

Preface

The International Institute for Environment and Development (IIED), ProForest and Rabobank International were commissioned by the International Finance Corporation (IFC)'s Corporate Citizenship Facility and WWF-US to research the environmental and social issues associated with the production of a wide range of agribusiness commodities. The project aimed to understand how useful the development and application of 'Better Management Practices' (BMPs) would be for these commodities. Specifically, the project has sought to provide guidance on:

- the commodities future initiatives should focus on;
- the potential partners for these initiatives; and
- the key opportunities and constraints associated with each commodity.

The first phase consisted of a scoping review, which involved the collection of basic data and industry intelligence on each of ten commodities (cocoa, coffee, cotton, oil palm, salmon, shrimp, soy, sugar, tea and timber pulp). At the end of the first phase, IFC and WWF-US selected four commodities (cotton, palm oil, soy and sugar) for further investigation, on account of the perceived magnitude of sustainability impacts, financial sector traction, and the potential added value of an IFC/WWF initiative for each commodity.

This report is the product of the second phase of the project and is intended as a basis for discussion regarding future work on BMPs and agribusiness commodities. For each of the four selected commodities, it sets out background information on the sector; key environmental and social impacts; prospects for tackling these impacts through the adoption of BMPs; and preconditions, risks and strategic choices in relation to developing a BMP approach. The four commodity-specific chapters are preceded by a summary of common themes and potential approaches that emerge.

The research focused particularly on production issues (rather than processing, trading or retail). Processing issues were addressed where they are integrated with primary production (e.g. carried out at the same location as production). However, where non-production issues have significant implications in terms of the potential for BMPs, the research also highlights these.

This report was written by IIED and ProForest in co-operation with Rabobank. Readers should note that the report is intended as a rapid, 'first-pass' assessment of these commodities, and, given the evolving nature of commodity production and trade, elements of the report may be inaccurate or out of date. Furthermore, it should be emphasized that Rabobank provided input for this publication and was not involved in the final editing or writing of the report. As such the report does not necessarily represent the views of Rabobank in all areas.

5 Sugar

5.1 The sugar sector

5.1.1 Production volumes and regions

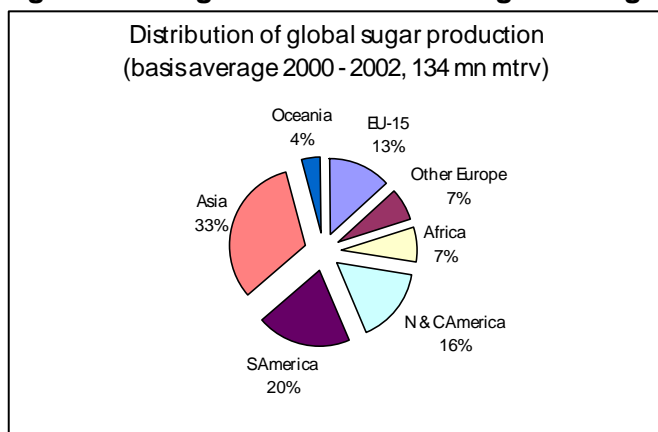
Around 130 countries in the world produce sugar. However, global trade accounts for 30% of world production; most sugar is consumed and/or processed into semi-finished or finished products in the country where it is produced (see figure 5.1). India and the USA are the first and fourth most significant producing countries. However, the most significant exporters are Brazil, the EU, Thailand, Australia and Cuba, with India ranked only eighth and the USA remaining outside the top ten.

Figure 5.1: Top 10 sugar producers, consumers, exporters & importers (ave. 99/00 – 01/02)⁶²

Rank	Production		Consumption		Exports		Imports	
	Country	('000 mt rv)	Country	('000 mt rv)	Country	('000 mt rv)	Country	('000 mt rv)
1	India	19,985	India	17,336	Brazil	10,153	Russia	5,148
2	Brazil	19,498	EU	14,315	EU	6,100	EU	1,800
3	EU	17,795	Brazil	9,378	Thailand	4,021	Indonesia	1,730
4	US	7,830	US	9,124	Australia	3,624	Japan	1,525
5	China	7,800	China	8,758	Cuba	3,049	Rep. Korea	1,512
6	Thailand	5,926	Russia	6,667	Guatemala	1,304	US	1,394
7	Mexico	5,120	Mexico	4,551	South Africa	1,234	Malaysia	1,247
8	Australia	4,883	Indonesia	3,624	India	1,063	Canada	1,181
9	Cuba	3,829	Pakistan	3,379	Colombia	985	Nigeria	981
10	Pakistan	2,963	Japan	2,336	Turkey	599	China	941

On a regional basis (see figure 5.2), Asia is the world's leading producer. Production in industrialised countries (mainly represented by Europe, the US, Japan and Australia) accounts for around 28% of global production. Asia is also the world's leading consumer and importer of sugar. South America is the world's leading region in terms of exports (owing to Brazil's pre-eminent position as an exporter), while Russia's position as the world's leading importer means that Europe (non-EU) is the second most important importing region after Asia. The leading suppliers to Russia are Brazil, Cuba and Thailand. Currently, EU imports are almost exclusively provided by members of the ACP (African, Caribbean & Pacific) group of countries. Major suppliers within this group are Mauritius, Guyana, Fiji and Swaziland. These imports are granted preferential access and high prices. Major suppliers to Japan are Australia, Thailand and South Africa. Major suppliers to Indonesia are Thailand, Brazil and (less regularly) India. The US also operates a system of preferential access to its sugar market, favouring a selection of specified producers (including Dominican Republic, the Philippines, Northeast Brazil, Guatemala and Australia). Mexico also enjoys preferential access under the NAFTA agreement.

Figure 5.2: Regional distribution of global sugar production



⁶² Source: Rabobank International.

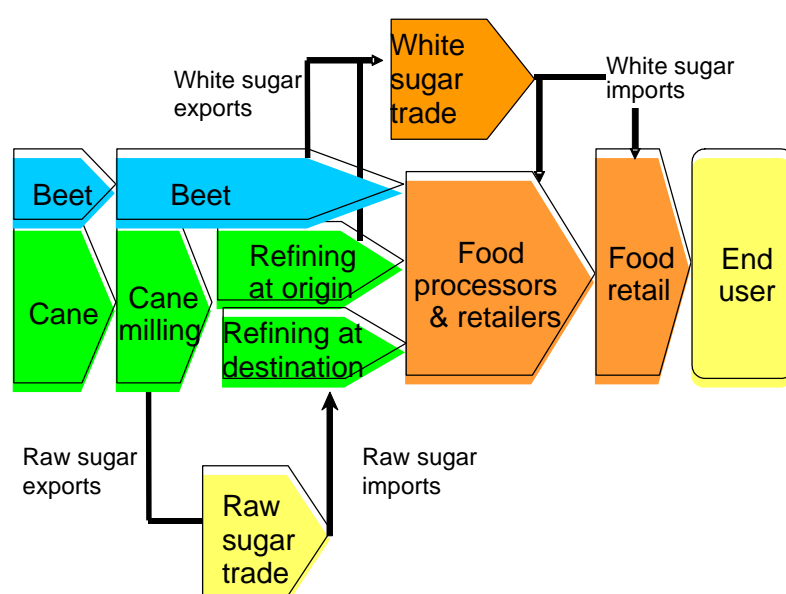
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Future trends in the regional share of production will depend in part on developments in sugar policy around the world. Bearing this in mind, it is likely that Brazil will maintain and quite possibly further boost its dominance on the world market, owing to its distinct competitive advantages. Significant reform of EU sugar policy is a real possibility; if this takes place, it will do so slowly, but the effect will be to boost EU imports and diminish EU exports. The beneficiaries of increased imports are likely to be the countries involved in the “Everything but Arms” agreement, which are due to enjoy duty-free access to the EU sugar market by 2009. Beneficiaries of reduced EU world market exports are likely to be the world’s other major exporters, among them Brazil & Thailand.

5.1.2 The value chain

Owing to the great diversity of sugar industry structure and practices around the world, there is no “typical” stereotype to which most industries conform. A simplified value chain diagram is presented in Figure 5.2; the following notes highlight key processes and the diversity within them.

