



TEFLA Sugar Summit

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"Key drivers for a changing world sugar economy" - Overview of the Global Sugar Market

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It is a pleasure and an honour to be invited to give the ISO presentation on Sugar at this distinguished event. India, alongside Brazil, is a leading player in the world sugar market. And I am most delighted to be here to give you our insights on the direction of the world sugar economy for the years to come.

I have been asked to speak about "*Key drivers for a changing world sugar economy*". The drivers today are very different from 10 years ago. Today we are going through a very exciting time for commodities in general: rapid economic development in emerging countries, booming demand for food worldwide, food inflation, biofuel and ethanol production disseminating across all corners of the globe. All this is putting again agriculture back in the spotlight of the world economy. Besides, we have the pressures from environmental concerns on agriculture, presenting new challenges to sugar producers worldwide.

So the key drivers that I would like to concentrate my talk today on are these 7 drivers:

Slide 1: Key drivers of the world sugar economy

1. The **worldwide growth in ethanol production** from sugar crops, starting in Brazil but spreading fast into other regions. Here I will also touch on market conditions for ethanol from sugar crops in the main players. (Driver number 2)
2. The **food versus fuel** debate and how it is affecting ethanol production from sugar crops. Also here I would like to touch upon the environmental impact of ethanol from sugar crops compared to other crops.
3. The importance of **sugar prices, and how they are increasingly affected by the investment of funds in sugar futures – where are these funds coming from, then domestic prices and finally exchange rates;**

4. The **rise of the EU as a major net sugar importer**, with important implications to the sugar trade and especially the future of sugar in ACP and LDC countries.
5. **Increasing cross border investments** across the global sugar industry and new opportunities for lower-cost producers;
6. **Booming sugar consumption** as a result of economic growth in emerging markets. What implications does this have for the future of global sugar consumption?
7. **Expansion of the refining business**, reflecting changes in freight rates and regional premiums for sugar.

Point 1) First, ladies and gentlemen, let me start with the **ethanol market** and how it is changing the world sugar economy. Sugar crops play a growing role in ethanol production and this is largely a result of their **greater economic viability** compared to other food crops.

Slide 2: Oil and sugar prices

You have that the oil price increased by 5 times over the last 12 years but sugar prices have barely changed in nominal terms. And because sugar has become relatively cheap compared to other commodities, it is becoming popular as an energy crop.

Sugarcane juice, when the circumstances are favourable, may be the cheapest feedstock to make fuel ethanol. It is no surprise that today **9 multinationals (change slide)**, including Cargill, Bunge, Abengoa, Louis Dreyfus are all making ethanol from sugarcane in Brazil, the world's lowest cost producer.

Just to give you some figures, in 2007/08, sugar cane output in Brazil grew 15% from 428 mln tonnes to 495 mln tonnes and these 65-70 mln tonnes of additional cane were mostly used for ethanol production and not sugar.

To compare, this growth in cane production for ethanol in Brazil for just one year is equal to the whole cane production of Thailand, just to give you a perspective.

Slide 3: Ethanol production costs

Ethanol from the sugarcane juice in Brazil costs about USD 0.30/l to make. Making ethanol out of sugar cane molasses is also cost-competitive today, and this is currently the case in countries like India, Thailand and Colombia, at a variable cost of about USD0.4/litre. When other feedstocks are used, such as wheat (Europe and Canada), and corn (US and China), ethanol production costs are generally seen as even higher, at over USD 0.6/litre. But why is ethanol important?

Slide 4: World Fuel Ethanol Production

Just to refresh your statistics, when it comes to **global fuel ethanol production**, the **United States** and **Brazil** will still dominate in 2008 but others are making fast inroads. **Brazil** is expected to produce **25 billion** litres from cane and the **United States 33 billion** litres of **fuel ethanol** from corn this year. But **Europe** is expected to **produce 3.4 billion**

litres of fuel ethanol in 2008, becoming the third largest producer worldwide ahead of China. There are beet factories in Europe today using all the beets for ethanol and not sugar.

Slide 5: World Fuel Ethanol Production outside Brazil and the US

Production in the EU in 2008 will be up by more than 50% from 2007. Consumption there will be even greater at 4.4 billion litres. Also according to our estimates, India's production of ethanol is also set to double this year to about 800 mln litres, and I would love to hear more about this from you.

The world trade is increasing too.

Slide 6: New routes of ethanol trade

There are new routes outside the US developing.

Trade is now taking routes not so much developed in the past, especially Brazil – EU, Thailand-Asia, and Brazil-Caribbean.

These routes have seen their trade volume double in 2007 compared to 2006.

It seems all good news but you also need hard work.

Slide 7: Government support

You know that what is crucial for ethanol programmes to take off is the level of government support. This can take place in several ways, via fuel excise exemptions, which was more prevalent in the past, then mandatory abolishing of gasoline additives such as MTBE and now the progressive establishments of ethanol inclusion mandates, this being the preferred option of many countries, examples Europe and India now.

My next Point 2) is on the food versus fuel debate:

More and more countries are looking to use the sugar cane and beet crops as raw materials to make alternative biofuel or ethanol. What is driving this? Primarily the tremendous rises in the prices of wheat, corn and soybeans over the past few months, which are affecting the economic viability of using grains as feedstocks for biofuel production.

Slide 8: ethanol production costs by feedstock

This diagram shows how the rise in grain prices is affecting ethanol production costs and the relative comparative advantage of using sugarcane molasses for ethanol in a country like India, for example.

Another advantage for sugar is the yields, and this is very important especially given concerns about land availability.

Slide 9: Ethanol from sugar crops – efficiency

It doesn't hurt to say that sugar cane and sugar beet can **potentially yield between 6-8,000 litres of ethanol per hectare compared to only 3-4,000 litres from cassava and corn but only 2,000 litres from wheat.** So in this regard there is a clear advantage of sugar crops compared to other crops.

However, there is also criticism about using sugarcrops for ethanol production. The main one is on water use. A recent report published by the UN estimates that it **takes around 60 times as much water to create energy from cane than it does from fossil fuels** But in naturally water abundant or rainfed areas, such as tropical zones, this is usually not much of a constraint.

Slide 10: Energy balance

Finally on ethanol, what adds to the competitive edge of ethanol from sugar cane is the fact that it produces **eight times** as much energy as it uses, compared to 1.2 times if the feedstock is wheat and around 1.5 times if the feedstock is corn. All in all, ladies and gentlemen, **cane producing countries are well positioned** to continue to make fast inroads into ethanol production over the coming years.

Let me move to point 3) sugar prices, futures, funds, exchange rates

I would like to talk here about prices, why they **will continue to be a key driver of the world sugar economy. But sugar prices today are not just a function of supply and demand anymore.** The fundamentals show us two years of massive surplus production over consumption with a stock to consumption ratio above 50% and export availability above import demand. Despite that, we experienced a price rally at the beginning of this year, then a fall in March and

now prices are rising again.

So what factors are moving the prices?

First, the investment funds (hedge, index and funds). They are pouring money into commodity futures to seek portfolio diversification away from sectors affected from the credit crunch and also because commodities offer a good hedge against rising inflation. The first important fund is index funds.

Slide 11: Index funds

In only one year, **index funds doubled their long positions in sugar futures.** Moreover, in January the DJ commodity index increased its sugar weighting by 1 percentage

point, the biggest gain among all agricultural and livestock commodities of the index. The second category of funds is hedge funds. These are the true speculators, because they are there when the market goes up or down. But recently **hedge funds or large speculators also reversed their exposure to sugar futures by moving from a net short position in March last year to a net long position of over 100 thousand lots in March this year**. Therefore the large net inflow of funds into sugar futures is certainly one very important key driver of world prices today.

But we should not forget domestic prices. Fundamentals can change but most countries remain fairly insulated from swings in the market because of very high domestic prices.

Slide 12: Domestic prices

We recently estimated at the ISO **that average retail domestic prices can be about 2.5 times the average world sugar price**. Obviously outliers here are Brazil and India, where domestic prices can be fairly depressed.

In **importing countries** domestic prices **can be even higher**, with a further premium as high as 10% over average levels.

One third point of disconnection between prices and fundamentals are regional premiums.

