fumigations – ailments of the respiratory and digestive systems, headaches, miscarriages and birth defects.[75]

  A well-known Paraguayan case is that of an 11-year old boy who got soaked with pesticides when cycling home through the fields while a soy producer was spraying. The boy had to be hospitalised. A few days later another producer was fumigating his field, as a result of which the boy and three siblings, as well as twenty other neighbours, had to be hospitalised again. The boy did not survive this time.[76]

- *Slave labour*
  Also in soy production, cases of slave labour have been reported. Labourers are forced to work seven days a week, ten hours a day, and without protective clothing.[77] Slavery takes place mostly in areas where law enforcement is limited and it has been more intensive in soy production states.[78] Of all farms listed on the dirty list since 2003, 5.2% were soy farms. Since its instalment, 13 farms have been put on the list, together accounting for 565 liberated slaves. Eight of these farms have been removed from the list after proven improvement, which means that currently 5 soy farms are still listed (2.6% of all current enlisted farms). However, it seems that only the tip of the iceberg is known, so there are potentially many more cases of forced labour, slavery and non-compliance to (inter)national labour standards in Brazil.[79]

- *Bad working conditions*
  Workers are often working in very bad labour conditions; they do not wear protective clothing, live in improvised sheds, do not have sufficient access to sanitation, drinking water and first aid, and provisions like food and clothing are only available in the company shop for exorbitant prices.[80]

- *Indigenous tribes losing traditional lands*
  Indigenous tribes are increasingly surrounded by soy plantations, so that their land and culture is under pressure. Their land titles are often ignored. Soybean producers may also penetrate their protected areas or indigenous reserves.[81]

Socio-economic impacts – Macro

- *Loss of rural employment*
  The conversion of agricultural land to soy plantations is negative for rural employment. Although numbers on how many employees are needed per hectare differ, it is clear that this is far less on large-scale – mechanised – soy plantations than on small-scale farming (numbers range from 1 worker per 220 hectares to 1 worker per 500 hectares in the case of large-scale soy farming, compared to 1 worker per 2-7 hectares in the case of small-scale farming). Table 3 demonstrates how few jobs both sugarcane and soy create. More and more people are therefore leaving the rural areas and are settling in city slums, where there is not much work for them and where they may end up in prostitution and crime.[82] High immigration rates are the reason that even less local people find jobs.[83]

table 3. Jobs in the main agribusiness activities in Brazil, ratio of man per year. For each 100 hectares, in 2000[84]

Activity	Number of jobs	Activity	Number of jobs
Cattle for meat	0.24	Orange	16
Eucalyptus	1	Castor Bean	24
Soy	2	Potato	29
Corn	8	Manioc	38
Sugarcane	10	Coffee	49
Bean	11	Onion	52
Rice	16	Tomato	245

72 Rulli et al., 2006
73 van Gelder and Dros, 2006
74 Van Gelder and Dros, 2006, Rulli et al., 2006
75 Palau et al., 2007
76 Dutch Soy Coalition, 2007
77 Van Gelder and Dros, 2006, Bickel and Dros, 2003
78 Kessler et al., 2007B
79 Dutch Soy Coalition, forthcoming
80 van Gelder and Dros, 2006
81 van Gelder et al., 2005
82 Kessler et al., 2006, Greenpeace, 2005 and van Gelder and Dros, 2006
83 Kessler et al., 2007B
84 Friends of the Earth Brazil, 2006

- *Income inequality and unequal access to resources*
  As soy is often grown on large estates and small farmers are being pushed from their lands, the unequal access to resources is only increasing. There is a concentration of landownership, income and productive systems in the hands of a few.[85] In Paraguay, for example, less than 2% of the population owns 70% of the land.[86] Moreover, *'the heavy diversion of scarce public resources to the agro-industry stands in contrast to the low public support of small farmers who constitute the majority of the rural population in the Amazon region'*.[87] Finally, the enormous profits being made from soy production have not contributed to an improved economic position of the total population.[88]
- *Food security jeopardised*
  Many new soy plantations cultivate rice before they grow soy. This increased supply pushes the price down. Moreover, as local and indigenous communities do not have access to forests anymore, they can no longer rely on what the forest offers them, like game, fish, fruits and rubber.[89] Selling land also results in decreasing food security.[90]

2.5. Conclusions

Sugar and soy production have increased substantially in the past decade. By far most of this growth was realised in Brazil (sugar and soy) and Argentina (soy). Recently, soy production is also strongly on the rise in Paraguay. The growth of sugar production can mainly be attributed to rising ethanol production. Soy production is mainly expanding because of increasing demand for animal feed. Soy oil, a by-product of feed, is increasingly used to produce agro-diesel.

Politicians in the European Union, the United States and in Mercosur countries have formulated ambitious goals for the application of agrofuels. If these are to be met, this will mean a further increase in demand for agrofuels. Much of this is expected to come from Mercosur countries due to its favourable climate and political support to expand sugar and soy production.

The rapid increase of large-scale monoculture sugar and soy production in these countries has adverse impacts on the environment, leads to the destruction of natural resources (soil, water, biodiversity), often has a negative impact on people, rural employment and is associated with poor labour conditions.

With the agrofuel discussion, the distinction between on-site (micro) and off-site (macro) effects has become more apparent. On-site effects are those that are located where the actual production of sugar or soy takes place. The increasing production is however mainly responsible for off-site effects. Arable land is acquired for the establishment of a sugar or soy plantation and the previous users move to the agricultural frontier to convert natural land into arable land. It is in the conversion stage that environmental and social conflicts are usually most intense.

85 Kessler et al., 2007B and Forest Working Group of the Brazilian Forum of NGOs and Social Movements for Environment and Development, date unknown
86 Rulli et al., 2006
87 Bickel and Dros, 2003, page 25
88 Kessler et al., 2007B
89 Bickel and Dros, 2006
90 Dros, 2004

Sustainability schemes: a trendy solution

3

3.1. Introduction

The risks associated with large-scale monoculture production of sugarcane and soy are increasingly acknowledged by producers in the food, feed and fuel market chains. The latter are particularly keen on creating some level of control over the production process at the beginning of their chain. As their market relies heavily on political support for stimulation of agrofuels, they feel a need to prove that the feedstock is produced sustainably. Unsustainable practices would undermine this support and threaten the continuity of their business. Food and feed producers are pressured by civil society organizations to address the sustainability problems at the beginning of their chain as well.

Various companies, governments and civil society organizations view sustainability schemes as an appropriate tool for securing that no harm is done during the production of raw materials. The proponents of sustainability schemes mainly come from Europe. Support from United States' stakeholders is limited. Latin American businesses seem to support the creation of sustainability schemes to secure market access to Europe. Many Latin American civil society organizations are critical towards the intentions behind the schemes.

Sustainability schemes normally consist of at least:

- Clear standard: documents that provide, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods.[91]
- Reliable audit: a systematic, documented verification process for objectively obtaining and evaluating evidence to determine whether specified environmental activities, events, conditions, management systems or information about these matters conform with audit criteria.[92]
- Reliable Chain of Custody: ensure that [audited] material is tracked through the supply chain between operations and production processes within operations.[93]
- Transparent and broadly supported governance system: to ensure effective and impartial creation and management of the sustainability scheme as a continuously improving system.

All sustainability schemes relevant for agrofuels, soy and sugarcane are currently still in relatively early phases of development. In this chapter we describe relevant schemes and indicate their development stage. The next chapters contain information on the extent to which the sustainability schemes are likely to guarantee sustainability of agrofuels from Mercosur countries.

3.2. Sustainability schemes for agro-fuels

3.2.1. Roundtable on Sustainable Biofuels

Background

In November 2006, the Ecole Polytechnique Federale de Lausanne initiated the Roundtable on Sustainable Biofuels (RSB). This multi-stakeholder initiative aims to achieve global consensus about principles and criteria of sustainable agrofuels, based on existing national and commodity-based initiatives.[94] This should result in a tool for measuring sustainability of agrofuel feedstock that can be applied according to the user's needs and ambitions.[95] So far, there seems to be no ambition to define mandatory criteria for sustainable agrofuels and to create a certification scheme.

Status

Draft principles are currently open to a second round of stakeholder comments. These should have been finished by the end of 2007. RSB has constituted four working groups: Greenhouse gas-lifecycle analysis, Environmental impacts, Social impacts and Implementation. They hope to have draft criteria and indicators ready by June 2008. The Implementation Working Group is to review the recommendations of the other working groups to ensure that any draft standards are easy to implement and accessible to small-scale and other low income farmers. It will also make recommendations with regard to the potential value of independent third party certification.[96]

3.2.2. Cramer Criteria

Background

A multi-stakeholder working group installed by the Dutch government (Cramer Committee) has developed a standard (principles, criteria and indicators) for sustainable agrofuels.[97] They are generally referred to as the Cramer Criteria. The Cramer Committee acknowledges that the criteria are not sufficient to address macro-issues and advises the Dutch government to seek cooperation with governments of production countries to solve these issues. The standard does not have a legal status yet. According to a heavily disputed legal advisory group, WTO and EU regulations do not allow the Dutch government to rule out unsustainable biomass from support measures. Consequently, the government decided to limit the implementation of the Cramer Criteria to a reporting requirement without any direct consequences in case of non-compliance.