Figure 5.2: Sugar Value Chain



Sugar is an unusual commodity in that it is **produced** from two significantly different crops – sugarcane in the tropics and sub-tropics, and sugar beet in temperate zones. Cane accounts for about 70% of global production. Sugar cane is a “semi-perennial” crop; once planted, it is harvested for several years in succession before being dug up and new material planted. Sugar beet, by contrast, is an annual crop that requires crop rotation in order for plant diseases to be kept at bay. Sugar cane is therefore suitable for plantation culture. Sugar beet has to be part of a (typically) 3 to 5 year crop rotation plan.

Processing of cane and beet is a capital-intensive business. Factories generally operate for part of the year, as beet and cane are both perishable following harvest. If beet or cane is supplied by private farmers, growers are generally paid on the basis of (i) the price of sugar and (ii) the quality of raw material they deliver. Most industries have detailed guidelines governing the grower-processor relationship. Sugar is produced in a variety of forms. Beet processing results in the direct production of refined white sugar. However, a range of sugar qualities can be produced from cane. Raw sugar is effectively a semi-processed product; it has to be refined before being fit for human consumption. Around 55% of global sugar trade is accounted for by raw sugar, which is refined on arrival at destination. However, cane mills can also be equipped to produce low quality white sugars (so-called “plantation whites”) and refined sugar. While there are key players at country and possibly regional levels, there are no true global players; the industry is (at the global scale) fragmented. The buying of

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raw sugar and installation of refinery capacity in third countries is becoming more common, e.g. in Saudi Arabia. It is reported that there is a growing market in sugar derivatives to create biochemical compounds such as nematicides.

As stated previously, two-thirds of sugar is consumed and/or processed into products in the country where it is produced, and **international trade** accounts for only around 30% of global production. Both raw sugar and white sugar are traded internationally. Raw sugar is handled and transported in bulk, while white sugar is handled and transported in 50 kg bags. The price at which sugar trades on the world market is indicated by the New York No 11 futures contract (raw sugar) and the LIFFE No. 5 contract (refined sugar). Both are highly volatile, and bear little relation to production practices, as many transactions are speculative rather than linked to actual commodity trade. The two are ultimately linked because several major exporters can choose whether to export in raw or white form, but in the short term the difference between the two (the so-called “white premium”) is also volatile.

In industrialised countries, processed food products and drinks account for 70-80% of sugar **consumption**. Thus the major buyers of sugar from processors are food processing companies such as confectioners, bakers and beverage manufacturers. In developing countries this is not the case, and direct (table-top) consumption accounts for the bulk of consumption. The bulk of consumption growth is in the developing world and is driven mainly by population growth.

5.1.3 The different types of producers

As a “semi-perennial” crop, sugarcane is suitable for plantation culture. Farm size and ownership vary enormously from country to country. In India, Thailand and Mexico, cane is produced by smallholder farmers, each cultivating as little as a hectare or two. In Brazil, cane is usually produced on large estates operated by the mills themselves. Contract farming schemes involving large numbers of small farmers have been successful complements to estate production in Kenya and Swaziland. In South Africa there is a large dichotomy in the competitiveness of land-rich commercialised agricultural systems versus smallholders. In Queensland, where over 95% of Australia’s sugar is produced, most of the 6500 farms are owned and operated by family partnerships. Beet farming is usually carried out on private family farms, with farmer co-operatives significant in the USA and EU.

5.1.4 Financing requirements within the sector

Finance is extremely important in the sugar business, for production, processing and trading. The production of sugar is costly and seasonal, creating the need for crop financing and working capital finance. Financing requirements for sugar crop **production** can be broadly divided into two categories: short term crop financing (working capital), and long term agricultural development financing (e.g. infrastructure projects, irrigation).

Short term crop financing is required for farmers to purchase the inputs (e.g., fertiliser, agrochemicals) required to produce their crop. Such finance is primarily or wholly provided by domestic banks. In the case of large farms or estates, this is straightforward. However, in industries where cane is supplied by a large number of small growers, this can be more problematic, both from an administrative angle (one mill may have thousands of growers each cultivating only a hectare or two) and from a credit perspective (such growers often have little collateral to offer banks against any loan).

In practice, the administrative problem is often addressed by channelling finance to farmers via the processor. For banks, this means dealing with one client rather than (in the most extreme cases) thousands. The relationship between processor and grower is close, and growers usually have a contract with the processor to supply beet or cane. Moreover, in developing economies, it is often the case that the processor provides certain social benefits (e.g., schools, medical/first aid facilities) that can be accessed by growers and the processor’s staff.

From the credit perspective, farmers may be able to provide some security to banks via a mortgage over land or equipment. However, as stated above, farmers will generally produce cane on contract to a

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mill, and often this contract is an adequate security for a bank. Nevertheless, there are many industries where the vast number of growers and the lack of development in the private banking sector mean that the government or the industry has to become more actively involved in the delivery of crop finance to growers. For example, the South African Sugar Association has a model scheme for the financing of small growers who lack the resources to obtain conventional bank finance.

Longer term financing of projects designed to have a lasting impact on the size or efficiency of agricultural operations (e.g. development of new crop land, establishment of new irrigation schemes) in developing and emerging markets often tends to be driven by international, regional or national development banks rather than the private sector, given the risk/reward profile of such projects and their time frame.

As with growers, sugar **processors** are a diverse group, with a minority growing their own cane. Some are highly exposed to world market prices (thus revenues are very volatile), while others operate in markets that are well protected from the world market. Processors also have both short- and long-term financial requirements. Working capital is required in order to purchase cane or beet from growers over the processing campaign and to finance the cost of inputs required to turn this raw material into sugar. Longer-term finance is required for capacity expansion, updating of factory technology, acquisitions, etc.

Large-scale and profitable processors may well be able to raise funds for working capital from local or international commercial banks on the basis of their own creditworthiness, by issuing a corporate guarantee to a bank (usually the loan agreement will contain certain covenants or conditions). Another alternative for powerful players is to issue short-term debt via commercial paper in order to raise funds for working capital.

In developing and emerging markets, companies may not be financially robust enough for commercial banks, whether local or international, to accept such corporate guarantees. However, in such cases there are generally alternative means of providing working capital via pledging assets to the bank. These assets may be sugar stocks, or receivables from creditworthy clients of the processor.

The need to manage risks (interest rate, currency, sugar prices) also provides banks with opportunities to provide services to sugar processors, who may well have to sell part of their output outside their own market, thus creating exposure to exchange rate risk and (possibly) world market price risk. Banks can address the potential threat to revenues posed by these risks via the provision of risk management instruments such as futures, options and swaps.

Longer-term financing presents more problems for processors. Local banks may not have the capacity to provide such finance, while international banks may not be keen to finance over long tenors for commodity businesses, which are traditionally viewed as volatile/cyclical. As a result, in the case of developing and emerging markets especially, there is again a role for international, regional and local development banks/institutions to play in project finance. Such loans usually require the support of the host country government, and may well entail a substantial equity injection from the beneficiary.

International **traders** require financing in order to be able to buy sugar in one location, transport it to another country and deliver it to a buyer. Finance is required to bridge the gap between paying for the sugar and receiving payment in turn. Trade finance is generally provided by international banks.

5.1.5 Key players and financiers by region

The level of influence of the banks over production methods and hence the adoption of BMPs is hard to assess. Often a country's domestic sugar industry is a major contributor to the agricultural economy, which means that local or state-owned financial players support the industry (with varying degrees of leverage) when international banks would be unwilling to do so. There are therefore many players involved with sugar financing. Below we present a breakdown of key players and financiers by region;

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this is followed by a summary of major traders and end users and their financiers, and other key stakeholders in the sector.

European Union, USA and Australia

Figure 5.3 displays the main beet sugar players in the European Union, ranked by their sugar quota. In addition to these companies, the UK's Tate and Lyle is also a significant player (on a par with British Sugar & Nordzucker). However, Tate and Lyle produces refined sugar from imported raw sugar in the UK and in Portugal, so does not appear in this figure. Figure 5.4 displays key players in the US, and figure 5.5 displays major players in Australia. Generally speaking, access to finance for most of these companies is straightforward, and they are usually financed by major home-country banks. Among this group, the leaders are probably Fortis, Rabobank and Royal Bank of Scotland. In Australia, ANZ and NAB are major players.