Slide 13: Cif import prices by region

Internationally, prices differ widely from region to region. **The price the EU pays for its imported sugar is still about 3 times as high as the world market price.**

And indeed, EU imports are projected to continue to grow over the coming years regardless of what happens to world sugar prices

Finally, the fourth point of disconnection between prices and fundamentals arise from currency movements.

Slide 14: EU prices with 2 sets of exchange rates

The **stronger Euro** is **inflating** the sugar prices in dollars, as you can see from this diagram. At an **exchange rate of 1.55 dollars** to the Euro, the sugar price cuts in Europe **have actually not cut the price in dollar terms yet!**

For example, at current exchange rates, ironically the USD Dollar price for raw sugar imported by the EU will be higher next year than it was before the reform of the Eu sugar regime.

Point 4) My next point – number 4 - is exactly on **the impact of the EU Reform on the world sugar market**. The first question here is: how do sugar imports by the EU compare to other major importers?

Slide 15: Raw sugar imports

Here we have the dynamics of sugar imports by Russia, the EU, the USA and the United Arab Emirates since 1992. What is striking from this picture is the collapse in the level of imports by Russia and the sudden rise of the United Arab Emirates as a major player. But imports by the European Union member countries have been growing steadily, even if you aggregate the volume of imports by all 27 countries since 1992.

Slide 16: EU imports pre-reform

And this is the situation before the EU reform: imports of 2 mln tonnes, white value, excluding the imports by Romania and Bulgaria. The majority of these imports were coming via the Sugar Protocol Agreement with ACP countries and only a small part would be filled by EBA sugar.

Slide 17: EU imports post-reform

Now, after the reform, imports by the EU will jump to about 4 -5 million tones, including the extra allowances for Bulgaria and Romania. And most of the growth in EU imports will come through EBA sugar or sugar produced in more efficient least-developed countries.

Slide 18: ACPs-EPAs

Also The EU is concluding Economic Partnership Agreements (EPAs) with countries of the ACP group, from which more efficient producers should benefit with a system of quota-free imports from 2015, with no price guarantees already from 2012.

The bottom line is that even inside the context of preferential sugar trade agreements, only efficient countries, with relatively low production and transport costs, will be able to expand and benefit from these opportunities.

This takes me to my 5th point. Which is on cross border investments in the global sugar industry.

Slide 19: export led investments

The biggest recipient of foreign direct investment in the world sugar industry of today is Brazil, **because of booming ethanol consumption and low production costs.**

But outside Brazil, Africa is the fastest growing recipient of foreign direct investment in sugar.

This slide shows the growing interest of foreign companies in investing in LDCs in Africa, naturally reflecting the competitive advantage they will have over other producers because of their future access to the European Union market, which becomes duty and quota free from next year.

Slide 20: African LDCs

The biggest hopes for export markets are in Mozambique and Zambia, where production is set to double in a few years, as well as Sudan and Ethiopia. These are countries with low production costs **relative** to the **EU's new raw sugar** price after the reform (335€/to in 2009/10) and, very importantly, proximity to efficient sea ports.

In **Mozambique**, for instance, the sugar industry is already in the hands of the Portuguese, the South Africans, the French, the Mauritians and the British and these are expanding production facilities in the country.

The sugar industry of **Ethiopia** is also set to retransform itself over the coming years. It is receiving a record amount of **loans from India** of over 600 mln dollars in order to revamp and expand its sugar industry.

The acquisition of 51% Illovo's shares by **British Sugar** is another very important cross border investment because of its global reach.

Point number 6) My next point is on **sugar consumption growth**, which is indeed one of the most important drivers of the world sugar economy at present. Sugar consumption growth shows not signs of abating, it is booming across most parts of the developing world.

For a long time population growth was the main driver of sugar consumption growth, accounting for as much as 85% of it.

Slide 21: Consumption and Population growth

This is not quite the case anymore as a recent ISO study showed that **income growth** is **much more important than imagined**. And in fact, if we compare sugar consumption with population growth we see that that consumption growth rates remain high but population growth rates are declining worldwide.

In **at least three regions**, which include the **Far East**, the **Indian Subcontinent** and even **Sub-Saharan Africa**, income growth is more important than population growth in driving sugar consumption.

Slide 22: Consumption by Region

They also have the biggest potential for consumption growth.

Our 2007 Sugar Yearbook data show that **sugar consumption was the smallest in Sub-Saharan Africa**, at **8 mln tonnes** of sugar and **15.2 kg** in per capita terms. Also the Indian Subcontinent and the Far East, the largest consumers of sugar worldwide, at 27 mln tonnes and 29 mln tonnes respectively, have an average per capita consumption of only 16.3 kg and 25.4kg. The ISO forecasts an average future sugar consumption growth in all these regions to exceed the world average rate of 2.3% by far over the coming years.

In places like **China**, where **income is the biggest driver** of demand growth, per capita consumption of sugar is still less than 10 kg. If per capita consumption is to rise to a world average level of 25 kg, the country will need an extra 20 mln tonnes of sugar in addition to the more than 13 mln tonnes it already consumes every year.

So sugar consumption will continue to be a very important driver of the world market over the coming years.

Finally, ladies and gentlemen, Point 7) which is on sugar refining and freight
Sugar refining at destination has expanded enormously over the past few years.

Slide 23: Sensitivity of import demand

A few months ago, I did a study at the ISO to see the correlation between prices for raw sugar and imports of raw sugar. To our surprise, after running an econometric model, we found that world imports simply do not respond to changes in the world price of raw sugar, so prices come down and there is not necessarily a demand response. Why not?

Well, importers are no longer responding to the world price of raws, because preferential trade, freight rates and regional premiums are much more important for this market than the world price

Slide 24: c.i.f price and world price

In fact the premium between the final c.i.f price of imported raw sugar and the world price is on average 40%, and it is these 40% that are crucial for a sugar importer.

What is in these 40%?

Apart from preferential trade, it is freight and regional premiums. Where the regional premium is high, there is an incentive to refine.

Slide 25: energy costs and refining

Countries that benefit from cheaper energy can mitigate the rising costs of refining. So the large number of sugar refineries in the Middle East.

But another very important factor is that long-haul freight rates for transporting white sugar are much higher than for transporting raw sugar in bulk.

The option to use containers is not really an option because there is a lack of established routes for most countries.

Slide 26: The freight rates challenge

Everybody is talking about rising freight rates, of over USD 80/tonne for the transport sugar in bulk, but long-distance freight for white sugar is even more expensive. For example last year, freight rates for small (14 thousand tonne) Handysize vessels transporting white sugar from Santos to East Mediterranean/Black Sea/Red Sea rose by over 30% to over USD 100/tonne. The fact that ocean white sugar freight rates are comparatively higher than raw bulk sugar continues to support refining at destination, and also the white sugar premium over the long-term. Over the past 12 years, the share of sugar imports by destination refiners in the global trade of raw sugar has risen from 17% to 40%. A world market share of 40% for the refiners is certainly very impressive, so we should watch out for all new developments in destination refiners – they will play a very important role in the composition of the world sugar trade in the future.

Thank you.