91 Definition of ISEAL Code of Good Practice for Standard-setting (2006).
92 Definition of ISO 14001 for environmental auditing.
93 Based on definition of FSC International: http://www.fsc.org/en/getting_involved/become_certified/get_chain_of_custody
94 www.cgse.epfl.ch
95 Personal communication Charlotte Opal (RSB), April 2007
96 www.bioenergywiki.net
97 Cramer et al. (2007)

Soy bean pods.

Sustainability schemes: a trendy solution

Status
The reporting required under the Cramer criteria have recently been suspended, apparently to be replaced by whatever is agreed at the EU level.[98] Although the committee made some recommendations about the preferred Chain of Custody-certification, there is no clarity on this nor on verification requirements and the governance system. The government has commissioned a handbook for implementation of the standard, but vital questions regarding the application of the sustainability scheme remain unclear in the draft version of October 2007.[99] Pilot projects should provide the input for improving the handbook from 2008 onwards. The handbook states that compliance with Basel Criteria (except for non-GM-criterion) or membership of Better Sugarcane Initiative serves indicates an acceptable sustainability level.

3.2.3. RTFO Sustainability Standard

Background
The government of the United Kingdom will include carbon balance and environmental and social criteria in the reporting requirements for the Renewable Transport Fuel Obligations (RTFO). As a result of close coordination in an attempt to harmonize sustainability schemes, the greenhouse gas- and environmental criteria are very similar to the Cramer Criteria. No principles have been formulated with regards to macro-issues. The Basel Criteria serve as an indication of an acceptable sustainability level.

From 2008 onwards there will be mandatory reporting in the sustainability standard. Meeting the sustainability standard is however not mandatory and "Don't know' reporting' is permitted, allowing companies to simply plead ignorance and not fulfilling even these basic requirements.[100] The latter undermines the main objective of the RTFO sustainability standard, which is to provide transparency about the sustainability of the feedstock origin. Transparency is further decreased by the lack of a clear unified methodology for verification at farm level and the absence of independent third party verification of the reported information. It is furthermore up to the reporting company to organize its Chain of Custody, which is not independently verified. There is a considerable risk that the lack of transparency provides companies with the opportunity to claim that their feedstock is sustainable, while in fact it is not.

Status
Reporting will commence in April 2008. Experiences with pilot projects are currently being included in the technical guidance for reporting.[101]

3.3. Sustainability schemes for sugarcane and ethanol

3.3.1. Better Sugarcane Initiative

Background
The Better Sugarcane Initiative (BSI) is a collaboration of sugarcane retailers, investors, traders, producers and NGOs who aim to develop a set of performance-based measures and baselines, which can be used by companies and investors across the globe as sourcing and investment screens and by producers to enhance the long-term sustainability of production. The measures and baselines aim to:

- Minimise the effects of sugarcane cultivation and processing on the off-site environment.
- Maintain the value and quality of resources used for production, such as soil, health and water.
- Ensure production is profitable.
- Ensure that production takes place in a socially equitable environment.

BSI was initiated in 2005 by World Wildlife Fund (WWF) and the International Finance Corporation (IFC). Its steering committee and members are comprised of a few large sugar companies, their large clients and a few growers and millers from the USA and Europe. There are no Mercosur members and involvement of energy producers seems absent. The BSI has regional stakeholder forums that are attended by about one hundred companies and institutions; it has three technical working groups proposing draft standards for cane growing, cane processing and community involvement.

Status
No draft standards have been published yet, although BSI reassures that they are almost finished with them and will publish them soon.[102] It is unclear when the accompanying verification, chain of custody and governance frameworks will be formulated.

98 See http://gave.novem.nl/gave/index.asp?id=25&lan=en&detail=2081
99 Ecofys (2007a)
100 Ecofys (2007b)
101 Junginger et al. (2007)
102 Personal Communication David Willers, project manager BSI

3

3.4. Sustainability schemes for soy

3.4.1. Basel Criteria

Background
The Basel Criteria for Responsible Soy Production are a generic set of guidelines prepared for the Swiss retailer Coop and WWF Switzerland in 2004. The criteria were developed by drawing on existing standards such as EurepGAP, and relevant ILO conventions. The intention was to form a set of guidelines that were compatible with the requirements of other users and schemes. Basel's environmental standards include non-GMO production, protection of native forests, and good agricultural practices, such as crop rotation, soil conservation, and integrated pest management. The criteria have been designed to be applicable to soy production at all scales throughout the world. As a result, they are general in nature and need further elaboration at a local level in order to provide more specific local requirements. Two such standards, ProTerra and Grünpass, have been developed based on the Basel Criteria for Responsible Soy Production. Both standards cover the key aspects of the Basel Criteria such as legal compliance, transparency, social rights, and environmental issues. The ProTerra Standard developed by Cert ID is designed to be applicable worldwide where agricultural commodities are produced and/or processed. Application for certification is open to growers and their related organizations. The Grünpass standard, developed by Tüv Rheinland and IQS – a traceability service provider – is as such not compatible with the Basel Criteria. Only Grünpass soy that has an additional non-GM certification is compliant with the Basel criteria.

Status
ProTerra and Grünpass standards can guarantee soy production for several Brazilian regions. However, relatively small volumes of Basel soy are available in the market.

3.4.2. Round Table on Responsible Soy

Background
The goal of the Global Roundtable on Responsible Soy Association (RTRS) is to set up a multi-stakeholder and participatory process that promotes economically viable, socially equitable and environmentally sustainable production, processing and trading of soy.

In 2006, the principles of the RTRS standard for responsible soy production were elaborated. The RTRS is open to membership for stakeholders and parties willing to promote the goals of the Roundtable. The First General Assembly of RTRS was organized in May 2007 in Sao Paulo, Brazil. This first meeting of RTRS members as a formal institution had the important task of electing an Executive Board and designing the strategy for the Initiative over the next few years. Main players in the soy producing and processing industry (Abiove, Bunge, Cargill, Grupo A Maggi), as well as retailers (Ahold, COOP) and financers (IFC, Rabobank, ABN AMRO) are members, as are NGO's WWF and Solidaridad.

Status
RTRS has formulated nine principles for responsible soy. A criteria working group is to deliver global criteria and indicators by the end of 2008. A verification system is being developed in parallel. The governance structure of the RTRS has been formalised as a civil society organisation under Swiss law.

3.5. Conclusions

Sustainability schemes have quickly gained ground as a popular solution to accusations that the production of soy, sugar and agrofuels contributes to environmental and social problems in Latin America. Except for the Basel Criteria, all the schemes under consideration are still under construction. The Cramer Criteria and the RTFO are nearing implementation although according to news reports the Dutch scheme has now been suspended. The UK Government has expressed its ambition to start using the RTFO in 2008. The RSB will take quite some time before it can be implemented. Principles have been finalised and criteria are currently being worked out. Simultaneously, operational requirements of this scheme are being developed. Because of the international stakeholder process it will however require a substantial amount of time before the standard becomes operational. The RTRS for soy is in a comparable stage as the RSB, i.e. some years from implementation. BSI is even less developed: it has not yet formulated its principles and criteria for sustainable sugar, let alone started the development of the operational requirements.

Topical coverage of sustainability standards

4

4.1. Introduction

Sugarcane and soy production are booming in several Mercosur countries. This development is stimulated by the increased attention for agrofuels in home markets as well as potential export markets. Increasing sugar and soy production leads to a high pressure on natural resources, biodiversity loss and has negative socio-economic impacts (see chapter 1).

Policy makers, particularly in Europe, acknowledge that negative impacts may arise. They believe that these risks can be mitigated through the use of sustainability schemes that apply to the production of agrofuel feedstocks. In the previous chapter we have discussed the most relevant sustainability schemes. One of the main conclusions of that chapter is that all schemes are in effect voluntary. Apart from the Basel Criteria, having a very small market share, none of the schemes are in operation yet. As a result, it is impossible to determine the effectiveness of these schemes based on experience.

Therefore, the best we can do is to get a sense of the extent to which conditions are fulfilled that determine the effectiveness of the sustainability schemes. In this chapter we examine the scope of the various standards. The leading question is: does the standard adequately cover all the sustainability risks associated with the production of sugarcane or soy?