Figure 5.3: Major EU sugar players by quota share

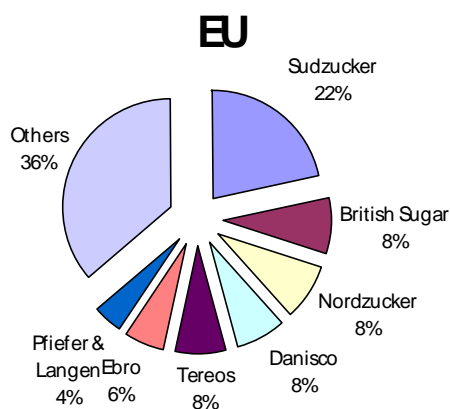


Figure 5.4: Major US sugar players by share of output

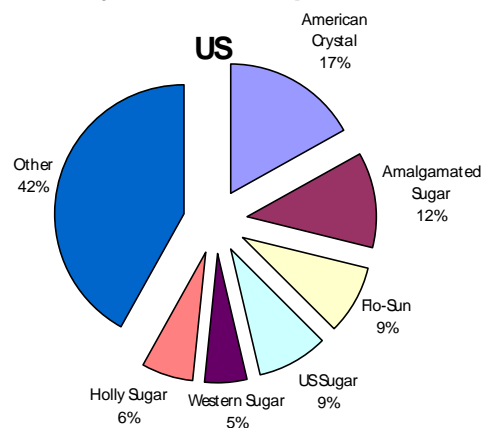
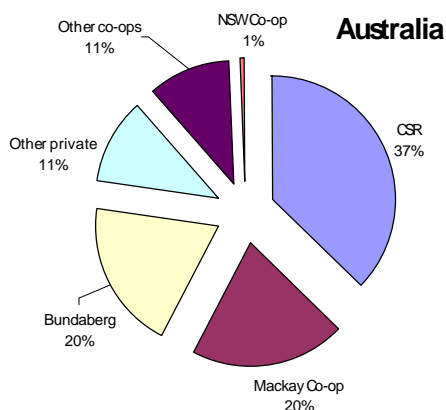


Figure 5.5: Major Australian sugar players by share of output



Eastern Europe and Former Soviet Union

Sugar companies expanding activities in eastern Europe/FSU have been able to access a combination of development institution finance and commercial bank finance. For example, the UK's HSBC financed Greek state-owned sugar concern Hellenic Sugar's expansion in Serbia. Meanwhile, Italian sugar producer SFIR has been able to obtain EBRD finance in connection with its sugar activities in Serbia. Elsewhere, Azersun's sugar factory project in Azerbaijan has reportedly been discussing loans with

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ABN Amro and Dresdner Bank. Probably the leading international bank in the region is Raffeisen Bank of Austria.

Asia

The Asian region is enormous, and generalising about the importance of banks within the region is hazardous. However, the private banks that are most commonly involved with the sugar sector in the region are Standard Chartered and ING. Major Australian banks such as ANZ and NAB are also likely to be significant players. Figure 5.6 provides a summary of the interests of some other key financial institutions operating in the region.

Figure 5.6 Institutions financing Asian sugar production

Institution	Country/company/project
<i>Development Institutions</i>	
Islamic Development Bank	Indonesia (Egypt technical co-operation); Saudi Arabia (sugar imports)
Industrial Development Bank of India	India (multiple)
Industrial Finance Corporation of India	India (multiple)
IFC	India (Balrampur Chini)
Land Bank of the Philippines	Philippines (multiple; crop loans)
<i>Local Commercial Banks</i>	
ICICI	India (multiple)
Vietcombank	Vietnam (Nghe An)
Siam Commercial Bank	Thailand (multiple)
Bangkok Bank	Thailand (multiple)
Bank of Ayudya	Thailand (multiple)
<i>International Banks/Institutions</i>	
Merrill Lynch	India (Balrampur Chini)
HSBC	India (Balrampur Chini)
Ernst & Young	India (Dhampur Sugar debt restructuring)
Standard Chartered	Vietnam (Nghe An)
Woori Bank	Vietnam (Nghe An)
Citibank	India (Sakthi Sugars)

There are approximately 450 sugar mills in **India**, many of which are operated either by state governments or by co-operatives. Many are also in poor financial condition. As a result, state banks and development institutions are major financiers of the Indian sugar sector. Among these institutions are the Industrial Finance Corporation of India (IFCI), which is majority-owned by the public sector, and ICICI Bank, formerly a development bank but now a quoted company. The IFC has also been active in the sector, extending a US\$15m loan to the Balrampur Chini sugar company. Within India there are a number of larger, private, well-managed, dynamic sugar companies, such as Balrampur Chini, Thiru Arooran, Bajaj Hindustan, Dhampur Sugar, Sakthi Sugars, Triveni and SIEL (Shriram Industrial Enterprises Ltd). Such companies have access to international finance and financial services. Examples include Citibank's support of Sakthi Sugars' new venture in Orissa state, and the purchase of equity stakes in Balrampur Chini from the majority shareholder by Merrill Lynch and HSBC.

Thailand is also a major player in Asian sugar production. The largest milling group is the Thai Roong Ruang group, and other leading sugar producers are Mitr Phol, Wang Kanai and the Kwang Soon Lee Group. Almost all of the banks in Thailand serve the sugar industry with the exception of DBS Thai Danu and Kasikorn Bank. The leading banks in Thailand are Krung Thai Bank (government), Thai Military Bank (government), Siam Commercial Bank (private), Bangkok Bank (private) and Bank of Ayudya (private). An important point to note in the case of Thailand is that bank lending to the sugar sector may not be voluntary, but may instead be made compulsory by the government.

Elsewhere in Asia and the Middle East, the Islamic Development Bank is an active financier of sugar production and trade, while in the **Philippines**, the Land Bank finances cane growers.

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Africa

Africa is not a major sugar producing region. However, many African countries have a sugar industry that contributes to domestic supply, and a few (South Africa, for example) are significant in global terms. For commercial banks, financing African sugar production is a challenge. For international banks, country risk is clearly an issue, as is the creditworthiness of some companies. However, in general terms Standard Bank and Barclays are probably the major players among international banks involved with the sugar sector. At a national level, outside South Africa the capacity of the domestic banking system is often also limited. For this reason, international, regional or local (state-owned) development banks are involved in financing African sugar projects. In South Africa, Land Bank and the Development Bank of South Africa, together with the World Bank, have been looking at a new mill project targeted at raising the participation of the black community in the nation's sugar industry.

Africa's leading sugar companies, **South Africa's** Illovo Sugar and Tongaat-Hulett (part of Anglo American plc) are financed by a number of large international banks. In October 2003 newswires reported that Illovo Sugar had secured a syndicated loan from a group of banks led by FirstRand Bank, ABSA, Bank of Tokyo-Mitsubishi, Barclays, Rabobank, Nedcor and RMB. In an earlier deal to finance the purchase of **Zambia** Sugar, the company obtained finance from a group of banks including Fuji Bank, Standard Bank and RMB. Standard Chartered Bank has also been reported in the press (August 2003) as a lender to Zambia Sugar. Figure 5.7 provides a summary of the interests of some key financial institutions operating in the region.