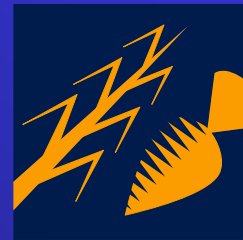
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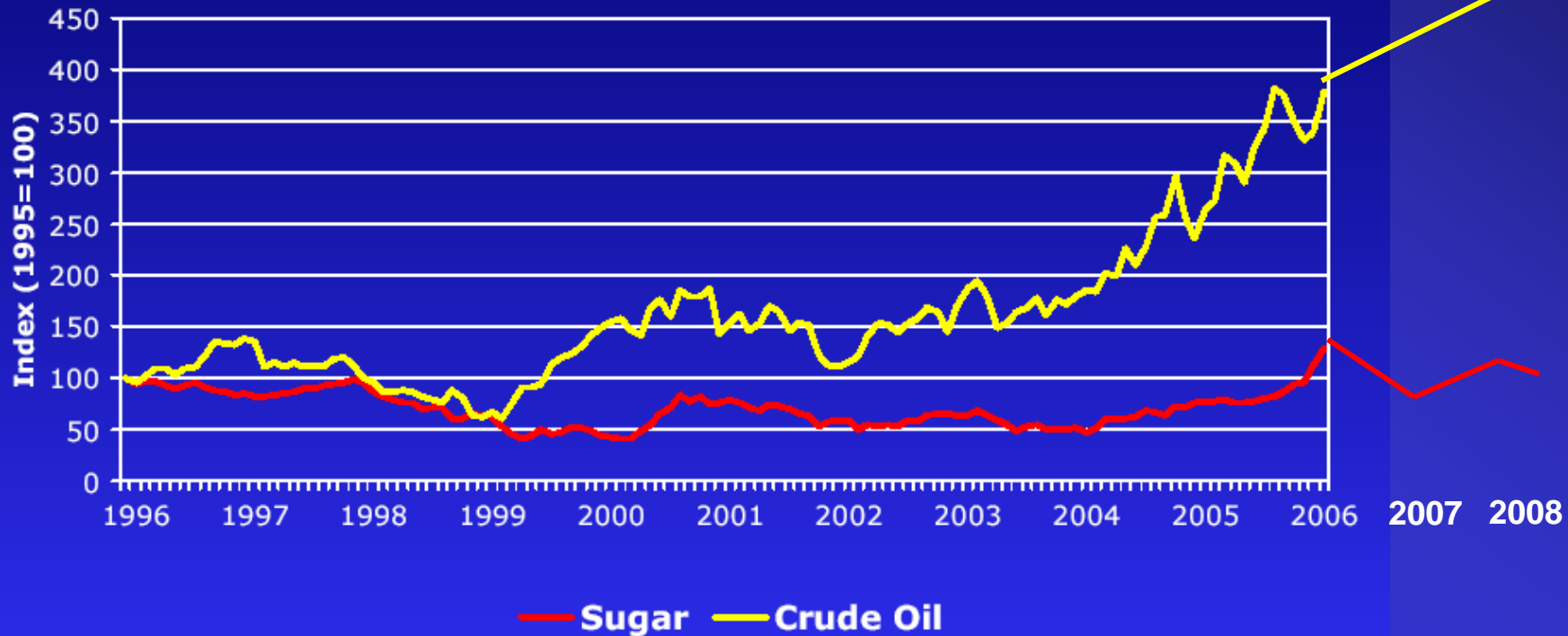
Key drivers of the world sugar economy



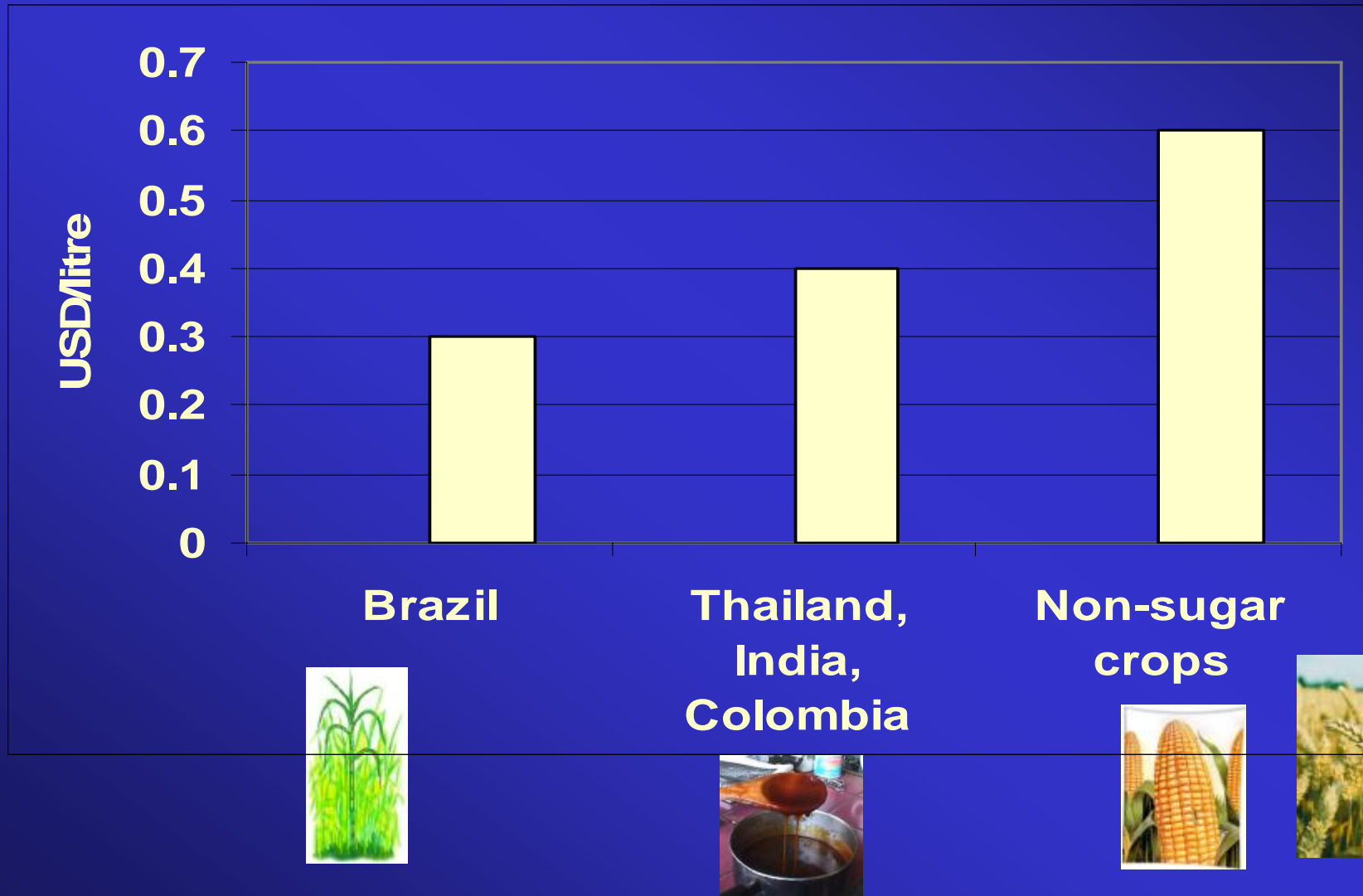
1. World ethanol production growth
2. Food versus fuel debate
3. Sugar prices: Funds, sugar futures, domestic markets and exchange rates
4. The EU as a major sugar importer
5. Increasing cross border investments
6. Global sugar consumption growth
7. Expansion of the refining business and regional premiums