We make a distinction between micro-effects and macro-effects. Micro-effects are direct in nature and take place on farm level. Macro-effects are mostly indirect and take place off-farm. They are also referred to as displacement effects (see chapter 1).

4.2. Coverage of environmental micro-effects

- *Legal compliance*
  Most standards require legality in setting up and managing plantations for sugar, soy and agrofuels. Standards demand that producers are aware of local and national laws and comply with them. Basel and RSB demand compliance with all laws. RTFO and Cramer focus on specific laws and regulations regarding labour, environmental management, land conversion (nature conservation) and land rights. RTRS has so far not included any comments regarding legality in its principles, but this will probably be formulated on the level of criteria as it has been done by Cramer and RTFO.
- *Greenhouse gas savings*
  The standards that are explicitly related to bio-energy (RSB, Cramer, RTFO) contain principles for the reduction of greenhouse gases. The other standards do not include this issue.

  The RSB principle has a particularly broad scope, claiming "biofuels shall contribute to climate stabilisation by reducing GHG emissions as compared to fossil fuels. Emissions shall be estimated via a consistent approach to lifecycle assessment, with system boundaries from "root to tank". This shall include direct and indirect GHG emissions [and] emissions resulting from land use changes..." The principle does not define a minimum requirement regarding greenhouse gas savings and it is uncertain if high expectations regarding the indirect greenhouse gas effects can be achieved. So far, agreement about calculation methods for indirect greenhouse gas effects seems rather unlikely. It is not objectively quantifiable at reasonable costs and consensus on default values is unlikely to be reached any time soon.

  The RTFO focuses on the preservation of above- and below-ground carbon stocks of the land that the feedstock is produced on. Any such losses should have a payback time of less than ten years. Soils with high carbon storage, such as grasslands, should not be used for feedstock production. These are solid criteria, but it is unclear how 'high carbon storage' and 'payback time' are measured. This means Cerrado may still be eligible for sugarcane or soy production.

  The RTFO does not require a calculation of the carbon savings realised on a chain level. This means emissions stemming from the production, transport and processing of feedstock are not addressed. The consequent lack of transparency regarding the carbon saving by various agrofuels prohibits consumers and governments from buying or stimulating the more effective fuels. Effectively, there is no incentive within the RTFO to improve the GHG effectiveness of agrofuels.

  The Cramer Criteria include the RTFO criteria plus a criterion demanding that greenhouse gas savings due to agrofuels for transport are at least 30% of a comparable fossil fuel chain. For biomass that is applied in electricity and heat production, carbon savings should at least be 50%. In the future, the degree of government stimulation of fuels is to be coupled to the expected GHG-savings of an agrofuels in an attempt to stimulate more effective agrofuels. There is a fierce discussion on the accounting method for the exact measurement of the savings, which remains undecided. In any case the outcome seems to be that there will be default values on the level of the Biomass Technology Combination (BTC).[103] This would mean that a farmer that emits a lot of GHGs will be treated the same as a very efficient farmer, thereby taking away the incentive to improve GHG-effectiveness. This ambiguous approach to carbon effectiveness is characteristic of the nature of the debate about GHG-standards in the Netherlands.
- *Deforestation, biodiversity and habitat loss*
  Most standards have general principles regarding the preservation of biodiversity and ecosystem values. All schemes exclude High Conservation Value Areas (HCVAs) in their criteria. This standard for conservation values has been adopted from the FSC standard. It is difficult to implement, as it requires producers to perform a HCVA measurement of their land. Currently, only a fraction of the earth has been classified according to the HCVA standard.

103 Combination of feedstock and energy conversion technology.

Sugar cane.

Topical coverage of sustainability standards

table 4. Micro effects of current schemes

	Basel Criteria	RTFO	RSB	RTRS	Cramer Criteria	BSI
General – Micro						
Comliance with laws and regulation	✓	✓	✓	✓	✓	
Transparent stakeholder participation and consultation	✓	✓	✓		✓	
Complaints and grievance procedure	✓					
Continuous improvement	✓					
Environmental – Micro						
CO2 effectiveness		✓	✓		✓	
Erosion and soil	✓	✓	✓	✓	✓	
Water pollution and depletion	✓	✓	✓	✓	✓	
Air pollution	✓	✓	✓		✓	
Biodiversity loss	✓	✓	✓	✓	✓	
Use of GM crops	✓		✓			
Socio-Economic – Micro						
Land rights	✓	✓	✓	✓	✓	
Forced labor	✓	✓	✓		✓	
Child labor	✓	✓	✓		✓	
Workers health and safety	✓	✓	✓	✓	✓	
Compliance with labor laws and regulations	✓	✓	✓	✓	✓	
Human rights			✓		✓	

› Basel has a comprehensive set of criteria regarding biodiversity. It states that soy should not be grown on converted primary vegetation or certain HCVAs, nor on land that has been deforested after 1994. The latter criterion has been included to make sure that recent land conversion is not awarded. Basel furthermore requires any loss of biodiversity and natural values to be compensated on-farm or off-farm.

The RTRS principle referring to biodiversity states that "the soy value chain recognises the importance of biological diversity at all levels and should adopt management practices that conserve biological diversity and fragile ecosystems in order to minimize and avoid loss of natural habitat". According to this principle, conversion of HCVAs cannot be ruled out, but this is likely to be addressed in the criteria and indicators to a certain extent.

The RSB has defined the following principle "Biofuel production shall not directly or indirectly endanger wildlife species or areas of high conservation value."

According to the Cramer Criteria "Biomass production must not take place in recently cultivated areas that have been recognized as HCVAs by the parties involved, or in a 5 kilometre zone around these areas." In contrast with Basel it uses a reference date of 2007, based on the argument that all land that had been converted then can already be considered wasted from a conservation point of perspective. The indicator explicitly requires dialogue with local parties involved to determine where HCVAs are to be found. In case the land is not considered to be HCVA, it still has to comply with several ecosystem-related criteria. An example of this is the mandatory 10% set-aside land, mandatory reporting of ecological corridors and level of natural fragmentation and the implementation of agricultural best practices to maintain or improve biodiversity.

The RTFO Criteria resemble those of Cramer to a large extent. It is however weaker in its formulation on HCVAs, as it does not specify who is responsible for determining the conservation value of the land. The RTFO Criteria do, however, pay specific attention to the protection of rare, threatened or endangered species and requires management action if these species are found. No definition or classification of these species is included, although various classifications could be used (e.g. CITES Red List – or national lists). This lack of clarity contains the risk that this criterion will not be effectuated or interpreted to the benefit of the producer.

› *Erosion and soil degradation*
All standards have solid principles on conservation and enhancement of soil and soil quality. The soil-related Basel criteria are mostly adopted from the existing standard of IFOAM (i.e. organic agriculture). The comprehensive criteria have been defined on a practical level.

Cramer requires the use of best practice regarding soil management, thereby focusing on erosion, nutrient balance, organic matter and salination. The RTFO demands documentation of pH, soil structure and soil biodiversity on top of this.

RTFO Criteria recommend and Cramer Criteria explicitly require that the use of agricultural rest flows for energy purposes does not compromise soil quality. This is a meaningful criterion, as it rules out the risk that agricultural rest flows are used as agrofuel feedstock instead of soil enhancer. This decreases the need for chemical fertilizers.

4

- *Air pollution and intentional burning*
  The standards that are explicitly related to bio-energy (RSB, Cramer, RTFO) contain principles regarding air pollution.

  Intentional burning is not allowed as a tool for plantation management in the RTFO and Cramer Criteria. Cramer furthermore requires application of best practices to prevent and reduce air pollution.

  According to the Basel Criteria, "fire should not be used except in exceptional circumstances and then only when permitted by regulations, is clearly justified and with evidence that fire-use is carefully controlled. Fire should not be used for land clearance in areas that are contiguous with natural vegetation." Other impacts on air should be addressed in the Environmental Impact Assessment that Basel requires.

- *Water pollution and water use*
  All standards have included principles for water use and pollution. Except for the RSB, none of the standards pay explicit attention to the downstream consequences of water use, which can have a substantial social impact.

  RTRS and RSB only have broad statements saying that quantity and quality of water should be maintained.