Figure 5.7 Institutions financing African sugar production

Institution	Country/company/project
<i>Development Institutions</i>	
OPEC Fund for International Development	Sudan (Kenana Sugar); Uganda (Kinyara Sugar)
European Investment Bank	Cameroon (Sosucam); Mozambique (Maragra)
Islamic Development Bank	Egypt (sugar imports); Uganda (Kinyara Sugar)
Development Bank of South Africa	South Africa (Makatini mill project)
Land Bank	South Africa (Makatini mill project)
African Development Bank	Swaziland (Komati dam)
PTA Bank	Zambia (Consolidated Farming); Uganda (Kinyara Sugar)
<i>Local Commercial Banks</i>	
Nedcor	South Africa (Illovo)
ABSA	South Africa (Illovo)
FirstRand Bank	South Africa (Illovo)
Mauritian Commercial Bank	Mozambique (Marromeu)
<i>International Banks/Institutions</i>	
Rabobank	South Africa (Illovo)
Barclays	South Africa (Illovo)
Fuji Bank	Zambia (Illovo)
Bank of Tokyo Mitsubishi	South Africa (Illovo)
Standard Bank	South Africa (Illovo)
Salomon Smith Barney	South Africa (Anglo American/Tonga Hulett)
Old Mutual plc	South Africa (Anglo American/Tonga Hulett)

In **Uganda**, the rehabilitation of the Kinyara sugar factory was achieved with funding from a consortium comprising the Islamic Development Bank, Kuwait Fund, OPEC Fund, Saudi Development Fund, PTA Bank, Uganda Development Bank, East African Development Bank and the African Development Bank. In **Mozambique**, the rehabilitation and expansion of the sugar industry has been encouraged by loans from the Development Bank of Southern Africa. Commercial banks (Standard Corporate Merchant Bank, Mauritian Commercial Bank) have also been involved, as well as local Mozambican banks. The European Investment Bank has also lent money to finance development in the Mozambican sugar industry. Other European Investment Bank loans to African sugar producers include EUR 15 million to Societe Sucriere du Cameroun (Sosucam) for the rehabilitation of the N'Koteng sugar complex in **Cameroon**, including rehabilitation of 7700 hectares of rain-fed sugar cane plantation and refurbishing the factory. Other financial players involved with African sugar producers include the Aga Khan Better Management Practices Project for IFC and WWF-US: Phase 2 Commodity Guides

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Development Fund (which operates a sugar mill in **Burkina Faso**) and the OPEC Fund for International Development (loan to **Sudan's** Kenana Sugar).

Latin America and the Caribbean

Brazil is the dominant sugar producer in this region. The major players are highlighted in figure 5.8 (bearing in mind that Copersucar and Crystalsev are marketing groups of independent mills – Cosan is the largest single sugar and ethanol company). Local banks are major players in financing production (Banco do Brasil, Bradesco, Unibanco, Itau, Safra and Banco Rural). The largest international players are BancBoston and HSBC, though many more are present (e.g., ABN Amro, which owns Banco Real; Rabobank; Macquarie is particularly active in the marketing of price risk management products to sugar mills).

Figure 5.8: Major Brazilian sugar players by share of cane output

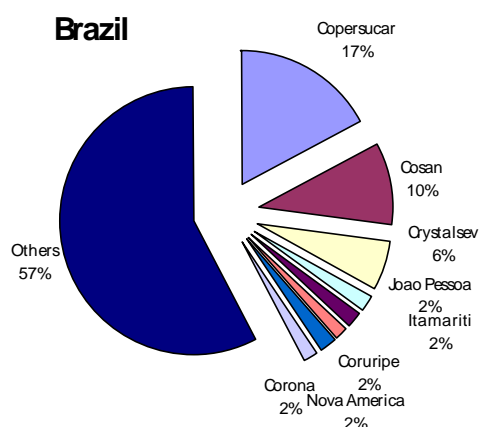


Figure 5.9 Institutions financing sugar production in Latin America and the Caribbean

Institution	Country/company/project
<i>Development Institutions</i>	
Caribbean Development Bank	Guyana (irrigation & industry expansion)
Development Bank of Jamaica	Jamaica (crop replanting)
IFC	Guatemala (Pantaleon); Colombia (Riopaila); Peru (Laredo)
Inter-American Development Bank	Argentina (small cane growers)
<i>Local Commercial Banks</i>	
Banco do Brasil (government)	Brazil (multiple)
Unibanco	Brazil (multiple)
Itau	Brazil (multiple)
Banco Safra	Brazil (multiple)
Banco Rural	Brazil (multiple)
Mercadorias y Valores	Colombia (Incauca, la Cabana)
<i>International Banks/Institutions</i>	
KBC Bank (Belgium)	Jamaica (sugar industry debt restructuring & rehab.)
Banc Boston	Brazil (multiple)
HSBC	Brazil (multiple)
ABN Amro (Banco Real)	Brazil (multiple)

Elsewhere in South America, Mercanicas y Valores arranged financing for **Colombian** mills Incauca and La Cabana on the basis of forward contracts for exports. IFC made a US\$15m loan to Empresas Agroindustrial Laredo, a **Peruvian** sugar mill acquired by Colombia's second largest sugar producer Manuelita. In **Guyana**, the Caribbean Development Bank is committed to lending the state-owned Guysuco US\$28m for industry factory expansion and upgrading and the extension of irrigation facilities on cane land. In **Jamaica**, Belgium's KBC Bank has extended credit to the sugar industry (with a government guarantee) for rehabilitation of mills and debt restructuring. The Development Bank of Jamaica is also involved in a programme to finance cane replanting in Jamaica. Elsewhere in the Better Management Practices Project for IFC and WWF-US: Phase 2 Commodity Guides

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region, in the mid-1990's the IFC became involved with **Guatemala's** Pantaleon and Concepcion, while the Inter-American Development Bank recently provided a facility to assist **Argentina's** smallholder cane growers. Figure 5.9 provides a summary of the interests of some key financial institutions operating in the region.

Traders and End Users

Sugar production and processing tend to be local or regional operations; there are hardly any companies that could be described as global sugar players. This is in stark contrast to international sugar trading, and to the production of major sugar-containing food products. A small number of large **trade houses** handle a large share of total international sugar trade (E D & F Man, Cargill, Sucden, Louis Dreyfus, Tate & Lyle International). Likewise, the world of **food processing** – particularly sugar-containing products such as soft drinks and confectionery – is dominated by a number of large companies (Nestlé, Unilever, Coca-Cola, PepsiCo, Cadbury Schweppes, Mars, Hershey, Kraft, Chupa Chups, Haribo, Perfetti van Melle).

The number of banks involved with these large players is enormous. In practical terms, large, well-capitalised companies with dominant positions in their own markets are very attractive customers for banks. This means that it is impossible to provide a shortlist of banks involved with these companies. For example, a scan of recent syndicated loans to major food industry players revealed the bank participation summarised in figure 5.10.

Figure 5.10 Financiers of selected food processing companies

Unilever	UBS, Deutsche Bank, BNP Paribas, Banca di Roma, Bank of America, Bank One, DG Bank, Fortis, Hypovereinsbank, KBC Bank, NAB, Rabobank International, West LB, Westpac and others.
Nestlé	Citigroup, Banco Santander, ABN Amro, Barclays, BNP Paribas, HSBC, ING, Societe Generale, UBS and others.
Cadbury Schweppes	ANZ, Bank of China, Bank of Sumitomo Mitsui, BBVA, Danske Bank, J P Morgan, Wachovia Bank, HSBC, Svenska Handelsbank, Toronto Dominion, Royal Bank of Scotland, Deutsche Bank.
Hershey	Bank of America, Citibank, Mellon, Sumitomo Mitsui Bank, UBS and others.

Other financial institutions involved with the quoted companies within this group are fund managers. Again, the list of participants is enormous, since companies such as Unilever, Cadbury Schweppes and Nestlé are members of one or more major indices that serve as benchmarks for investment managers. As a result, their shares tend to be widely held.

Other stakeholders

- International Sugar Organisation (charged with administering the 1992 International sugar agreement)
- National grower & miller federations
- International Federation of Agricultural Producers (IFAP)
- National multistakeholder programmes e.g. CRC Sugar, Australia.
- NGOs including WWF ('Thirsty Crops'; WWF Sugar Initiative); Fairtrade Foundation (Fairtrade standards); organic certification bodies; CAFOD, ActionAid and Oxfam (subsidies); IISD/UNCTAD Sustainable Commodity Initiative.

5.1.6 Macro issues facing and affecting production

World market characteristics: In real (i.e. inflation-adjusted) terms, world prices are on a long term declining trend, forcing players with exposure to the world market to reduce costs at the same rate in order to maintain margins. On top of this long-term trend, shorter-term imbalances in global supply and

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demand have forced prices to low levels, exacerbating the pressure on players with world market exposure.