Oil and sugar

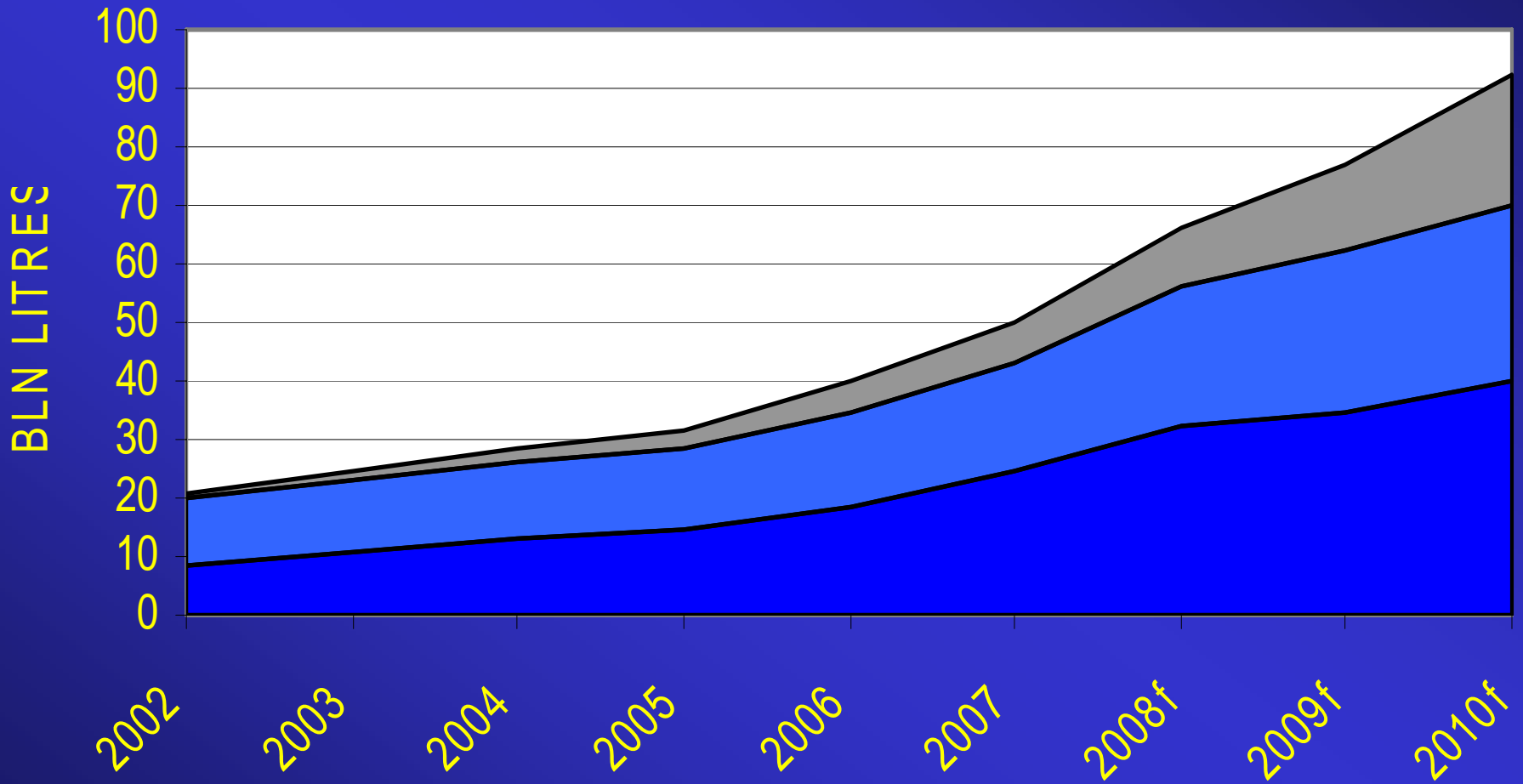
Sugar vs crude oil (Index 1995=100)



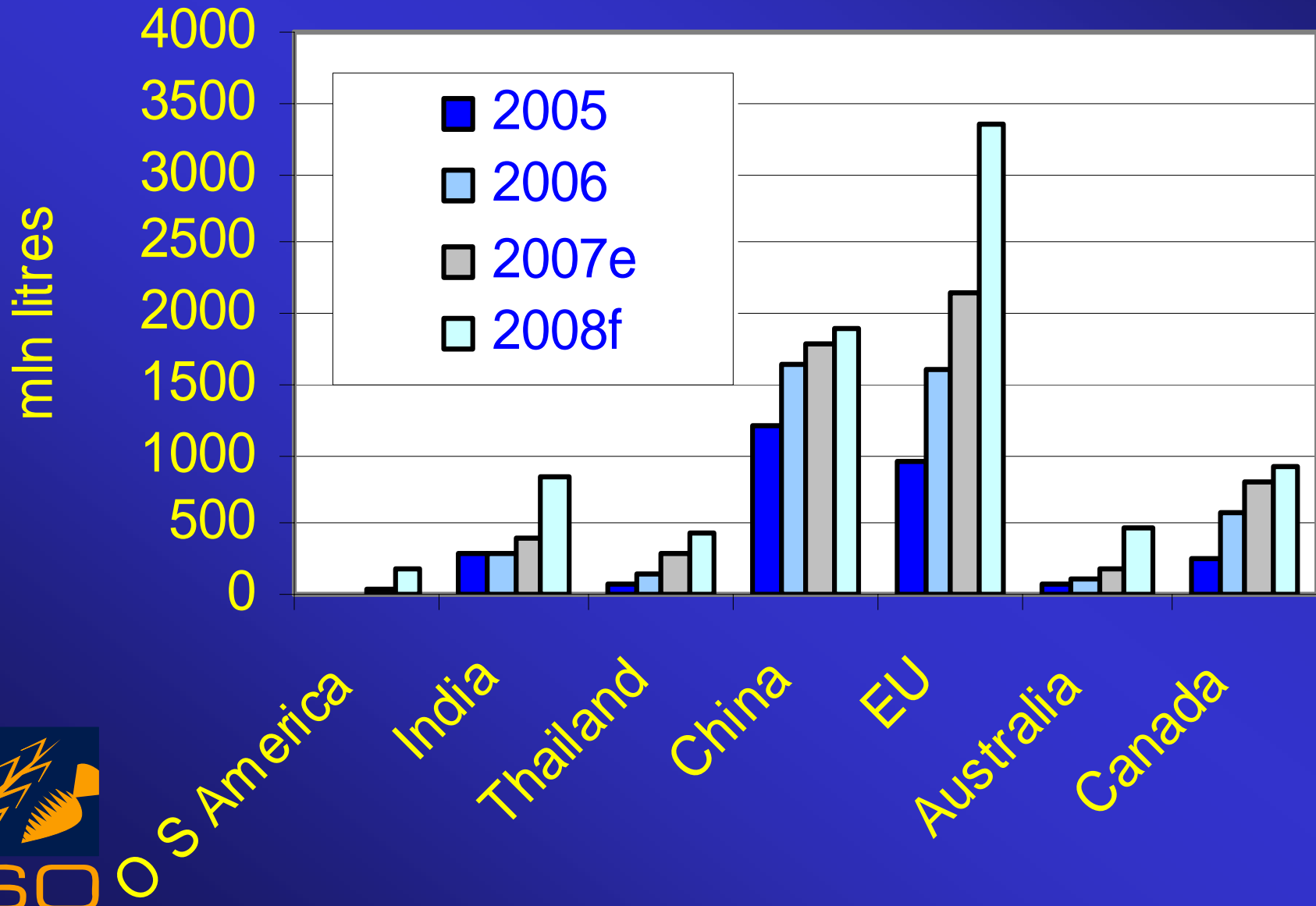
Ethanol production costs



World Fuel Ethanol Production



Fuel Ethanol Production outside Brazil and the US





World Ethanol Trade – new routes

- **Brazil –Europe**
- **Thailand- Asia**
- **Brazil - Caribbean**

Government support



- Fuel excise exemptions
- Abolishing of MTBE
- Progressive establishments of ethanol inclusion mandates

Ethanol production costs



Mid 2007	Grain	Molasses	Cane
Feedstock costs (USD/tonne)	288	55	30
Yield (Litre/ tonne)	370	220	75
Feedstock costs (USD/litre)	0.78	0.25	0.39
Processing costs (USD/litre)	0.11	0.07	0.11
Total Cost (USD/litre)	0.89	0.32	0.50

Mid 2006	Grain	Molasses	Cane
Feedstock costs (USD/tonne)	144	55	27
Yield (Litre/ tonne)	370	220	75
Feedstock costs (USD/litre)	0.39	0.25	0.36
Processing costs (USD/litre)	0.10	0.07	0.10
Total Cost (USD/litre)	0.49	0.32	0.46