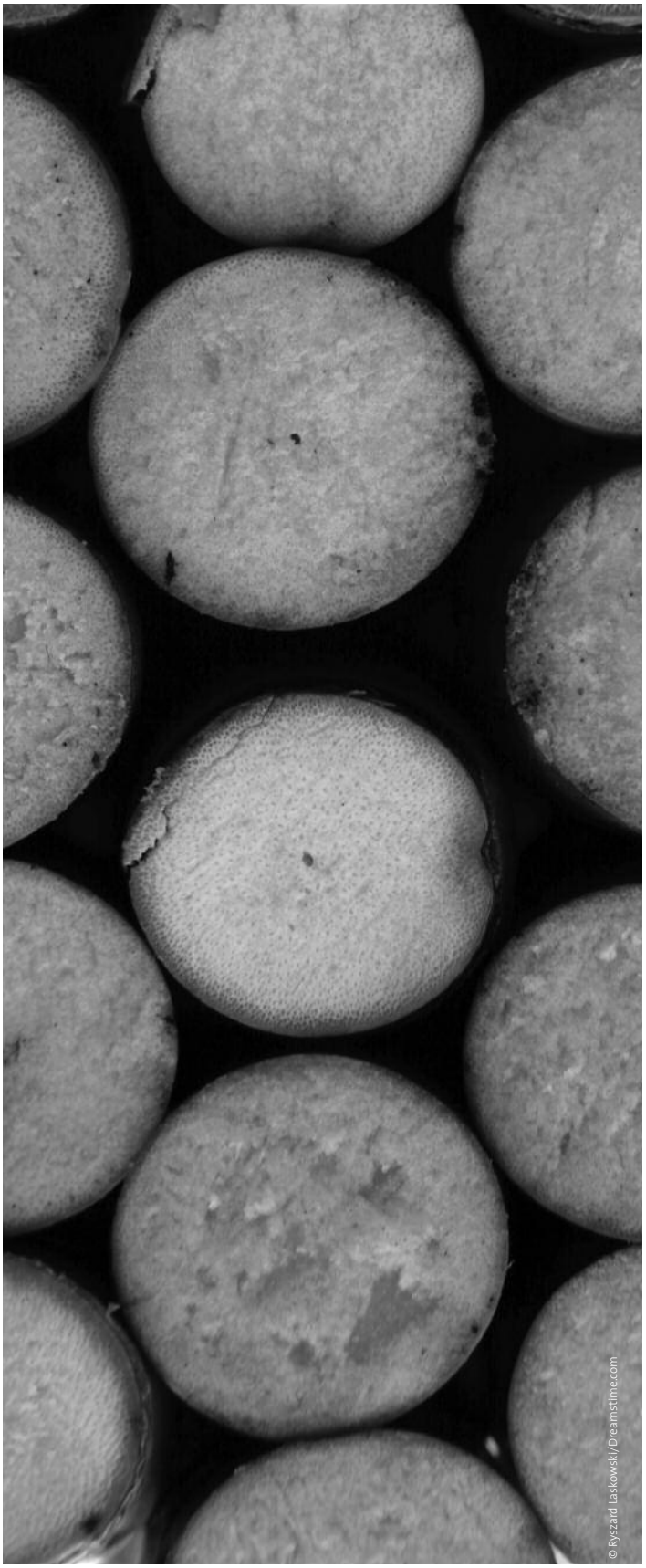
  RTFO and Cramer Criteria require the use of agricultural good practice with reference to water use. Cramer also forbids the use of non-renewable water sources, such as aquifers.

  Basel has the most comprehensive set of criteria and indicators regarding water use and quality. In contrast with the other standards, Basel pays attention to the risks involved in using or storing agro-chemicals. It also requires wastewater treatment and forbids irrigation with waste water.

- *Use of Genetically Modified Organisms*
  Only the Basel Criteria prohibit the use of genetically modified organisms. This is considered to be one of the reasons why Basel soy remains to be a niche product. Most soy from South America is genetically modified. Operating a separate chain of custody for small volumes if non-GM soy is costly and these costs are fully incurred by non-GMO users, making Basel relatively expensive.

  The RSB allows for the use of biotechnology if it "shall improve the social and/or environmental performance of biofuels, and always be consistent with national and international biosafety and transparency protocols." This principle has not been translated into measurable criteria.

  Within the RTRS, Cramer Commission and RTFO there is no principle or criterion about GMOs. The subject is highly sensitive within RTRS, as most producers in the RTRS produce GMO soy. Cramer and RTFO have no reservations regarding GMO. They both accept compliance with Basel Criteria as being a sufficient meta-standard. Neither of them, however, requires compliance with the Basel criterion on GMO.



© Ryszard Laskowski/Dreamstime.com

Sugar cane.

Topical coverage of sustainability standards

4.3. Coverage of social micro-effects

- *Land conflicts*
  All standards contain principles on land use rights. Producers should be able to demonstrate user rights, while respecting the rights of other users.

  RTRS has a principle stating that 'the soy value chain shall ensure that soy producers and other suppliers comply with all applicable national and local regulations related to land rights, including but not limited to, ensuring legal title to land, compliance with contractual obligations and respect for the formal and/or customary land rights of local communities including indigenous peoples'. This principle seems to cover various principles related to land use, and the contrasts between them are still to be clarified in criteria and indicators. The outcome of this debate cannot yet be predicted, but it is too early to say that land rights of local communities have been sufficiently covered.

  In the RSB, land rights are part of a criterion on social development, saying that "Biofuel production shall not violate land or water rights, and shall contribute to the social and economic development of local, rural and indigenous peoples and communities." This principle is even more broad than that of RTRS and it will take considerable time and effort to translate it into workable criteria and indicators.

  RTFO and Cramer criteria use far-reaching formulations regarding land use. They require free prior and informed consent of the original users and demand that the producers respect customary and indigenous land rights at all times. Producers should start a dialogue with other (potential) users of the land. However, as no procedure has been described and no documentation of outside mediators are required to prove a fair and balanced dialogue, the question remains whether these far-reaching principles will be applied in practice.

  The Basel Criteria require consultation with local communities on land use, besides proof of legal titles to the land. Where there are disputes, "additional information to provide proof of legal acquisition of title and fair compensation of previous owners and occupants may also be needed." This is a measure to prevent intermediaries who have forced original users to sell or just leave their land from selling 'legally obtained' land to large farmers.

- *Human health risks*
  Health risks are addressed in all standards, except for RSB. They are mostly related to workers' health and safety. Basel and RTRS also pay attention to health risks associated with off-farm health effects of agrochemicals.

  RTFO has the most comprehensive set of criteria and indicators regarding workers' health and safety. It requires employers to provide sufficient sanitation, drinking water and medical care. Also, it requires employees to be trained and sufficiently informed regarding health hazards related to their work.

  Cramer Criteria hardly pay any explicit attention to health and safety. It only mentions safety as part of human rights. It does require that the operations have "no negative effects on the working conditions of employees" and that the producer develops "programmes and practices to determine and manage the effects of company activities on local population".

- *Child and forced labour*
  All standards forbid the use of child and forced labour in a clear way. The RSB is the only exception to this. It has a broadly defined principle that "biofuel production shall not violate human rights or labour rights, and shall ensure decent work and the well-being of workers." It can be assumed that this implies forced and child labour will be prohibited here as well.

- *Labour conditions*
  All standards require compliance with labour laws and regulations.

  RTFO has a broad set of well-defined labour-related criteria and indicators. It pays attention to subcontracted workers, which is relevant in Latin America sugar production. It demands that the producer makes sure that subcontracted workers receive the same treatment in terms of minimum labour rights.

  Cramer has a principle on labour rights, which is translated in a criterion that will be difficult to operate without guidance. Producers should "comply with the Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy (compiled by the International Labour Organisation)". However sensible this sounds, this is a long document drafted in legal language that will be difficult to understand and operate for many producers (particularly the smaller producers).

  Basel contains a solid set of principles and criteria regarding labour rights. It is the only standard that mentions living conditions of farm employees that live on the farm. "Workers should have access to potable water and segregated sanitary and bathing facilities. If any worker or contractor is required to live on the farm, then adequate, affordable housing, medical, educational and welfare amenities must be provided".

  RTFO, Cramer Criteria and Basel Criteria explicitly demand labour rights that are not respected in some production countries, such as freedom of association and right to collective bargaining. Enforcement of this criterion would create showcases for good treatment of employees in their respective sector. On an indicator level, it is however not clear how compliance with this criterion will be measured.

104 Based on US research by University of Kentucky

RTFO and Cramer exclude verification of labour-related criteria for crop production that is characterized by low labour intensity. They both regard soy to be such a crop,[104] so labour-related criteria do not have to be checked here. While soy production is highly mechanised in parts of Argentina and Brazil, soy production can still be labour intensive in other places and exclusion from compliance with the standard therefore does not seem appropriate in the Latin American context. In addition, converting land to soy production can involve high amounts of labour under often precarious and modern slave conditions.

- *Agrochemicals*

  The RTRS standard has a principle proclaiming that the soy chain should strive for a reduction of agrochemicals "in order to minimize impacts on human health and the environment".

  Basel Criteria support the use of integrated pest management wherever possible and strives to minimise agrochemical use. It demands that "non-chemical pest treatments are preferred over chemical treatments" and that "all use of chemicals should be justified". Basel has specific indicators stemming from the criterion that "all chemical use should be properly managed and records of pesticide use maintained."