Protection and policy distortions: Sugar is a highly political commodity. Unlike many other agricultural commodities, it is produced both in the developing world and in the industrialised world. This makes the issue of trade in sugar complicated. In addition, because it is highly capital intensive, many countries implement policies designed to insulate domestic sugar industries from the world market in order to provide a more favourable environment for investing in growing and processing. Industrialised countries (the EU, the US, Japan) all operate highly protective sugar policies that provide domestic players with sugar prices far above world prices and keep world market sugar out of the domestic market. In addition, the EU is also a major exporter of sugar, something that some observers claim is purely a result of the high prices prevailing on the domestic market. For this reason, Brazil, Australia and Thailand have recently requested a WTO panel to look into EU sugar exports. However, the fortunes of the sugar industries in a number of developing countries (ACP, EBA) also hinge on the future of EU sugar policy in particular. These include Swaziland where sugarcane comprises over half of agricultural output, and Mozambique, where sugarcane is the single largest source of employment. Many of these industries only survive thanks to their access to this high-priced market. Left to compete at world market price levels, few are equipped to survive. More generally, the level of support provided by individual governments to their sugar industries affects the level of world market prices when the countries in question are major players. If domestic support measures mean that producers become insensitive to world price levels, it is hard for the price mechanism to correct problems of oversupply. Exacerbating this problem in the case of sugar is the semi-perennial nature of sugar cane as a crop, and the effect of volatile exchange rates on the transmission of price signals from the world market (dollar-denominated) to growers in exporting countries.

Future developments: Achieving major changes in any agricultural policy is a slow and hazardous business. However, even in a more liberal trade environment, the world sugar market would probably remain volatile; export availability will still be concentrated in relatively few countries, and the weather and fluctuating exchange rates will always add a degree of uncertainty to the picture. Moreover, owing to the pre-eminence of Brazil as an exporter to the world market, the pressure on world market prices is likely to be sustained, maintaining the long term downward trend in real world market prices.

5.2 Key sustainability impacts

Significant sustainability impacts in the sugar sector occur both at production and processing levels. They inevitably differ between beet and cane production, and can vary considerably between locations, depending on local circumstances. However, there is a reasonable level of consensus on the key impacts of the sector as a whole. The order of the following list is not intended to reflect an assessment of priority, for two reasons: Firstly, although there are numerous case studies and other sources identifying impacts, there are currently no assessments of how common (or severe) each of the impacts is over a wide geographical range. Secondly, it is likely that the severity of each impact will differ between production locations. Nevertheless, all have been reported as significant in one or more instances.

5.2.1 Environmental impacts

The main environmental impacts for both cane and beet relate to water consumption, water pollution, and soil impacts. In addition, cane harvesting can be associated with air pollution. In comparison with many other commodity crops, pesticide use is relatively low, and chemical application is mainly restricted to herbicides.

- **Water consumption and reduced water flow:** This is associated particularly with the growing of cane, and also in the processing of both cane and beet. Sugarcane is a deep-rooted crop and uses a lot of water; it is extremely sensitive to soil water deficits. In many areas, it is usual for 100% of water demand to be provided by irrigation, although in other areas (e.g. KwaZulu-Natal in South Africa) it is rain-fed. Even in areas where sugar cane is not irrigated, the crop can have a great impact on river flow as it reduces run-off from the catchment into rivers and draws heavily on ground water resources. A recent study of irrigated agriculture in selected river basins of high importance for biodiversity for WWF ranks sugar as the third 'thirstiest' commodity crop, typically requiring 1,500-3,000 litres per kg of crop. Ecosystems impacted by reduced water flow caused by sugarcane include the Indus Delta in Pakistan, the Godavari River Basin in India, and the Konya Closed Basin in Turkey. Sugar processing involves many stages that require water; beet processing can consume significant amounts of water given the quantity of soil that remains attached to the roots at harvest.
- **Water pollution:** The impacts of water consumption on ecosystems are generally coupled with water quality and effluent run-off problems, whether the crop is irrigated or rainfed. Watercourses can be polluted by agrochemicals and sediments; in some cases these impacts can extend to downstream ecosystems. These issues are prominent in the Everglades in the USA, and examples have been cited elsewhere, e.g. Australia and South America. Australian sugarcane production is located on a narrow coastal strip in close proximity to the Great Barrier Reef. Water pollution is also a noted impact of cane and beet processing. Here the main pollutants are water-borne organic matter and solids, which can affect groundwaters, rivers and wetlands. Sugar mills generate about 1,000 litres of wastewater for per tonne of cane crushed. Sugar mill effluent from both cane and beet has a high BOD (Biological Oxygen Demand); effluents are also high in suspended solids and ammonium. Example: three sugar factories next to River Nyando in Kenya led to decline in quality of source of drinking water to many families on its way to lake Victoria, and nutrient over-enrichment of Lake Victoria.
- **Air pollution from pre-harvest burning of cane:** Burning of cane to speed harvest causes air pollution and increases erosion. Burning can be avoided by harvesting green cane, a practice which has spread from Cuba to Brazil and Australia – it also improves soil fertility, reduces use of herbicides, and provides more residue for use as fuel, animal feed or raw material. But cutting green cane manually is much harder work than cutting burnt cane. Furthermore, burning the cane helps to clear the cane of snakes (where they are a problem) before the cutters move in. For the most part, green cane harvesting tends to be mechanised rather than manual, and cannot therefore be implemented by all industries owing to issues of cost, suitability of terrain etc.
- **Air pollution and solid waste from processing cane:** Most sugarcane mills use bagasse (fibrous waste produced during the milling of cane) as fuel in boilers, which produces particulate matter, nitrogen oxide and sulphur. While this has the environmental benefit of using renewable energy, if

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pollution control equipment is not installed, fly ash escapes to the atmosphere and can affect the population with irritation in eyes, nose, throat and lungs, and can damage crops. Lime sludge and press mud are important solid waste generated by sugar mills (lime is used for purifying sugarcane juice; impurities from sugarcane juice are either vacuum filtered or press filtered and removed as press mud). Solid wastes are also generated from pollution control facilities.

- **Soil impacts:** Soil erosion has been associated with both beet (where fields are left bare over winter, exacerbating loss to wind and water erosion) and cane growing (particularly where cane is cultivated on slopes). Beet harvesting can also cause a significant removal of soil with the roots. Declining soil quality is associated with both cane and beet production, due to soil compaction, loss of organic matter, salinisation and acidification. Given that sugarcane is grown as a monoculture, loss of soil fertility can be a problem.

5.2.2 Social impacts

The social impacts associated with sugarcane production are among those common to many tropical commodities, particularly related to income, employment and labour conditions.

- **Low prices and development outcomes:** Sugar production plays a key role in the economies and employment of least developed countries. Low domestic or export prices have knock-on effects on field and production labour. Where production is predominantly small-scale, e.g. India, Thailand and Mexico, producers are particularly at risk of disruption to their subsistence portfolio.
- **Poor working conditions:** Working in sugarcane plantations can be backbreaking work with very poor wages. There may be significant exposures to agrochemicals, especially herbicides, although this is less of a problem than with many other commodity crops.
- **Child labour and indentured labour:** According to the ILO and the Central Bureau of Statistics there are 1.9 million child labourers in Western Kenya but the number of child labourers could be as high as 5 million. Child and bonded labour is also reported to be a significant issue in the Dominican Republic (labourers from Haiti); and in sugar fields and processing factories in Maharashtra, India.

5.3 Prospects for taking a BMP approach

5.3.1 Which of the key impacts a BMP approach could seek to address

A BMP approach could feasibly seek to address all the key environmental and labour issues listed above, in relation to growing, harvesting and local primary processing (see examples below). The roots of those social issues that are related to incomes and prices are more systemic, and are likely to be beyond the scope of a BMP approach, unless this includes conditions relating to fair trade. However, even then, barriers remain at the macro political level in terms of subsidies and quotas (see section 5.5 below).