Ethanol from sugar crops - efficiency



6,000 – 8,000 litres per hectare

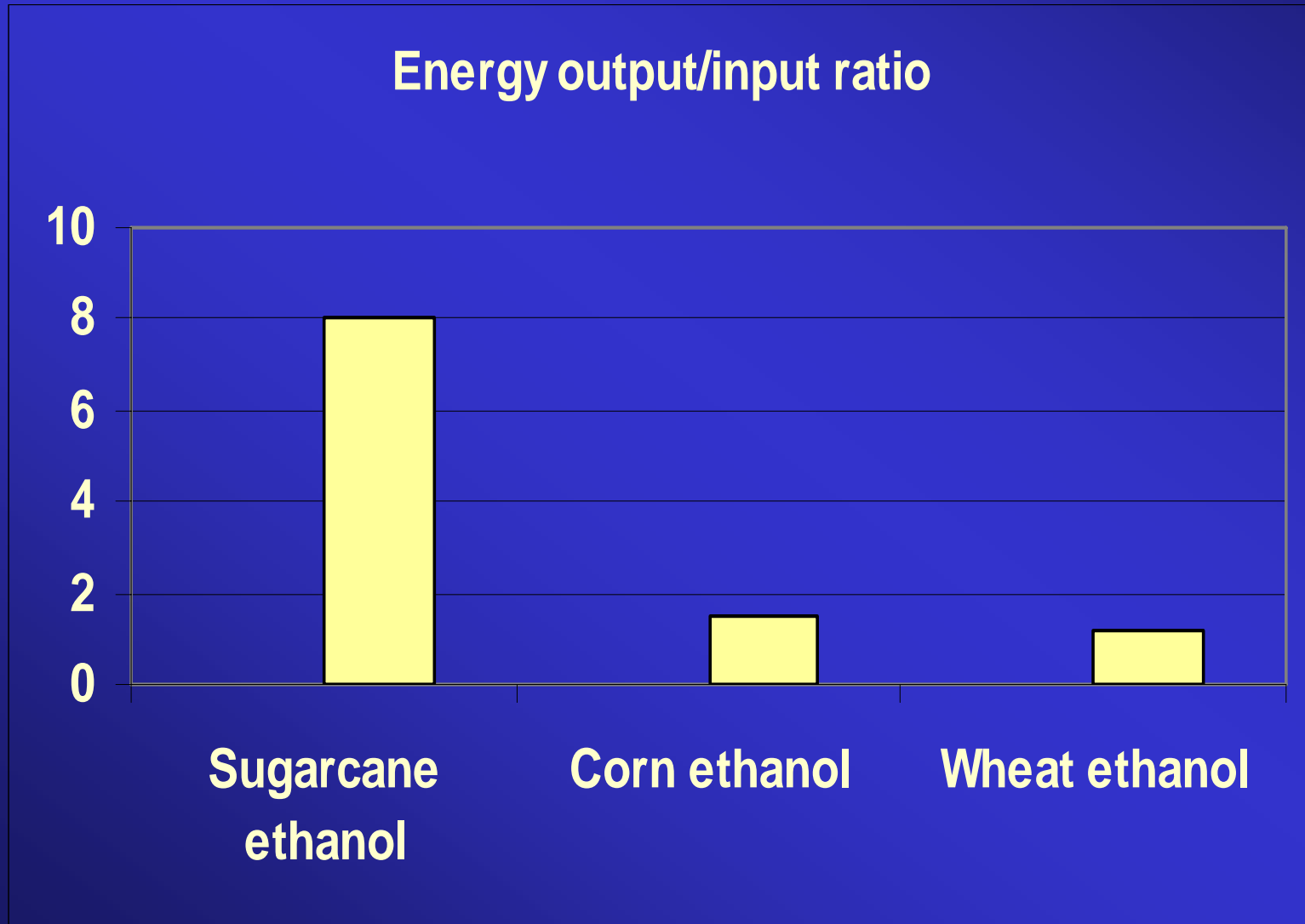


3,000 – 4,000 litres per hectare



2,000 litres per hectare

Net energy output/input ratio

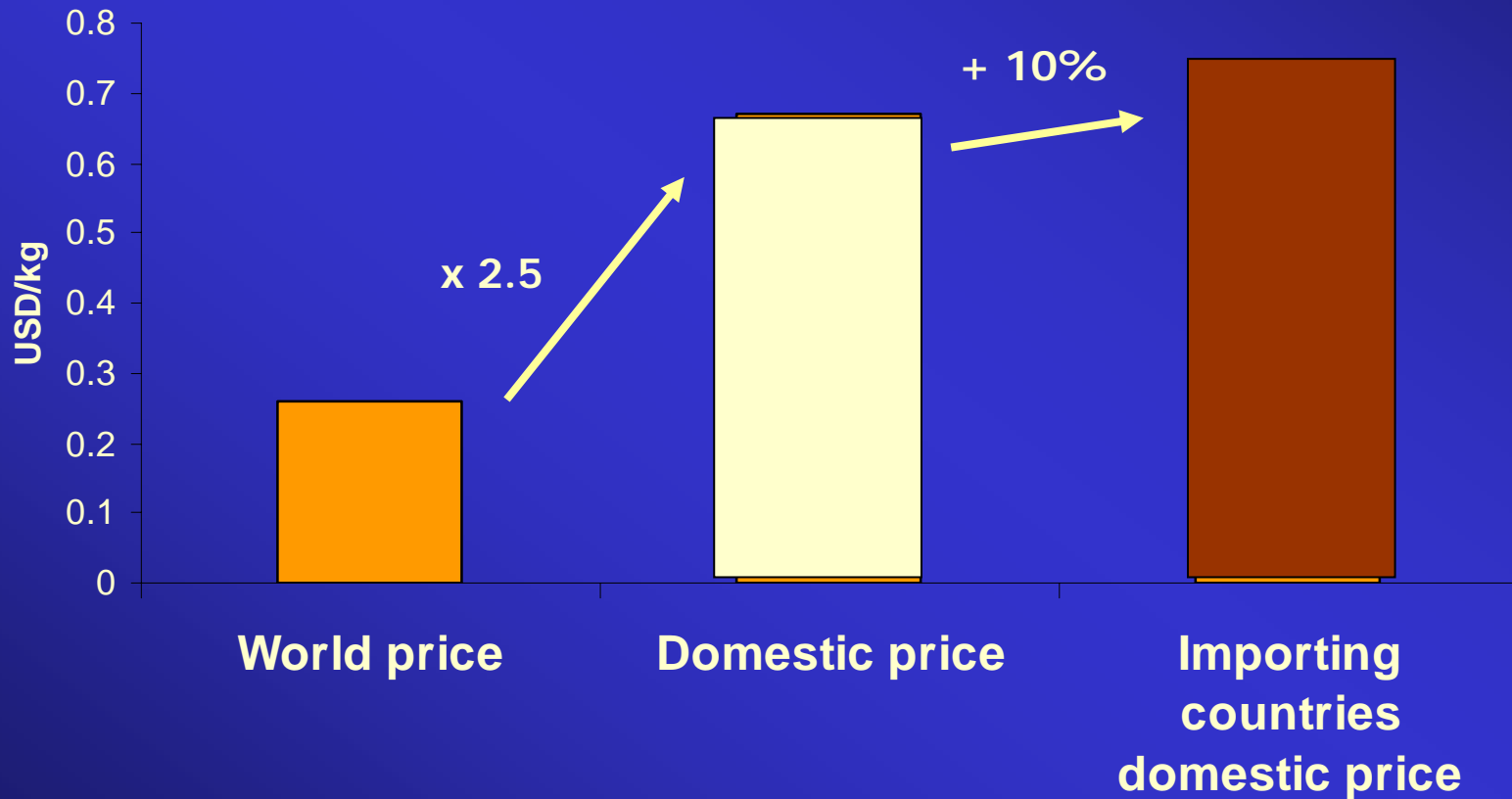


Index funds and sugar futures

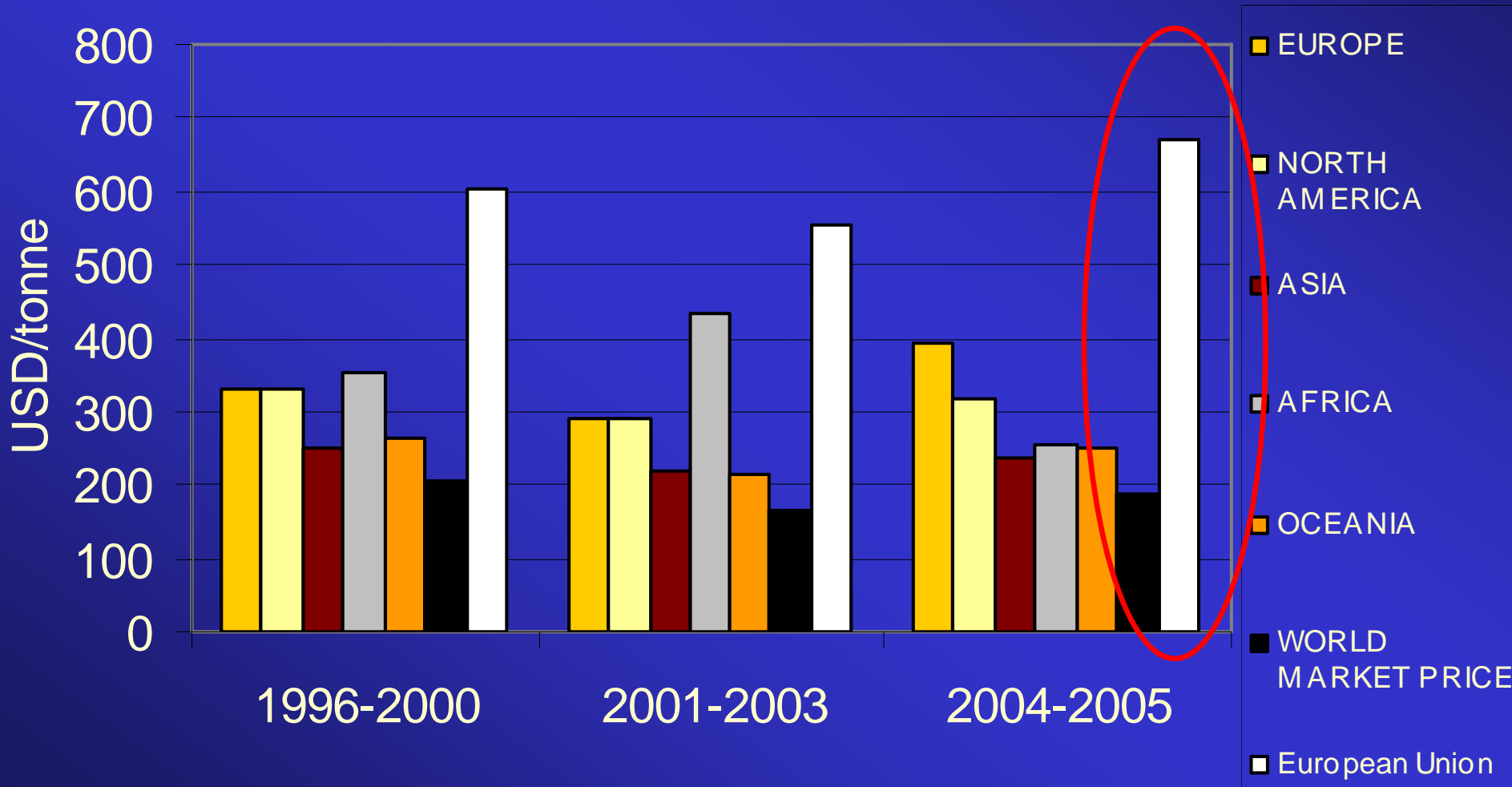
Long positions by Index Funds in ICE Sugar futures



Domestic prices



Cif raw sugar import prices by continent



EU import price in USD



Year	EUR/tonne	USD/tonne
2006/07	496.8	735.2
2007/08	496.8	735.2
2008/09	434.1	672.8
2009/10	335.1	519.4

Exchange rate of
1.55



↑
EU market
increasingly
attractive

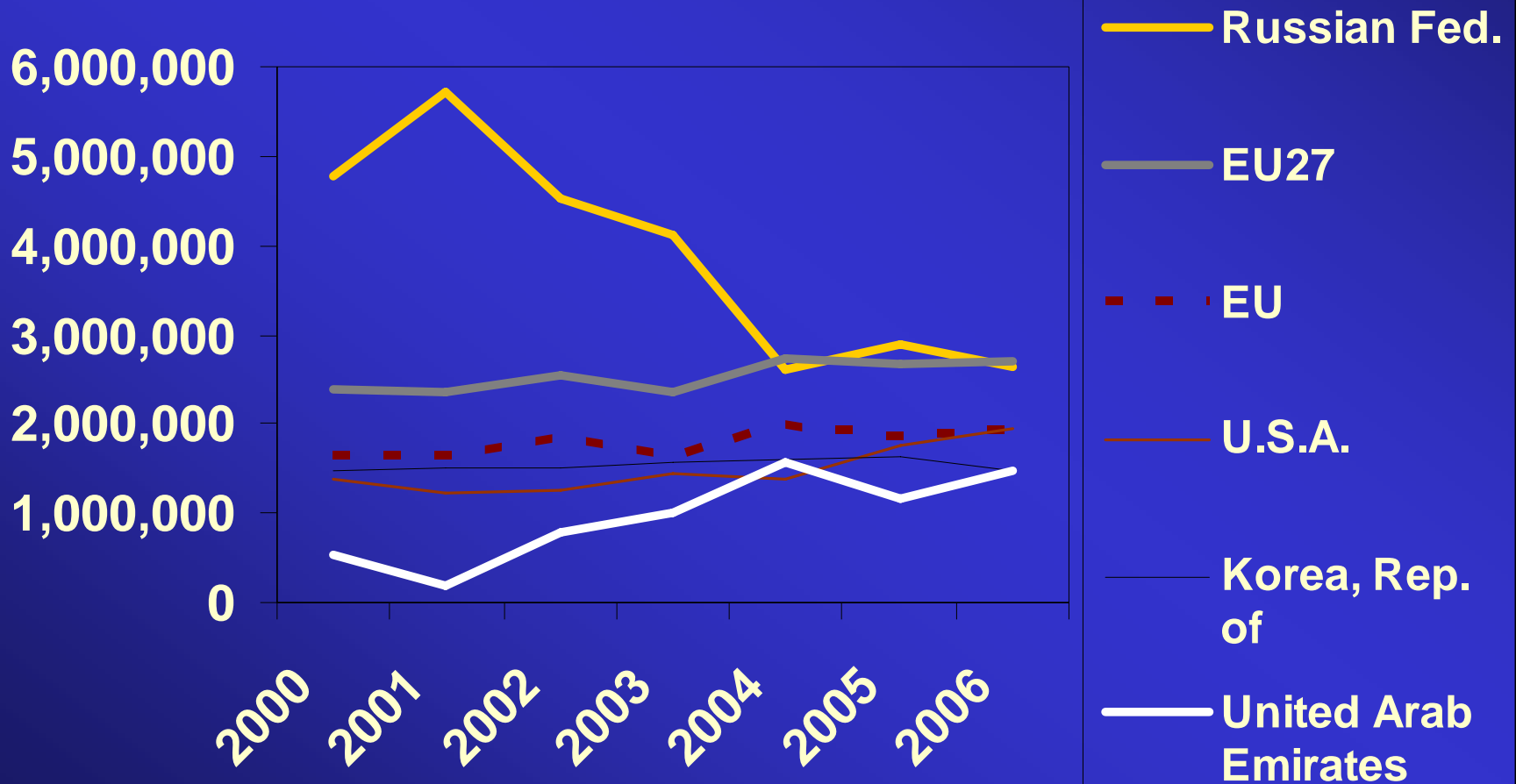
↑
Exchange rate in
Nov-2005: 1.18

Year	EUR/tonne	USD/tonne
2006/07	496.8	586.2
2007/08	496.8	586.2
2008/09	434.1	512.2
2009/10	335.1	395.4

Raw Sugar Imports



Imports of raw sugar, tonnes, raw value



EU Sugar Imports Pre-Reform