  The other standards do not have explicit principles or criteria on agrochemicals, but the issue is covered by principles on water, soil, and health.

- *Indigenous rights*

  Basel Criteria pay specific attention to the rights of indigenous people in their standard. They require a social impact assessment with specific consideration for traditional and customary rights.

  Cramer Criteria also mention indigenous rights explicitly as an indicator for compliance with its criterion on human rights. However, it is unclear how compliance will actually be measured. As producers can interpret compliance themselves, this creates the risk that indigenous rights will be violated among "verifiably sustainable producers".

  RTRS and RSB mention indigenous people in their principles regarding land use rights. RTFO is the only standard that does not mention indigenous people at all.

- *Local community involvement*

  Apart from the RTRS, all standards demand that producers consult their most important stakeholders about their activities. Basel, the RTFO and Cramer go a step further than consulting by requiring 'free, prior and informed consent by local stakeholders'. However, the standards do not adequately define 'local stakeholders' nor do they clearly describe the process requirements of consultation.

  Basel is the only standard that contains additional process-oriented principles. The first is that a producer should have an effective complaints and grievances mechanism, where stakeholders can submit claims of (perceived) misconduct by the producers, which will then be dealt with in a fair manner. The second is that the standard demands continuous improvement. This means that the producers should indicate its social and environmental objectives based on the principles and criteria and present a convincing plan to fulfil these objectives.

4.4. Coverage of macro-effects

Macro-effects are environmental and social impacts that result from agrofuel expansion, but that cannot be attributed to individual farmers. All actors in the debate recognise that certification is unable to address these impacts of agrofuel expansion.[105] The Cramer Criteria and the RTFO Criteria are clear about this limitation of certification. Nevertheless, both have included principles on macro-effects as well as RSB and RTRS. Basel Criteria is the only standard that explicitly limits itself to on-farm or near-farm effects. The fact that macro-effects are recognised by most standards is important as it demonstrates a consensus that they form the biggest challenge in agrofuel expansion. At the same time, inclusion may give the unjust impression that this means that the standards actually address the macro-impacts in practice. This is not the case so far. The Dutch and UK governments have not yet taken measures to prevent macro-effects from occurring and the other schemes have not reached this development stage yet. The Cramer Criteria and RTFO Criteria advise governments to enter into bilateral negotiations with governments of production countries to make sure that production conditions are sustainable. They admit that this does not guarantee that there will be no macro-effects as they are not restricted to borders or sectors. Even if all Latin American soy was grown sustainably and in line with land use regulations and therefore all Latin American soy oil would be used as a sustainable source of agro-diesel; the overall total demand for vegetable oils would still increase and demand might well be served by unsustainably produced palm oil from Indonesia. So we can see that the overall problem will not be adequately addressed by sustainability schemes. So far no other real solution has come up other than restraining agrofuel demand.

105 Gilbertson et al (2007)

Topical coverage of sustainability standards

4.4.1. Environmental impacts

Displacement of activities to High Conservation Value Areas
RTFO does acknowledge the risk that agricultural activities are being displaced to HCVAs. It proposes two measures to limit this risk:

1. to "require [companies] to report on the land use...for the land on which the feedstock is produced." RTFO reasons that if agricultural land use was replaced by agrofuel feedstock production, there is a high probability that this has led to conversion of HCVA elsewhere. This is true, but it only addresses the problem of direct displacement of farmers to other areas. It does not prevent the problem from taking place, as it has not been described as a criterion and cannot be enforced. Companies only have an obligation to report.
2. to stimulate production on so-called idle or marginal land. This is a popular solution amongst proponents of agrofuels who say that lands that are not used and not of ecological value should be used to produce agrofuels. Opponents say that these idle lands actually contain ecological and social activity and that the term idle land is merely a political term for justifying land conversion.[106] RTFO proposes a definition for idle land and advises the government to require reporting on it. It is unclear what the status of these reports will be, since they are not part of the current set of criteria and indicators. At this point there are no incentives to use idle lands nor are there disincentives not to.

The Cramer Criteria advise the government to monitor macro-effects. For displacement of HCVAs, this is done through collecting information regarding:

1. changing land prices
2. relocation of food production and cattle breeding
3. deforestation and loss of nature reserves in relation to the supply of food, construction material, fertilizers and medicines
4. changes in the type of vegetation and share of vegetation and crops.

The information is to be collected through mapping and satellite images. The Dutch government is to be responsible for the collection and interpretation of these data. It is not clear how the data will be analysed or how this analysis would feed into policy formulation of the bilateral negotiations with governments of production countries.

The RSB has a principle stating that "biofuel production shall not directly or indirectly endanger wildlife species or areas of high conservation value." This means that RSB acknowledges macro-effects (i.e. indirect effects) and is willing to address them within its sustainability scheme. The question remains to what extent this is technically possible.

table 5. Coverage of macro-effects

	Basel Criteria	RTFO	RSB	RTRS	Cramer Criteria	BSI
Environmental – *Macro*						
Off-site biodiversity loss			✓			
Off-site carbon emissions (not included in any scheme)						
Socio-Economic – *Macro*						
Rural unemployment	✓		✓	✓	✓	
Jeopardized food security			✓		✓	
Transport Infrastructure				✓		

The RTRS and the Basel Criteria do not address macro-effects regarding off-site damage to HCVAs. RTRS does however contain a principle saying that "the soy value chain shall ensure...that due consideration is given to enhancing benefits and mitigating the impacts of infrastructure investments on ecosystems and local communities...". This refers to construction of roads and waterways to soy producing areas. Road construction often leads to additional deforestation and land conversion, as roads make it possible to transport logs out of the area and people into the area. This can be regarded as an indirect impact and RTRS is the only scheme that acknowledges its importance, although its effectiveness depends on the criteria, indicators and compliance mechanisms.

Indirect greenhouse gas emissions
Indirect greenhouse gases (GHG) are mainly the result of off-site land conversion. Recent research suggests that land conversion for soy and sugarcane directly or indirectly inevitably leads to serious GHG emissions. According to this research, it takes about 320 years to offset emissions of converted rainforest by soy-based biodiesel and 17 years to offset emission of converted Cerrado by sugarcane-ethanol.[107] Although this is a serious macro-effect, most of the standards do not take it into account.

The RTRS and Basel Criteria do not have any GHG-related principles to start with. The Cramer Commission recognises this macro effect, but explicitly says "it is agreed" to keep it out of its GHG-balance calculations. The RTFO does not mention this effect at all. Only the RSB has formulated a principle saying that "[GHG calculations] shall also include GHG emissions resulting from land use changes as land is converted to biofuel crop production, or as other production is displaced." It is not yet clear how RSB will manage this, but attributing indirect GHG-emissions will almost certainly lead to fierce discussion within the RSB.

106 E.g. Gilbertson et al (2007)
107 Fargione et al (2008)

4.4.2. Socio-economic impacts

Rural economic development
Rural unemployment and underdevelopment as a result of large-scale rationalised agrofuel feedstock production is addressed indirectly in all standards except for the RTFO. They use quite different formulations for this.

Basel Criteria encourage producers to 'deal fairly with local businesses and make efforts to contribute to the local economy wherever possible.' Little guidance is being given on how to achieve this.

RSB says that 'biofuel production ... shall contribute to the social and economic development of local, rural and indigenous peoples and communities.' Since no criteria and indicators have been developed yet, it is unclear how this will be put in practice.

The RTRS pays particular attention to this point and has formulated two relevant principles:

- to ensure the integration and support of small scale farmers into the soy value chain
- to ensure that local communities enjoy long-term benefits as a result of the soy value chain.

The effectiveness however will depend how this is implemented in practice.

The Cramer Criteria also contain a principle that feedstock production should contribute to the well-being of the local population. The Commission acknowledges that it does not have sufficient tools to implement or enforce this principle. Whereas it has included Economic Performance Indicators EC 1, 6 & 7 of GRI (Global Reporting Initiative) for direct economic development impacts, it chose not to include EC 8 and 9 for indirect economic development impacts. Although the latter leave much space for interpretation, they would still be an improvement to the current situation.

Jeopardised food security
Jeopardised food security is included in the RSB, Cramer Criteria and RTFO Criteria in response to the worries concerning competition between food and fuels.

The RSB only states that 'biofuel production shall not impair food security', without elaborating on how this principle will be enforced through criteria and indicators.

The Cramer Criteria, which also includes competition with production of local energy, medicines and building materials, besides food, requires the Dutch Government to monitor:

- changing availability of food
- changing food prices

This information is to be collected through statistical analysis. It is not clear how the data will be analysed nor how this analysis would feed into policy formulation or the bilateral negotiations with governments of production countries.

RTFO Framework says that competition with food should be taken seriously. It advises "the UK government and RTFO Administrator...to support international research and monitoring of food security to better understand the dynamics of food insecurity and the interaction with biofuel feedstock production." It does not require the UK Government to take any further action.