- **Water consumption and reduced water flow:** Use of appropriate irrigation system (furrow irrigation vs. overhead or trickle systems) correctly calibrated to soil type and scheduled correctly; green cane trash blanketing to slow water movement and retain moisture at roots; tailwater recycling. With respect to processing, recycling water in cane mills and beet factories;
- **Water pollution:** For farming, tailwater recycling to minimise run-off and trap sediments, nutrients and chemicals; with regard to processing, UNIDO report from Mexico that water consumption can be reduced by 94% with production losses below 10% with the right controls. Waste water can be pre-treated through screening/settling of wastes or using bio-filters, as encouraged by WWF with the Zambian sugar industry in its work to restore 50,000ha of the Kafue Flats by lowering nutrient levels and therefore reducing the growth and spread of water hyacinth.
- **Air pollution from pre-harvest burning of cane:** Burning can be avoided by harvesting green cane, a practice which has spread from Cuba to Brazil and Australia – it also improves soil fertility, reduces use of herbicides, and provides more residue for use as fuel, animal feed or raw material. But cutting green cane manually is much harder work than cutting burnt cane. Furthermore, burning the cane helps to clear the cane of snakes (where they are a problem) before the cutters move in.
- **Air pollution from processing cane:** Installation of emission reduction systems for boilers that use bagasse.
- **Solid waste from processing:** Recycling and reuse of mill mud and boiler ash from mills can provide plant nutrition and soil improvement benefits.
- **Soil impacts:** Terracing on slopes, reduced tillage.
- **Low prices and development outcomes:** Fairtrade trading conditions; outgrower schemes (e.g. facilitating smallholder access to irrigable land near sugar processing plants, financing and extension assistance).
- **Poor working conditions and worker welfare:** Commonly agreed labour standards and principles, e.g. non-discrimination; freedom of association and collective bargaining; reasonable pay and conditions; and occupational health and safety. For plantations, welfare services may include schools, health centres/clinics, places of worship and purpose-built housing with appropriate electricity and sanitation.
- **Child labour and indentured labour:** Strategies to eliminate indentured labour and worst forms of child labour and to ensure access to education alongside a safe working environment for children where child labour is necessary.

5.3.2 To what extent there is agreement on BMPs

There appears to be little disagreement in terms of BMPs, as long as there is sufficient flexibility built in to any BMP to allow for local needs and variations. The most contentious issues remaining are at the macroeconomic and political level, with respect to subsidies, oversupply and dumping. While there remains little progress on these structural issues, attention is focused away from environmental, labour and terms of trade issues.

5.3.3 To what extent different BMPs would be required for different types of producers and different regions

The global spread of sugar production means that it is more useful to analyse environmental and social impacts by crop and production system rather than by production region. Clearly, different sets of BMPs

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would be required for cane and beet production and processing. Generally, BMPs for beet production simply need to be in line with good practice for temperate, mechanised agriculture within a crop rotation system, with some specific elements e.g. in relation to soil loss at harvest. BMPs for cane are more likely to be crop-specific. Furthermore, differences in topography, climate, water availability and farm size will inevitably mean that the severity of environmental and social issues – and the choice of solutions – will be locally specific. For example, river basins identified as being critical for biodiversity are likely to need stricter BMPs than other regions. A forthcoming review for WWF⁶³ provides a comprehensive overview of the environmental impacts of sugar production and measures to reduce these impacts. It notes that many of the impacts of the cultivation of sugar crops in any one place are significantly influenced by local conditions, such as soil type and climatic factors. It suggests that guides to BMPs must therefore develop recommendations based on site-specific considerations, and combine these with more widely applicable, generic recommendations.

One key factor defining the appropriateness of some BMPs in sugarcane is the level of mechanisation. This relates particularly to employment and labour issues, but also some environmental impacts. For example, green cane harvesting (which eliminates air pollution from burning) tends to be mechanised rather than manual, and cannot therefore be implemented as easily by all producers owing to issues of cost, suitability of terrain etc. In addition, processes for implementing and administering BMPs may differ according to farm size, to ensure cost-effectiveness. However, the sustainability issues in relation to sugar cane are relatively homogeneous and it is reasonable to suggest that a standard set of BMPs would be broadly appropriate for different types of producers in different regions, as long as some flexibility was maintained at the implementation level to suit local circumstances and the scale and mode of production.

5.3.4 Examples: Where BMPs have already been identified and/or implemented

Initiatives that have sought to implement BMPs in relation to one or more of the key issues include niche market certification schemes, national sectoral guidelines for BMPs, outgrower schemes and support for small-scale growers, and industry association codes of practice.

Certification schemes

Fairtrade: Fairtrade standards have been developed by Fairtrade Labelling Organizations International for cane sugar. In line with usual Fairtrade practice, separate protocols exist for hired labour situations and small farmers' organisations⁶⁴ – although even for the latter, standards on labour conditions are applicable if the organisation employs a considerable number of workers. The standards for hired labour situations do not include any specific standards related to sugarcane beyond the generic Fairtrade standards, whereas for small farmers' organisations there is a specific protocol describing standards for cane sugar. Both protocols include measures related to social development, economic development, environmental protection and labour conditions. The environmental conditions have a minimum requirement equivalent to national and international legislation regarding the use and handling of pesticides and other hazardous chemicals, protection of natural waters, virgin forest and other ecosystems of high ecological value, erosion and waste management. They exclude the use of certain pesticides. They also have a 'progress' requirement that producers should implement a system of Integrated Crop Management and producers are encouraged to work towards organic certification. In addition to these generic standards, the cane sugar protocol includes specific 'trade' standards, as follows:

- Product characteristics (polarisation and humidity).
- Long-term and stable business relationships, confirmed by exchange of binding Letters of Intent not later than three months prior to harvest and renewed annually.
- Credit facilities provided by the buyer of up to 60% of the minimum value of the contract.

⁶³ Cheesman, D. (forthcoming) *The Environmental Impacts of Sugar Production*, review prepared on behalf of WWF, CABI Bioscience, Egham. Further reviews are being carried out at national level e.g. in India and Pakistan.

⁶⁴ These are understood as those producers that are not structurally dependent on permanent hired labour, managing their farm mainly with their own and their family's labour-force.

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- Minimum FOB prices (US\$480/MT for raw sugar; US\$520/MT for white sugar; US\$650/MT for whole raw sugar; plus a premium of US\$120/MT for certified organic sugar being sold as such).⁶⁵

Third-party processing arrangements must assure a transparent product flow from sugarcane to sugar and a fair processing agreement, guaranteeing producers a major part of the prices generated through Fairtrade sales.

Organic: Despite the costs and risks involved in conversion to organic production, world output of organic sugar has experienced rapid expansion from only a few thousand tonnes in the mid-1990s to around 50,000 tonnes in 2000.⁶⁶ Brazil is the world's leading producer of organic cane sugar. Organic cane has been produced in the following regions:

Africa: Madagascar, Malawi, Mauritius

Asia: Philippines, India⁶⁷

South America: Argentina, Bolivia, Brazil, Colombia, Paraguay

Central America: Costa Rica, Dominican Republic (and there are reports that Cuba plans to convert one mill and estate to exclusively organic production)

North America: USA

National sectoral guidelines

Australia: The Australian Canegrowers Council has approved a Code of Practice for Sustainable Cane Growing, in collaboration with the Cooperative Research Centre for Sustainable Sugar Production, a joint venture representing the growing and milling sectors of the sugar industry, public research, research organisations and universities. As well as providing technical advice on best practice in relation to fertiliser use and water use efficiencies, the Code includes recommendations related to:

- Developing new land – ensuring suitability of land for cane production; developing a farm plan; leaving uncleared areas and stream bank vegetation; drainage systems and protection of wetlands.
- Established farms – developing a farm plan; vegetation management; soil and fertiliser management; irrigation (furrow irrigation, overhead irrigation, green cane trash blanketing, tailwater recycling, irrigation scheduling, treating wastewater); drainage; weed, pest and disease control (integrated pest management; rat control; feral animals); fire management; timing of operations and notifying neighbours; use and storage of fuel and dangerous goods; waste management; on-farm monitoring.

Interestingly, BMPs are promoted as a means of reducing growers' potential legal liability. The Canegrowers Council encourages growers to adopt the BMPs included in the Code of Practice as a means by which they can comply with their environmental duty under the Environmental Protection Act 1994, noting that "growers who have followed this code will have improved prospects of successfully defending any legal actions brought against them in relation to environmental harm". Furthermore, the Australian Sugar Industry Act includes provision for land assigned to sugarcane production to have environmental conditions attached, and for such allocations to be revoked if the conditions are not met.

South Africa: The South African Sugar Association (SASA) has drawn up a set of 'Standards and Guidelines for Conservation and Environmental Management in the South African Sugar Industry', which are widely regarded as the most comprehensive and progressive set of environmental BMPs available for sugar production.⁶⁸ It is promoted in the form of a manual for growers, with advice and

⁶⁵ Country-specific conditions exist for sugar from Paraguay and Malawi, where sugar is exported by private sugar mills not belonging to FLO Certified Cane Producers and where there is no minimum FT price.