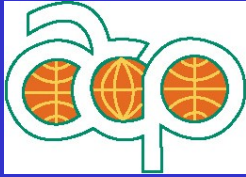
Imports before reform, **EU-25** (white v):

- Sugar Protocol: 1.4 mln tonnes
- MFN: 0.1 mln tonnes
- SPS: 0.2 mln tonnes
- Balkans: 0.3 mln tonnes
- EBA: 0.1 mln tonnes
- TOTAL: 2.1 mln tonnes.

EU Sugar Imports (around 2013)



- Imports after reform, **EU-25** (white v):
 - Sugar Protocol: 1.4 mln tonnes
 - MFN: 0.1 mln tonne
 - Balkans: 0.3 mln tonnes
 - EBA: 1.9 mln tonnes
 - CXL: 0.1 mln tonnes
 - TOTAL: 3.8 mln tonnes
- So, **excluding changes in quantities imported by Romania and Bulgaria**, EU imports will be directly linked to **EBA export volume growth**



ACPs - EPAs



- Negotiations between EU and 6 ACP regions (77 countries).
- Replace the Trade Chapters of the 2000 Cotonou Agreement.
- EU Offer April 2007:
 - Remove all remaining quota and tariff limitations on ACP access to the EU market for all products: EBA equivalent access.
 - Phase in period for sugar.