RTRS and Basel Criteria have not included any criteria and indicators on competition with food, as they have been designed as sustainability schemes for food crops instead of agrofuels.

4.5. Conclusions

In this chapter we have assessed which environmental and social impacts are covered by the selected sustainability schemes. This is largely a theoretical exercise, because apart from Basel Criteria it is unclear how the criteria will be interpreted and enforced. As the Better Sugarcane Initiative has not yet released its principles, this scheme is left out of the assessment.

All schemes have a broad set of principles and criteria regarding the main impacts on farm level (micro-level). Much of these principles and criteria were derived from existing certification schemes (such as organic agriculture, FSC, SA 8000) and can be implemented fairly easily. The criteria related to environmental and labour impacts are straightforward and well-known. The criteria relating to human rights and particularly land rights are relatively new. As these criteria have not been strictly defined, land rights differ from place to place, it will be easy to comply with them, because it allows producers a large degree of interpretation in applying them. Application of the principle of free, prior and informed consent is important in these cases to assure that land rights are respected. A well-designed and documented process is required in order to get verifiable consent. This has not yet been arranged in the proposed sustainability schemes.

Good land-use planning remains necessary for controlled development of agrofuel feedstock production. This is acknowledged by the Cramer report, stating that production regions of agrofuel feedstock should be supported to improve their land-use planning.

The off-site (macro-) effects of sugar and soy production have been marginally covered and if so, mainly on a principle level. It is unclear how these principles will be put into practice and how they can become effective. In their current state, these principles reflect mere wishes and form no assurance that macro-effects will not occur. This is a serious constraint, as it is the macro-effects of agrofuel expansion that will have the most substantial and far-reaching consequences.

One outstanding issue not covered here is the question of who is going to pay for:

- auditing
- chain of custody verification, and
- governance

Operational requirements for compliance

5

5.1. Introduction

The previous chapter argued that most impacts on a micro level could be addressed by the sustainability schemes under review. This is unlikely to be the case for macro-impacts. Strict implementation of the standard would also be a necessary condition in case criteria are being used to determine and manage sustainability impacts. This requires effective audits done by qualified verification organisations (see previous section). Since agrofuels travel through a complex international value chain, there is a need for a system that guarantees the buyer of sugarcane-based ethanol or soy-based diesel that the purchased amount of 'sustainable' agrofuel has indeed been sustainably produced. This means there should be a clear method to keep track of the product throughout its Chain of Custody (see previous section). In order to be credible and adjust to the changing market reality, the sustainability scheme should be well-governed (section 4.4).

In this chapter we describe the operational structures and mechanisms that accompany the standards under consideration. Where possible, we make a tentative assessment of their effectiveness based on existing standards for auditing, certification bodies, chain of custody and governance.

5.2. Voluntary versus mandatory sustainability schemes

All sustainability schemes under consideration are voluntary schemes. This means that adoption of the standard is not enforced through sanctions by the government, as would be the case with mandatory standards. Since governments stimulate the use of agrofuels, it would be legitimate if they would enforce the standard. After all, governments claim to pursue sustainable development and their agrofuel policy should not be in conflict with this objective. However, even the more progressive UK and Dutch governments, responsible for the RTFO and Cramer Criteria, refrain from applying a mandatory standard. Their main argument is that this would impose upon WTO rules. They claim that it is against those rules to give preferential treatment to sustainably produced agrofuels. However, the WTO history has examples whereby its Appellation Body has ruled that: "under WTO rules, countries have the right to take trade action to protect the environment (in particular, human, animal or plant life and health) and endangered species and exhaustible resources. The WTO does not have to "allow" them this right."[108]

The ambition level of the UK and Dutch governments is to require mandatory monthly batch reporting to the government. For each batch of feedstock, producers should report on:

- Administrative batch number
- Volume of fuel or biomass
- Energy type: biodiesel, bioethanol, biomethane, bio-ETBE or electricity
- Feedstock: the feedstock type from which the fuel is made.
- Feedstock origin: the country of origin of the feedstock.
- Environmental standard
- Social standard.

These monthly reports will however not be made public. The government will annually publish a report containing aggregated data for each producer in order not to give competitors insight into specific business information. The idea is to rank the producers according to their level of compliance to the RTFO or Cramer Standard. They hope that naming and shaming by NGOs will stimulate the laggards in reporting to increase their effort.

5.3. Auditing and third-party verification

Verification of a process is a means of providing assurance that it complies with specified standards and other normative documents. The process should be verified by a third party In order to be credible. This party, called the Verification body, performs an external audit to measure compliance with the standard. To guarantee that this is done in a consistent and reliable manner:

- Audits should be performed in a clear and standardised fashion.
- Verification bodies should be qualified to judge the audit information in a standardised fashion.

In order to facilitate these steps, the International Standards Organization has formulated a broadly accepted standard with which audits should comply (ISO 19011) and a guide containing general requirements for certification bodies (ISO 65).

Due to their early development stage, the RSB and RTRS schemes have not yet defined their auditing and verification body standards.

The Basel Criteria require that verification of compliance with the criteria should be carried out by a third-party that is agreed upon by producer and purchaser and independent of the producer. This creates the risk of purchaser and producer deciding on an unqualified or inappropriate auditor in order to get the soy certified. This is a real risk, as the Basel Criteria do not require certification bodies to comply with a quality standard, such as ISO 65. The Basel Criteria have their own guidelines for auditing, outlining how the audit team should be composed and perform the audit. The guidelines are not formally related to any standard, such as ISO 19011.

108 WTO Website: http://www.wto.org/english/theWTO_e/whatis_e/tif_e/bey2_e.htm#turtle

Soy field in the agricultural area of Londrina, in the state of Parana, Brazil.

Operational requirements for compliance

Both RTFO and Cramer Criteria auditing and verification body guidelines are not yet finalised and are therefore provisional. They are currently subject to a process of stakeholder consultation.

RTFO is built on the use of meta-standards, as "it would be impossible to develop a completely new standard within the short time frame available, which would still be credible."[109] For soy, the Basel Criteria count as an appropriate standard. For sugar, there is no standard available but producers are required to be a member of BSI. Additional audits for RTFO compliance are required if the meta-standard falls short of the RTFO standard.[110] It is unclear how these audits should be performed and which verification bodies would be authorised to do so. Audit should provide 'limited assurance'[111] meaning that the verification body only reviews the information provided by the producer. The verifier will not perform audits in the field, but verification will be a desk exercise. This makes the sustainability scheme highly sensitive to manipulation. There is no method to approve verification bodies (such as ISO 65), although Ecofys advises the Administrator[112] to design one.

The requirements for auditing and verification bodies regarding the Cramer Criteria are highly similar to those of the RTFO. The verification body should however be accredited to ISO 65 and the audits should be performed in line with ISO 19011. According to the Technical Guidance "parties will be able to report "unknown" for individual items within the Carbon and Sustainability reports." This creates the risk that parties can refrain from reporting negative information and still fulfil their reporting obligation. With limited assurance required, the verification body has no means to check if the indicator is really unknown or if it is not reported as it is inconvenient.

5.4. Chain of Custody verification

The Chain of Custody is a system that is used to prove that a purchased batch of feedstock has actually met the required standards. There are basically three types of Chains of Certification:

1. Physical segregation – Provides full traceability of the physical product from producer to end user. The purchased batch has been fully produced in accordance with the standard. This is often called "track and trace".
2. Mass-balance – Sustainably produced products are mixed with regular products in the chain; the proportion is somehow accounted for. The purchased batch has at least been partly produced in accordance with the standard.
3. Book-and-claim – There is no physical link between the sustainably produced feedstock and the purchased feedstock. The producer of sustainable feedstock receives a sustainability certificate and sells this to an end user. The purchased batch is not necessarily produced in accordance with the standard, but somewhere in the market a particular batch is.

A credible system of traceability is needed to claim that feedstock has reached the required criteria. All three of the above systems have been suggested as a means to verify this claim and rule out the possibility that the claim of 'sustainable production' is not produced more than once. As in the previous section, verification should take place according to standardised procedures and by accredited verification bodies.

Due to their early development stage, the RSB and RTRS schemes have not yet defined auditing and verification body standards for their Chain of Custody.

The Basel Criteria require Physical Segregation for traceability, i.e. segregation, identification and documentation of the sustainably produced batch of soy for each step in the value chain. It has a general guideline on how to guarantee traceability. It is not related to any standard for Chain of Custody audits, such as ISO17011. Neither does the Basel Criteria require the verification body to be accredited to a standard (such as ISO 65).