⁶⁶ Although this signifies significant growth, it should be noted that this figure still represents under 0.5% of total production.

⁶⁷ It has been reported that organic production would start on 50% of Karnataka's area under cane; other major cane growing states like Maharashtra and Tamil Nadu have also started to switch production (International Sugar Organisation 2001 *Organic Sugar – Niche Product in the Mainstream Market*, from an article by Sergei Gudoshnikov, Economist, International Sugar Organization, published by FO LICHT International Sugar and Sweetener Report, Vol 133 No 22 of 24th July 2001).

⁶⁸ They have, nevertheless, attracted some constructive criticism from local environmental organisations for still not going far enough on the management of existing biodiversity assets, identifying and managing economically marginal areas, and reducing impacts on freshwater resources. A more fundamental criticism is that very few Better Management Practices Project for IFC and WWF-US: Phase 2 Commodity Guides IIED, ProForest, Rabobank 29th March 2004

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technical information on environmental issues, management practices and legislation. The manual includes information and recommendations related to:

- Field Practices – soil conservation (land use planning; waterways; terracing; tillage; trashing; strip harvesting and replanting; storm water drains); cane extraction (road siting; construction and maintenance); land preparation (tillage; row alignment, etc.); planting (varieties; strip planting, etc.); weed, pest and disease control; use, storage and disposal of agrochemicals; harvesting operations; burning and trashing; crop nutrition; fire protection.
- Water – protection of wetlands and watercourses; irrigation (registration and licensing; efficient and appropriate application; water quality; salinity; irrigation supply; water storage); drainage.
- Air Pollution (cane burning)
- Soil – soil identification; soil depth and loss; erodibility; moisture content; physical and chemical properties; nutrient levels; toxic levels of heavy metals; soil compaction.
- Traffic regulations and cane spillage
- Facilities for employees – employee village sites (accessibility; water supply; depth of water table); employee village management (water supply; sewage; rubbish disposal; recycling; hygiene training; sport and recreational facilities); employee village design and other facilities; employee environmental education.
- Farm pollution and litter control; pollution and safety issues in relation to farm workshops and organic fertiliser storage.
- Management and use of natural resources, cultural assets and public recreation facilities – identification and management of flora and fauna; public recreation facilities; wildlife management; access control; information and education.
- Environmental management systems audits
- Environmental structures in the sugar industry.
- Relevant international conventions and local legislation.

Outgrower schemes and support for small-scale growers

Tanzania: The Kilombero Sugar Company, owned by South African company Illovo Sugar Ltd, has developed a community development programme based on the expansion of sugar cane outgrowers. The company leases land to a newly formed 'Kilombero Community Trust', which acts as a conduit for external funding. Grants for infrastructure are provided by the Swiss Agency for Development and Cooperation, and the company has entered into a partnership with the IFC to provide capacity building to the local community to develop SMEs that provide supporting services.⁶⁹

South Africa: South African sugar companies and established farmers have developed various initiatives in line with the national political goals of black economic empowerment and supporting emerging growers. Illovo Sugar Ltd and Tongaat-Hulett Sugar Ltd, in collaboration with Ithala Development Finance Corporation, launched a project in 1996 that releases land owned by the two sugar companies and provides finance for black commercial farmers. Small-scale suppliers to a mill in KwaZulu-Natal have created a cooperative that is supported by neighbouring commercial farmers who act as mentors and advisors, a model that may be replicated elsewhere.

Industry Association Codes of Conduct

Europe: In 2003 the European Sugar Industry body CEFS signed a joint code of conduct with trade unions setting out voluntary minimum standards on human rights, education/training, health and safety, labour relations, fair pay, working conditions, restructuring and business relationships.⁷⁰

growers are implementing the BMPs, and that SASA does not have the capacity to encourage their use. It is suggested that applying an environmental management system and certification could go some way to resolve this (pers. comm. Damian Walters, Mondi Wetlands Project).

⁶⁹ www.illovosugar.com.

⁷⁰ www.cefs.org/en/responsab/welcome.htm.

5.4 Obstacles to the adoption of BMPs

5.4.1 Producer level

- **Fluctuating and declining prices:** World prices are volatile and on a long-term declining trend, currently exacerbated by shorter-term imbalances in global supply and demand. Some producers and processors are exposed to sugar price risk. Countries such as Brazil, Thailand, China and India have increased their production by at least 1 million tonnes in the last year. Also contributing to declining prices are the subsidies provided to European producers and the competitiveness advantages of Brazilian exporters over other cane producers. Australian sugarcane farmers report that low prices are leading to a prioritisation of productivity gains over the reduction of land and water degradation.
- **Lack of financial incentive to implement BMPs:** Against this background of intense competition and declining prices, growers are unlikely to adopt BMPs unless this contributes to productivity or reduced costs. Some BMPs will inevitably incur greater costs, at least in the short-run. For example, the Mauritius Sugar Syndicate notes that organic cane yields are markedly below those of conventionally grown cane with an average 20 per cent drop in yields. But there are indications that productivity improves in the long-term – according to Brazilian producers of organic sugar, the productivity of Sao Francisco's plantation already exceeds that in the traditional growing regions of the Sao Paulo state. Other BMPs may result in direct efficiency gains through minimising inputs, e.g. IPM. But many of the potential savings will only result where there is a cost associated with poor practice (e.g. prohibitive water pricing).
- **Small-scale production:** The existence of many small-scale growers is a barrier to adoption, given that smallholders are less likely to be able to access technical knowledge, finance and other capacity for investing in BMPs. Dissemination efforts and technical support are therefore likely to be necessary. Prospects for using the processor-grower relationship for such activities are a possible way forward here, but this remains relatively unexplored. The extent to which a pro-poor mechanism can be incorporated into value chain and financing arrangements could be crucial.
- **Level of mechanisation:** Some BMPs are associated with mechanised production systems. For example, green cane harvesting tends to be mechanised rather than manual, and cannot therefore be implemented by all industries owing to issues of cost, suitability of terrain etc.

5.4.2 Throughout the value chain

- **Limited proportion of sugar traded:** Only about 30% of sugar production is traded internationally. Thus, attempts to change production practices need to take into account domestic as well as international markets, where points of leverage may be quite different. It is notable, however, that some proportion of domestic sugar consumption will be accounted for by multinational food and drink manufacturers, with respect to whom the most useful point of leverage may be at corporate rather than national or local level anyway.
- **Limited proportion of direct supplier-buyer relationships:** Relationships between growers and end users range from direct business-business relationships, outgrowers and contract growing, informal arrangements with small producers, to commodity exchanges. In the case of commodity exchanges and informal buying relationships, there is less scope for traceability and market signals for the implementation of BMPs.
- **Global fragmentation of processing:** While there are key players at country and possibly regional levels, there are no true global players within sugar processing. This makes intervention at the otherwise influential processing level more difficult. The emergence of refinery capacity in third countries (away from the location of production) may reduce further the perceived connection between sourcing policies and social and environmental impacts of production.
- **Lack of visibility at consumption level:** In industrialised countries, 70-80% of sugar consumption is in processed food and drinks. This means that most sugar is 'invisible' to consumers, and is not bought as a discrete product, thus reducing scope for consumer-led pressure through the value chain. Where products are closely identified with sugar and can be produced with other

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'sustainable' ingredients (e.g. Fairtrade or organic chocolate), there is more scope for consumer-led pressure.