Selected Cross-border investments

Export-led investments

Country	Companies
Brazil	Tereos, Louis Dreyfus, Infinity Bioenergy, CEB, Cargill, Bunge, Abengoa, Adecoagro, Noble
Mozambique	Illovo (British Sugar), Tereos, Sena Holdings, Tongaat Hulett
Zambia	Illovo (British Sugar)
Tanzania	Illovo (British Sugar), Sukari

LDCs – EBA – Who will expand?



Those with low production costs relative to the EU raw sugar price (EUR 335/tonne in 2009/10), and efficient sea ports.

4 Key beneficiaries:

Mozambique



Zambia



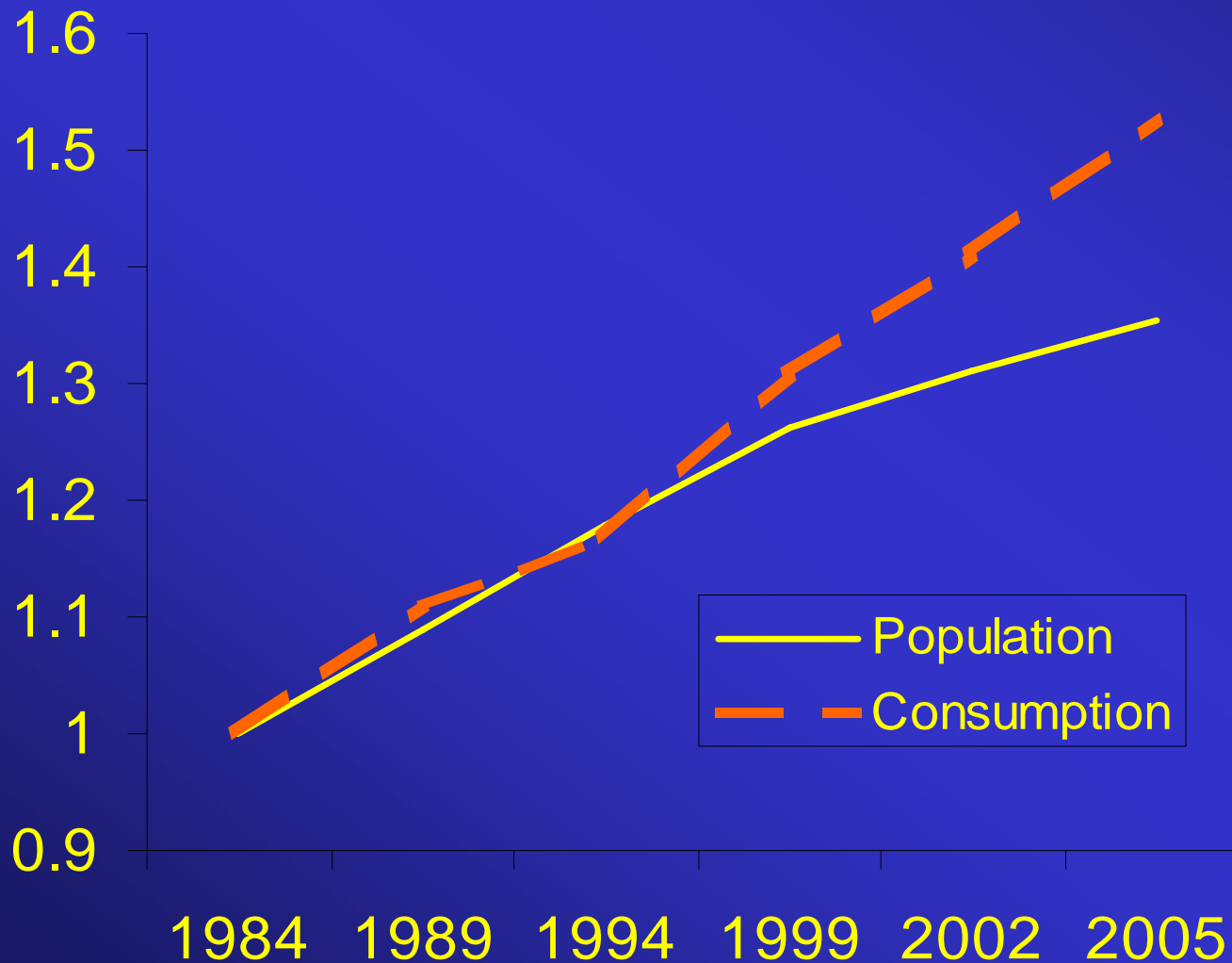
Sudan



Ethiopia