The RTFO allows the use of all three Chain of Custody mechanisms. As "most of the meta-standards as well as the RTFO itself currently do not have a suitable chain of custody, companies will need to set up their own chain of custody." It is unclear how it should be developed, but in most cases this will require a substantial amount of time and effort. The chain is subject to third party verification as part of the auditing procedures described in section 4.3. These seem to be insufficient because only limited insurance is needed. Verifiers will have to judge the validity of the chain of custody from desk study. RTFO has not defined conditions to verify if the chain of custody works (e.g. ISO 17011).

Again, the story for Cramer Criteria is similar to that of RTFO. In addition, the Cramer Criteria give a set of guidelines for the creation of a mass-balance Chain of Custody. These guidelines are however not mandatory. The European Commission also proposes a mass-balanced system in its draft directive on Renewable Energy.

In all these schemes there is wide potential for fraud, especially if a company knows it could sell its products at a higher price if certified.

5.5. Governance

A sustainability scheme needs to be governed in an effective and impartial manner, both during the development and implementation phase. There are several closely related standards for standard development: ISEAL, ISO 59 and TBT Annex 3. OPM and CIPFA have developed a *Good Governance Standard for Public Services*[113], which also has a high relevance to the governance of an established sustainability scheme. The standard has principles as defined in Box 1.

109 Ecofys (2007) Sustainability reporting within the RTFO: framework report
110 In case of sugarcane, this can mean the whole RTFO Standard
111 As defined by International Standard on Assurance Engagements 3000 (ISAE3000)
112 See section 4.5
113 OPM and CIPFA, 2004

Box 1: Principles and criteria of the Good Governance Standard (2004).

1. Good governance means focusing on the organisation's purpose and on outcomes for [...] service users
2. Good governance means performing effectively in clearly defined functions and roles
3. Good governance means promoting values for the whole organisation and demonstrating the values of good governance through behaviour
4. Good governance means taking informed, transparent decisions and managing risk
5. Good governance means developing the capacity and capability of the governing body to be effective
6. Good governance means engaging stakeholders and making accountability real

The Basel Criteria currently do not have a governing body at all. WWF has taken on the role of doing a benchmark study if the two related standards (ProTerra and Grunpass) comply with the Basel Criteria.[114] WWF has however no authority to demand the necessary improvements of the certifying bodies (CertID and TUV Rheinland respectively). The Basel Criteria include process-oriented criteria that are critical to a sustainability scheme and should be governed with care:

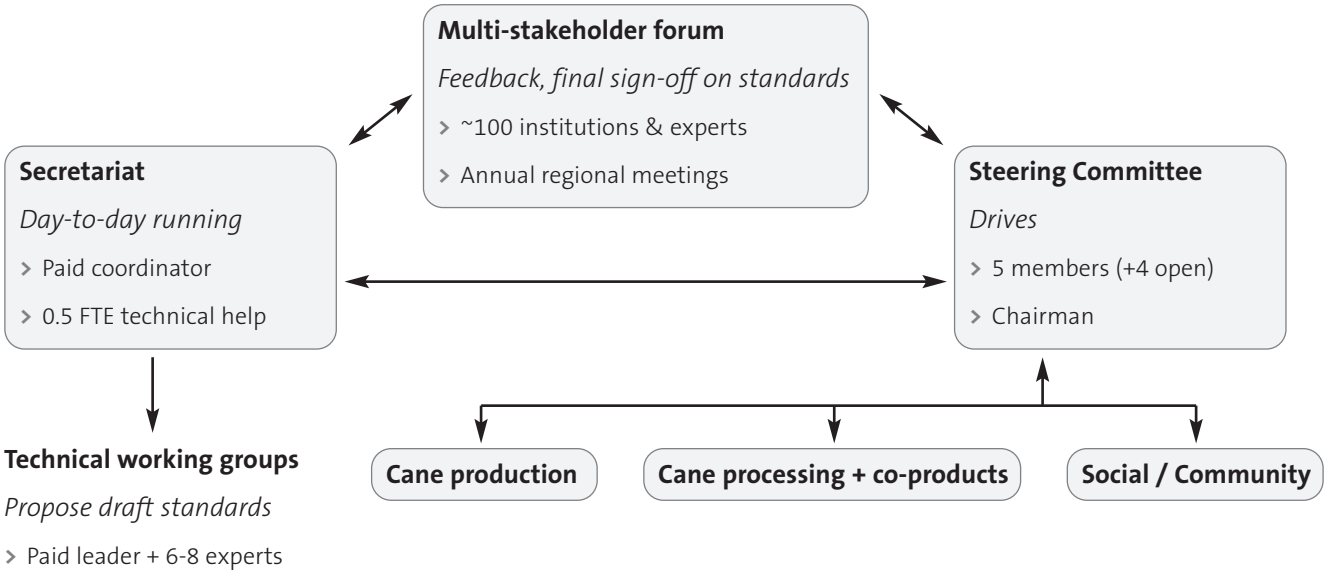
- continuous improvement: producers should provide evidence of continuous improvement in their compliance with the standard
- complaints and grievance procedure: producers should have procedures if a stakeholder wants to complain about non-compliance and grievance procedures for settling the complaint. In an ideal case, the governing body should take a mediation role in any such conflict.

The RSB is governed by a multi-stakeholder steering panel that is hosted and facilitated by the Ecole Polytechnique Federale de Lausanne. The RSB has drafted the principles using a worldwide wiki website. Several multi-stakeholder working groups are busy designing the criteria. RSB claims to develop the standard in accordance with the ISEAL code of good practice for setting social and environmental standards.

The RTRS has an elaborate multi-stakeholder executive board supported by a secretariat and a technical committee that support the design process of principles and criteria. It has defined the roles and responsibilities of various stakeholders and procedures in an elaborate set of bylaws. It does not adhere to any standard for standard setting, such as ISEAL.

The BSI is made up of a secretariat, a steering committee, members and supporters. All types of stakeholders are involved although none from the Mercosur region – the biggest sugarcane region in the world. The structure of BSI is displayed in Figure 14. BSI claims to use ISEAL for guidance in the process of designing the standard.

figure 14. **BSI structure**[115]



114 WWFInternational: http://www.panda.org/about_wwf/what_we_do/forests/publications/position_papers/index.cfm?uNewsID=75800
115 www.bettersugarcane.org

Operational requirements for compliance

In the RTFO and Cramer Criteria sustainability schemes the so-called Administrator performs the governing functions. Neither the standard nor the technical guidelines give a clear description of the Administrator: its role, organisational requirements, mandate, stakeholder involvement, etc. It is also worrying about the lack of transparency in such schemes and it is questionable whether the public will have access to all the information that the Administrator has. Some of its functions are however mentioned in the technical guidelines. They are far-reaching and may have a serious impact on the effectiveness of the standard. To give a few examples, the Administrator:

- Collects and aggregates batch reports and reports to government and public about compliance – No guidelines are available for collecting, aggregating and reporting on these data
- Performs gap analysis between meta standards and RTFO/Cramer standard and decides about allowing it as an appropriate standard – Procedures and responsibilities on how to do this are unclear
- Will develop minimal auditing quality requirements – It is unclear how this fits into the Cramer requirement that ISO 19011 should be used as a guideline for this
- Defines which feedstocks are considered to be by-products and thus to be excluded from their reporting obligation – Technical guidelines provide procedures for this, but leave the Administrator a high degree of freedom in decision making
- Monitors direct and indirect land use change – It is unclear how the Administrator will do so.

All schemes require stakeholder engagement to some extent. Some even demand free, prior and informed consent (RTFO, Basel Criteria and Cramer Criteria). However, the procedures and requirements for stakeholder engagement on farm level have not been properly defined. This means producers can claim to have involved all their stakeholders beforehand and consequently comply with the standard. In case of arising problems or conflicts after verification, stakeholders, whether consulted or not, have no impartial mediator to address this. Apart from the Basel Criteria, none of the schemes under consideration have complaints and grievance procedures.

5.6. Conclusions

Although most of the current debate focuses on what criteria are included in the certification schemes, equal importance should be given to questioning whether the schemes can be implemented in full and enforced. All schemes so far fall well short of the mark and at this stage, the general conclusion is that none of the schemes under consideration have operational standards that can guarantee compliance with their respective standards.

For a start all schemes are voluntary so there is an absence of sanctions should a company fail to meet the standards.

Audit procedures and requirements to verification bodies are undefined (BSI, RTRS, RSB), unclear (RTFO, Basel) or only have to guarantee limited assurance (Cramer). The Basel criteria, the only scheme currently operational, requires verification by a third party agreed between the purchaser and producer. This provides no guarantee to the quality of the verification and guidelines are not formally related to any internationally recognised standard. The RTFO and Cramer Criteria rely heavily on the meta-standards approach and membership of schemes that are nowhere near operational (e.g. the BSI) are accepted. Another major weakness of these schemes is that verification is dependent on information provided by the producer, no audits in the field are required. Furthermore, "Don't know" reporting is permitted, meaning that companies can plead ignorance and thereby avoid meeting the requirements necessary.