5.5 Preconditions for the successful adoption of BMPs

Identifying and gaining widespread agreement on BMPs should be relatively straightforward, given that the key social and environmental impacts, and their solutions, are generally accepted. The real issue is that of incentives. Preconditions for creating the incentives for the adoption of BMPs include:

- **Reforming the political and macroeconomic framework:** As noted above, while there remains little progress on the structural issues of subsidies, oversupply and dumping, attention is focused away from environmental, labour and terms of trade issues. Depressed prices and squeezed margins at the production level reduce the scope for investment in BMPs.
- **Identifying and creating points of leverage:** There are currently few market or regulatory signals that provide clear messages to growers that they should adopt BMPs. There is a need to identify existing points of leverage, and where necessary, create further ones. Possible points of influence worth exploring further include the following:
 - **Processors:** It is notable that sugar millers have considerable influence over those growers who sell them sugarcane, which may possibly be harnessed to change production practices.⁷¹
 - **Response to legislation:** As in Australia, BMPs can be promoted as a defence for sugar growers against future liability with respect to environmental legislation.
 - **Threat of future legislation:** Perkins (2004) notes that several parties in Southern Africa have expressed interest in producing and selling sustainable sugar, in part to prevent legislation that would require a licence to grow sugar.
 - **Traders & buyers' ethical and environmental codes of conduct:** Where buyers are high-profile multinational companies who have developed codes of conduct in order to protect their brand value, there may be scope for extending this influence up the supply chain. For example, Tate & Lyle's Business Code of Conduct states "We will give strong preference to dealing with commercial partners who demonstrate their commitment to the principles of this code by accepting compliance as a contractual requirement". Given the small number of large trade houses that handle a large share of the total international sugar trade, and the few large companies that dominate sugar-rich food and drink sectors such as soft drinks and confectionery, this approach is worth exploring further.
- **Getting buy-in from stakeholders:** The overriding precondition to creating incentives for the adoption of BMPs in the sugar sector is gaining a commitment from the many players within the sector. The fact that campaigning groups' attention has been focused on the political and macroeconomic debate means that there has been little pressure on commercial sugar players to recognise and adopt BMPs. There are now opportunities to build engagement in alliance with two parallel initiatives, both planning to drive action on BMPs in relation to sugar, possibly eventually within a broader agricultural stewardship council that would also cover other priority commodities such as palm oil and cotton. These are the WWF Sugar Initiative (cf. Perkins 2004) and the IISD/UNCTAD Sustainable Commodity Initiative. Both initiatives have expressed interest in exploring the possibility of partnership with the IFC/WWF-US initiative, and there has also been some initial discussion between the two.

5.6 Risks of adopting a BMP approach

The key risks of adopting a BMP approach in the sugar sector include the following:

- **Allocation of costs:** Given few, if any, financial incentives for the adoption of BMPs, there is a risk that the burden of any associated costs will fall disproportionately on producers, with little if any compensatory financial return.
- **Beet/cane split:** Given that the environmental and social issues associated with beet and cane respectively are so different, any attempt to introduce BMPs that are relevant only to sugarcane is likely to exacerbate a sense of unfairness on the side of cane producers who already feel that they

⁷¹ Perkins 2004 Sweeter Partnerships? How can WWF engage internationally to achieve its freshwater objectives in the sugar sector?

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have to compete unfairly with subsidised beet producers. If a focus on BMPs for cane is likely to tilt the market in favour of sugar beet and therefore OECD cane production (e.g. Australia), the employment and development arguments in favour of LDC cane production will need to be brought into the picture.

- **Exclusion from markets:** If a BMP becomes a market-entry standard, or a means to a premium, there is a risk of any producers that are unable to implement it being excluded from markets. This is potentially particularly significant for small growers who may not have sufficient capacity. Any BMP approach should therefore be appropriate and realistic for both small and large growers, and backed up with necessary extension and support.
- **Compounding existing competition:** BMPs have the potential simply to increase the existing dichotomy between those who can compete at current world market prices (e.g. Brazil) and those who can't. Where growers go out of business or no longer have the resources to invest in sustainable production, this may have negative social and environmental impacts that outweigh the benefits of implementation of BMPs elsewhere.
- **Continuing lack of incentives:** There is a risk that producers continue to have any incentive to change practices given the macroeconomic situation. Any investment in promoting BMPs is likely to be wasted without creating sufficient incentives for adoption.
- **Not tackling the worst producers:** As with any voluntary mechanism, there is a danger that a BMP approach simply recognises existing good practice of responsible growers rather than tackling the worst practices of irresponsible growers.

5.7 Strategic Choices

There are a number of strategic choices facing an initiative seeking to promote a BMP-based approach in the sugar sector.

#1 Seek to drive the adoption of BMPs from the supply or demand side?

As noted above, there are various possible points of leverage for the adoption of BMPs, including actual or threatened legislation; processors; traders and buyers. A key decision is whether BMPs are promoted through direct engagement with and support of producers, or indirectly through the supply chain or the financial community. The former is more likely to encourage a sense of ownership and buy-in from producers, although it is less likely to create the level of incentive that the latter may create.

#2 Whether to engage with the macroeconomic/subsidies debate?

Without addressing the contentious debate on subsidies, price and oversupply, any initiative may be seen at best as irrelevant and at worst counter-productive, in the sense that any investment in BMPs could be an additional and unrewarded cost. But engaging in this debate also has the potential to divert attention away from production practices.

#3 Whether to engage with other parallel initiatives?

As noted above, there are moves to develop two parallel initiatives on similar ground – the IISD/UNCTAD Sustainable Commodities Initiative, and the WWF Sugar Initiative. Engaging and collaborating with either of these initiatives would have reputational, managerial and institutional implications, and care would need to be taken to ensure that the goals of each initiative are complementary. But failing to engage with these initiatives runs the greater risk of diluting energy and commitment among industry stakeholders, and of failing to develop an authoritative set of BMPs and agenda for implementation.

#4 Whether to take a regional or a global approach?

The dispersed nature of sugar production and lack of global players at the production level (as opposed to trading and manufacturing) means that it would be very difficult to hold a dialogue at global level that involved all relevant stakeholders. The regional focus of the financial community's interventions at project level adds to the sense that a global approach would be over-ambitious. But many of the social and environmental issues apply similarly to cane production in all regions, and there is considerable

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scope for shared learning – not to mention unnecessary duplication. Likewise, the question of whether an initiative should take account both of cane and beet production needs to be explored in depth.

#5 Whether to take an area-wide or fully traceable approach?

In order to establish recognition in the market for sugar grown according to BMPs, certification and segregated chains for sustainable commodities may be necessary. A future BMP initiative should consider the pros and cons of working with existing markets rather than investing in alternative supply chain structures or ensuring full chain of custody traceability. Several models exist, ranging from:

- *certification and segregation* of sustainably-produced sugar. This provides the best guarantee that any sugar really does come from a producer or processor that implements BMPs, but runs the risks of losing the benefits associated with commodity markets (scale and efficiency) and incurring the costs of establishing and monitoring a dedicated chain of custody within traditional complex supply chains;
- an *area-wide approach*, where production areas are targeted for BMP adoption and so the entire production of the area can be mixed and bulked. This allows most of the benefits associated with the commodity markets to be maintained, but runs the risk of unsustainably produced sugar entering into the 'sustainable' sugar;
- a *'pool'* system, where a buyer pays the premium to the sustainable producer, but without taking physical delivery of sugar from that producer. Instead, the producer's sugar would be bulked with others in the normal way, and the buyer would buy from the 'pool' as usual (a mechanism analogous to that used in buying 'green' electricity). This has not yet been implemented for any commodity and may provide insufficient stimulus for widespread BMP adoption.

#6 Whether to aim for a system that is visible to consumers or only to processors?

As noted above, sugar's lack of visibility at consumption level given that most sugar consumption is in processed food and drinks means that a consumer-facing initiative would be a significant challenge. If a BMP initiative did aim for a certified, traceable approach, experience from other sectors suggests that it may make more sense for labels to be targeted at buyers and processors rather than consumers.

5.8 Further reading

Australian Canegrowers Council (1998) *Code of Practice for Sustainable Cane Growing in Queensland*, at www.canegrowers.com.au/environment/codeofpractice.pdf

Cheesman, D. (forthcoming) *The Environmental Impacts of Sugar Production*, review prepared on behalf of WWF, CABI Bioscience, Egham.

International Sugar Organisation *Sugar and the Environment* (Survey of relevant environmental legislation), 12 November 2001, ISO, London.

Perkins, R. 2004 *Sweeter Partnerships? How can WWF engage internationally to achieve its freshwater objectives in the sugar sector?* Dissertation for the Postgraduate Certificate in Cross-Sector Partnership course.

South African Sugar Association (2002) *Standards and Guidelines for Conservation and Environmental Management in the South African Sugar Industry*, available at www.sugarindustrydev.co.za/pdf/enviro.pdf

Sustainable Commodities Initiative at www.iisd.org/trade/commodities/sci.asp

Sustainable Development Commission 2003 *Sustainability of Sugar Supply Chains (including a report from the Natural Resources Institute to the Sustainable Development Commission)*, SDC, London.