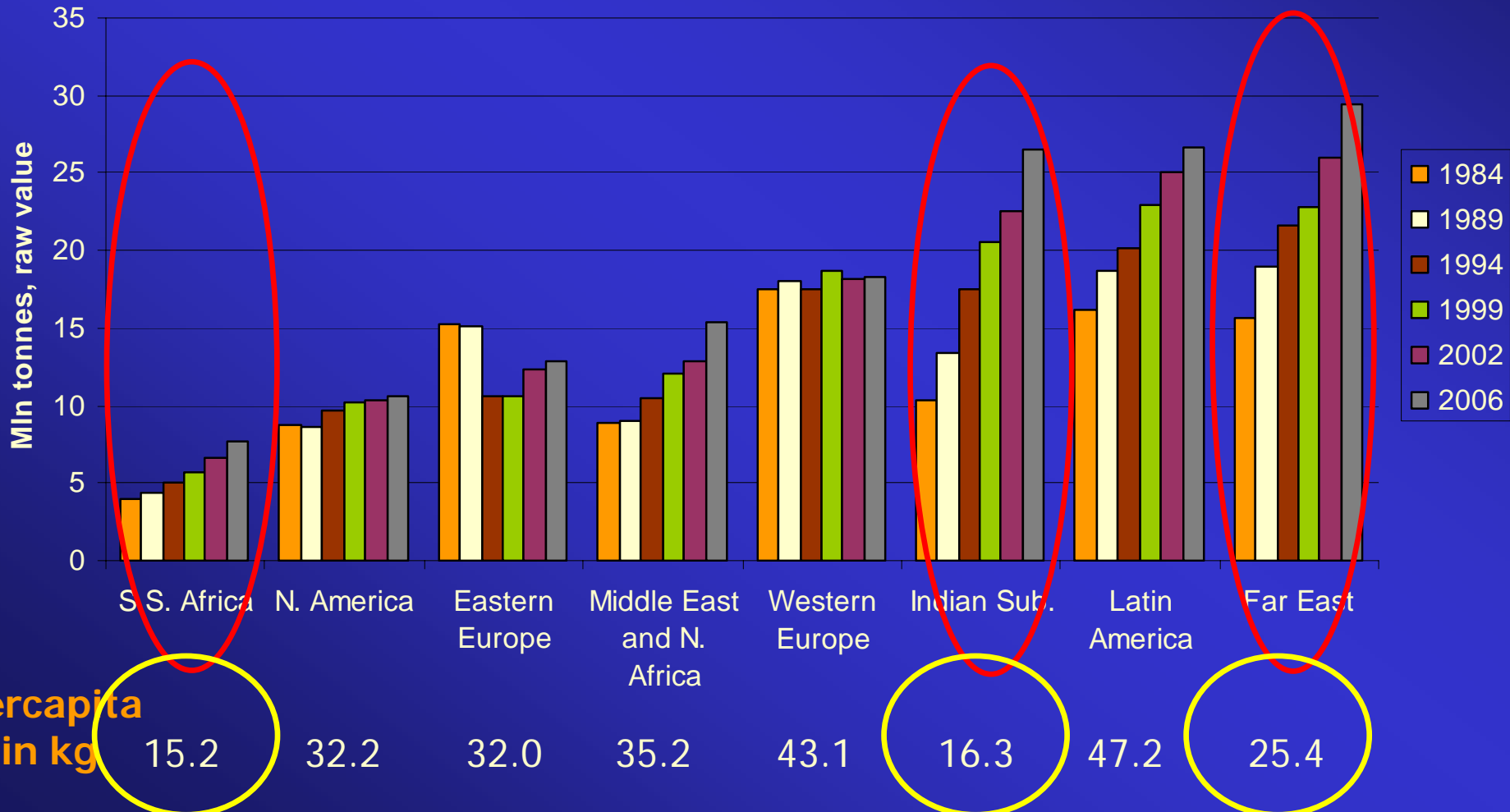
Population and sugar consumption



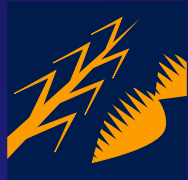
Consumption by region



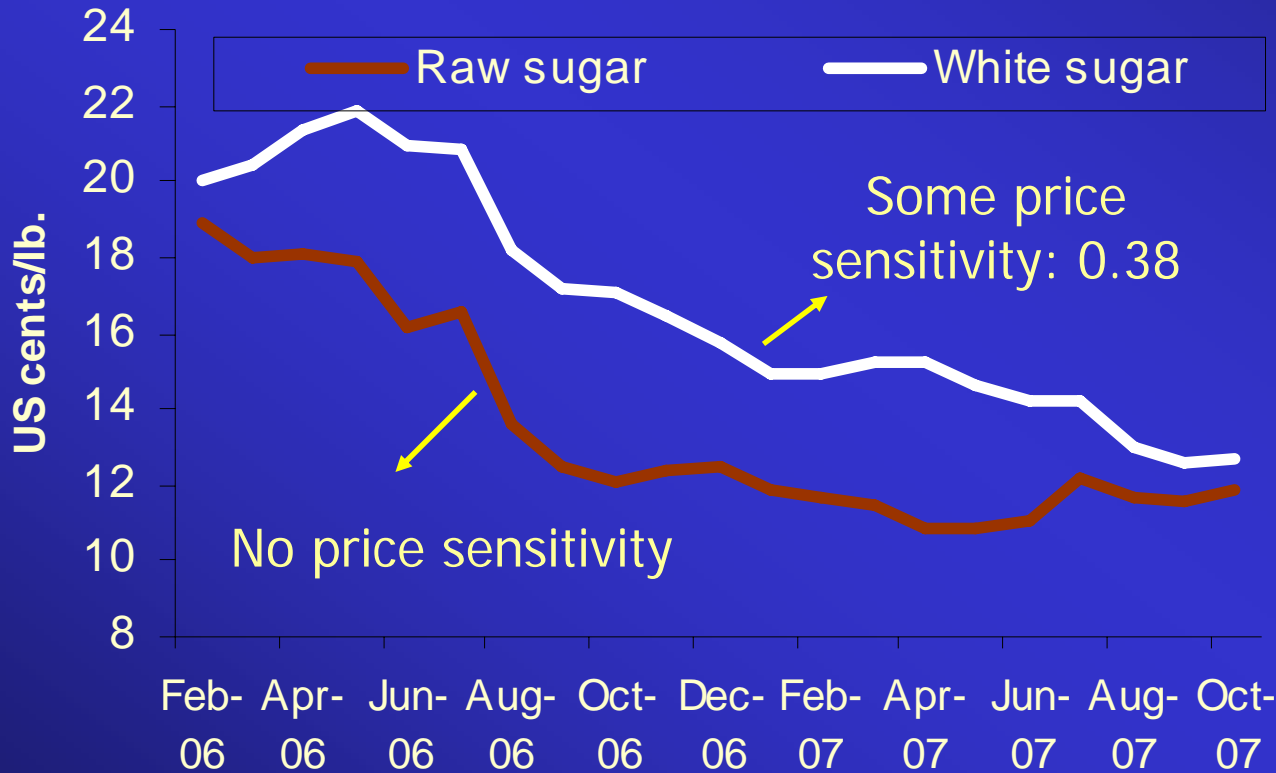
ISO



Volatility of world sugar prices

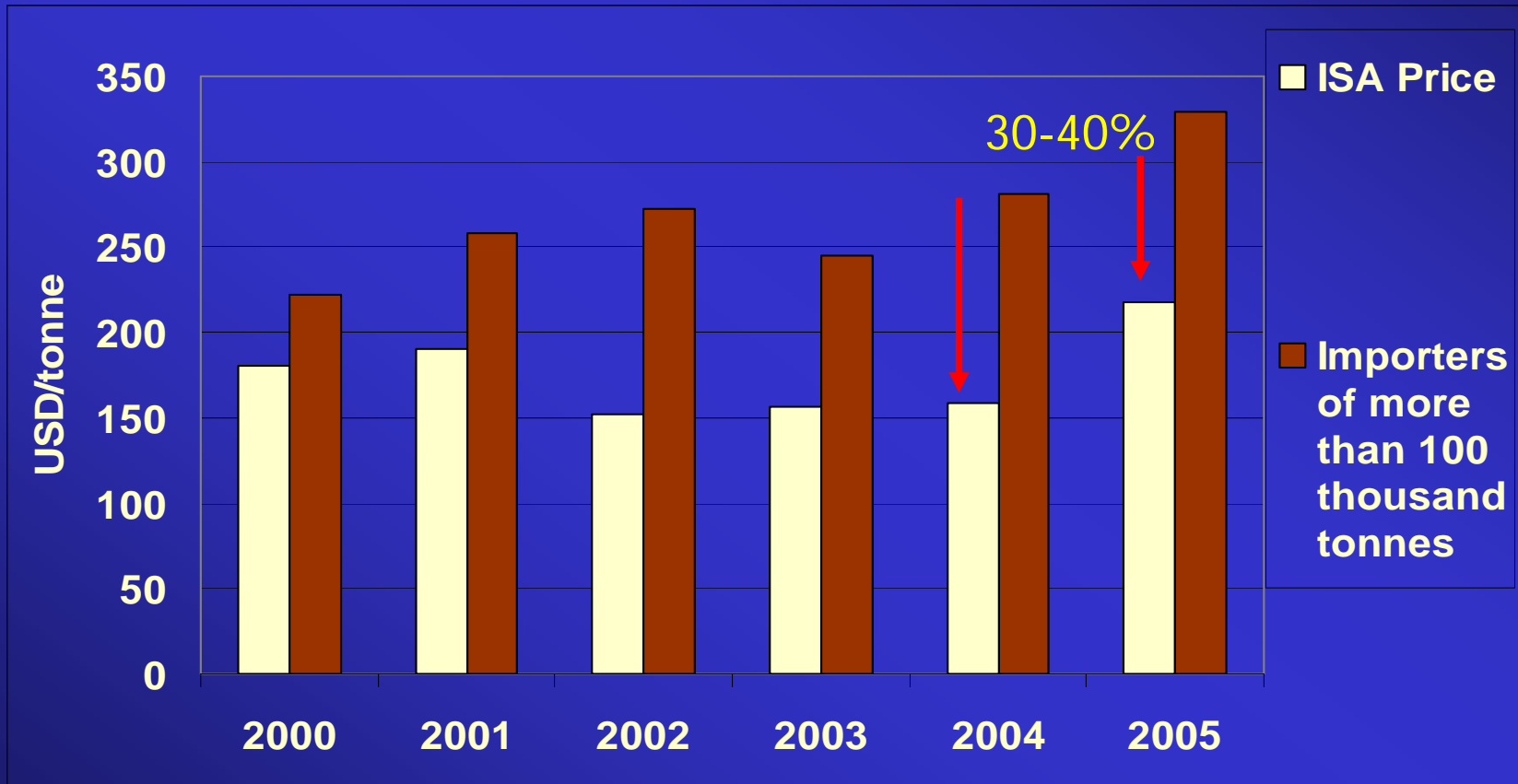


ISO



Collapse from historical highs

Cif raw sugar import prices versus ISA price



Sugar refining in the Middle East



Low energy costs!

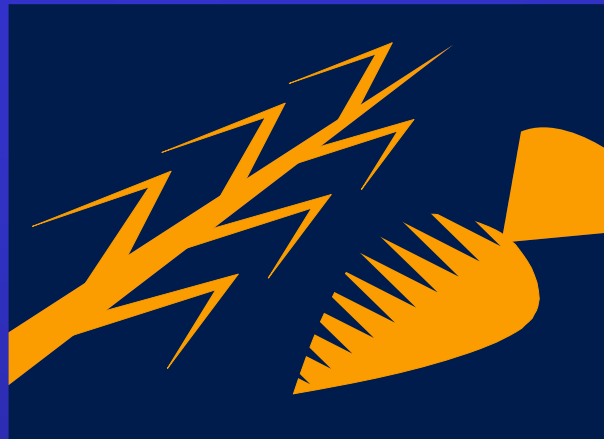


The freight rates challenge



**Greater quantities,
greater vessels, but
imbalanced regional
growth**

Thank you!



ISO