Chain of Custody requirements are undefined (BSI, RTRS, RSB) or do not have to adhere to a standard (Basel, RTFO, Cramer). This is a major failing of most schemes. For example, although the Basel Criteria demands physical separation for traceability, this is not related to any internationally recognised standard. There is wide potential in all these schemes for fraud and a considerable risk that such standards are open to abuse.

Effective and impartial governance structures are missing (e.g. Basel) or undeveloped in all the schemes. The RTFO and Cramer Criteria rely on an Administrator with a worryingly lack of transparency. In addition, apart from the Basel Criteria, none of the schemes under consideration have complaints and grievance procedures.

Deforestation due to the cultivation of soy in Brazil, near the Xingu park.

The Mercosur context

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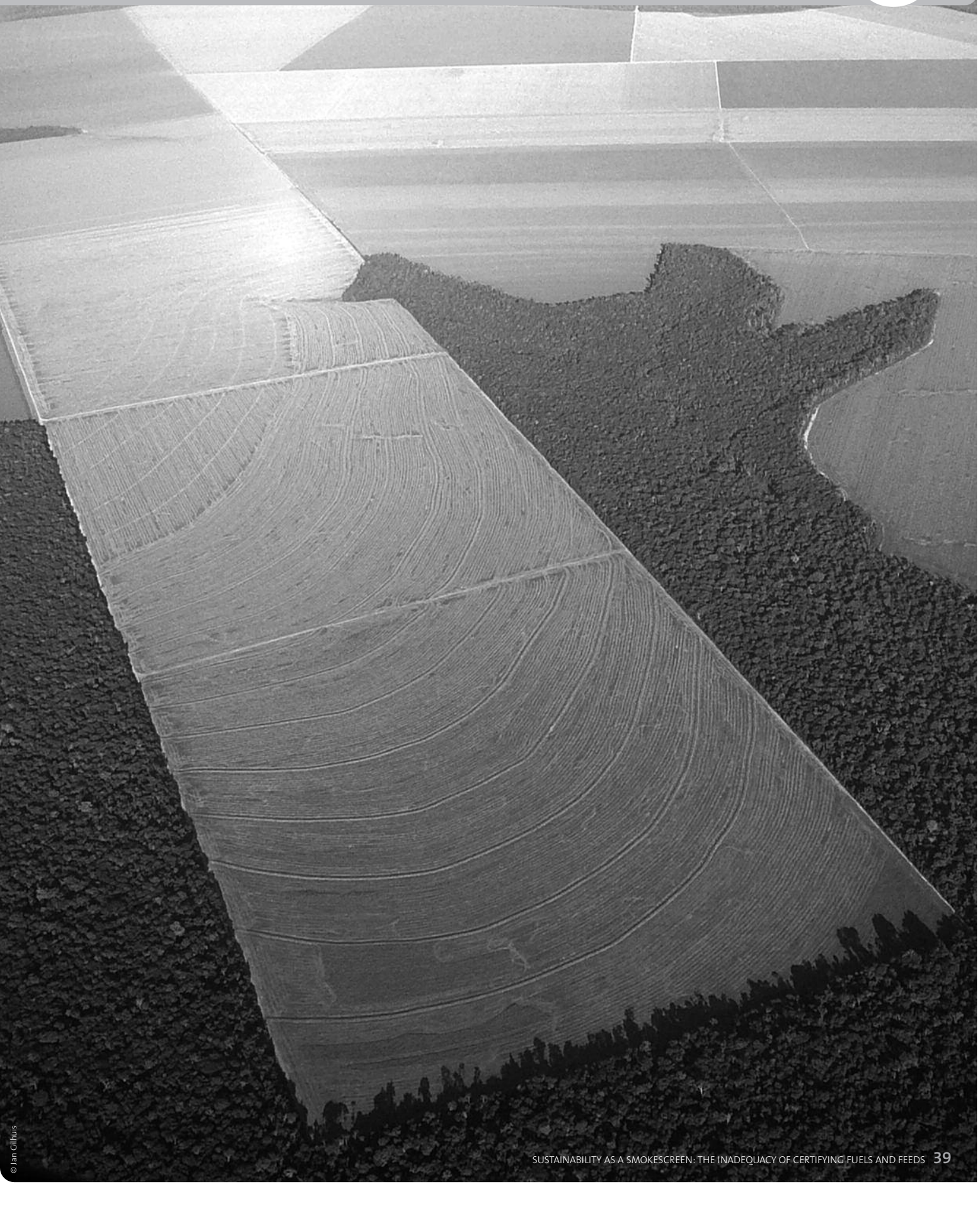

The Mercosur context

6.1. Civil society acceptance

The schemes proposed for sugarcane and soy are all northern-based initiatives that have been largely opposed by civil society in Mercosur countries. Many Latin-American civil society organisations (CSOs) do not trust the intentions behind the schemes and have in most cases refrained from participating in any stakeholder dialogues.[116] For example, groups of Latin American CSOs have strongly opposed the RTRS.[117] In addition, schemes such as the RTFO or Cramer Criteria have not seriously attempted to engage with potentially affected communities or peoples in producer countries in drawing up their standards. This has increased suspicions that certification schemes are aimed at continuing the existing trends of rapid expansion, environmental degradation and social conflict.

Most non-Government certification schemes are also dominated by large corporations involved in the commodity trade, e.g. the BSI is made up of companies such as Coca-Cola, Tate & Lyle and Cargill and includes no one representing sugarcane growers or workers from Mercosur countries, the world's biggest sugarcane growing region.

For the RTRS, 80% of its industry members are from the EU. The list includes companies such as Cargill and Bunge, the very companies often accused of being behind the environmental and social problems associated with the soy trade in Latin America.

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table 6. Industry, Finance and Trade Members of the RTRS, March 2008

Swedish Dairy Association	EU
Danisco	EU
Biofuels Corporation Trading LTD	EU
Marks & Spencer	EU
BioPetrol Trading Zug AG	EU
Archer Daniels Midland Company (ADM)	US
Somerfield Stores Ltd	EU
Campina	EU
Shell International	EU
BP International	EU
Sementes Selecta	BR
Carrefour Brasil	EU/BR
Greenergy International	EU
ED&F Man France	EU
Lantmännen	EU
COOP	EU
CARGILL Inc	US
CEFETRA	EU
IMCOPA	BR
GLENCORE GRAIN B.V.	EU
FEDIOL	EU
FEFAC	EU
ABIOVE	BR
RABOBANK Brasil	EU/BR
AHOLD	EU
FRIESLAND FOODS	EU
CEHAVE	EU
VION N.V.	EU
IFC	World Bank
UNILEVER	EU
ABN AMRO	EU
NESTE OIL	EU
BUNGE	US
NUTRECO	EU
MVO	EU
NEVEDI	EU

116 Gilbertson (2007)
117 http://www.aseed.net/index.php?option=com_content&task=view&id=285&Itemid=107

6

6.2. Applicability in the Mercosur

As outlined earlier, the environmental and social problems associated with sugarcane and soy cultivation in the Mercosur are widespread and serious. Although the certification schemes discussed above are largely well-meaning, it is highly questionable if any of them can be applied in the practical reality of Mercosur countries for a number of reasons (in addition to the lack of support from civil society organisations):

- It is unclear if the required information is available and free of bias: quality management systems are not always adequate to provide timely and precise information. Several cases in Colombia, Uruguay, Peru and Brazil[118] show that even a well-developed certification system like FSC is subject to fraud or misinterpretation by certifying bodies.
- Strong focus on legal compliance and land use planning may be deceptive: in many Mercosur countries laws and regulations as well as qualitative land use planning are not sufficiently in place, contradict each other or not sufficiently enforced. This has been acknowledged by various standards (Cramer, RTFO), but nevertheless they strongly lean on these criteria.

6.3. Conclusion

Certification schemes face an enormous, if not impossible, challenge in the Mercosur region. Not withstanding the lack of adequate land use planning, law enforcement and appropriate unbiased information, the expansion of crops to satisfy Northern markets is likely to create more social tensions and environmental damage.

Certification schemes are currently aimed at crops grown for export and do not address the problems of growing crops for the domestic market. This is a particular problem for Brazilian sugarcane. Virtually all sugarcane expansions, and their associated environmental and social problems, are associated with meeting the demand of the Brazilian ethanol market. Although this is likely to change with recent export deals with countries such as the United States and Sweden, the majority of the plantations will continue to service the Brazilian market. Introducing sustainability schemes for the export market therefore may lead to the wrong impression that problems have been solved and adds weight to the arguments that certification is a green smokescreen for expanding production.

Aerial view of sugar cane fields.

118 www.fsc-watch.org

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Soy field.

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