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Serving the World of Sugar

Sugarcane: Fuel of the Future



Yang-Rui Li
President, IAPSIT

World's total primary energy demand amounts to about 11,400 million tonnes of oil equivalent per year; biomass, including agricultural and forest products and organic wastes and residues, accounts for 10% of this total. Renewable energy sources represent around 13% of total primary energy supply, with biomass dominating the renewable sector. Liquid biofuels also play an important role in global energy supply and account for over 2% of total bioenergy. Their significance lies mainly in the transport sector, however, liquid biofuels have grown rapidly in terms of volume and of share of global demand for transport energy. The recent emergence of liquid biofuels based on agricultural crops as transport fuels has reasserted the linkages between energy and agricultural output markets. According to the FAO report, there were high expectations surrounding liquid biofuels as a resource that could potentially mitigate global climate change, contribute to energy security and support agricultural

producers around the world. Biofuel production from agricultural commodities increased more than threefold from 2000 to 2007, and now covers nearly two percent of the world's consumption of transport fuels. The demand for biofuels will expand to 92 million metric tons by 2011, despite recent concerns about the impact of biofuels on the environment and world food supplies

In this context, the most recent growth in biofuel production has occurred in the Organisation for Economic Cooperation and Development (OECD) countries, predominantly the United States and the European Union (EU) countries. An exception is Brazil, which has pioneered the development of an economically competitive national biofuel sector based largely on sugar cane.

According to FAO Director-General Jacques Diouf "Opportunities for developing countries to take advantage of biofuel demand would be greatly advanced by the removal of the agricultural and biofuel subsidies and trade barriers that create an artificial market and currently benefit producers in OECD countries at the expense of producers in developing countries". Production of biofuel feed-stocks may create income and employment, if particularly poor small farmers receive adequate support to expand their production and gain access to markets. Promoting smallholder participation in sugar crop production, including for biofuel, requires investment in infrastructure, research, rural finance, market information and institutions and legal systems.

In the present scenario, energy crops viz., sugarcane and sugar beet could provide farmers with an important source of demand for their products. About 80 developing countries, for instance, grow and process sugarcane, a high biomass-sugar yielding crop that can be converted to bio-ethanol using its molasses, juice and cellulosic residues. Sugarcane production for bio-ethanol has therefore become a more attractive option for developing-country farmers as has been practiced in Brazil. This movement will ensure an environmentally, economically and socially sustainable biofuel production programme in developing countries.

Yang-Rui Li

Towards a Sweeter and Prosperous Tomorrow

Socio-economic perspective of the sugar-ethanol business in developing countries

Sugar, is and will remain, a highly political commodity, characterised by political interventions for better or worse. For ISO the socio-economic role of sugar and ethanol in development is very high because the lion's share of ISO members are developing and least developed countries. In many cases, sugar and nowadays, ethanol, plays a tremendous role to give the rural population a reliable and sustainable income and work.



Dr. Peter Baron, President, International Sugar Organization

There are many policy and economy related drivers shaping the socio-economic perspectives in developing countries, viz., consumption potential; diversification (ethanol, electricity cogeneration); sugar crops as feed stocks for ethanol; prices (international and domestic); self-sufficiency as a policy objective; trade patterns, trade flows & destination refining and sustainable production – an indispensable objective

In today's globalized world economy, the rising world demand for food, the unprecedented economic growth in emerging markets, the all time record prices for crude oil and soft commodities, as well as the rush into renewable biofuels makes agriculture again, after almost 30 years of neglect, a strategically pivotal part of the world economy.

More important, sugar crops are an essential feature of this revived interest. Their emergence, not only as food but also as energy suppliers, offers unprecedented opportunities and gives reason for quite a positive outlook.

For a long time, population growth was the main driver of sugar consumption growth, accounting for as much as 85% of it. A recent ISO study showed that this is no longer the case and that income growth is much more important than imagined. 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. This is clearly due to the rapid economic development with increased purchasing power in the economies of these regions. They are at the same time some of the most populated ones.

Per capita consumption in these regions (10-25 kg) lags far behind that of mature markets (30-50 kg). Meaning, there is a big untapped potential for sugar. ISO 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.

Then comes North America, at 11 mln tonnes, Eastern Europe, at around 13 mln tonnes, the Middle East and North-Africa, at around 15 mln tonnes and Western Europe, at around 18 mln tonnes. All these four regions show a per capita consumption of at least 32 kg or more.

Both the Indian Subcontinent and Latin America are consuming around 27 mln tonnes of sugar a year, but per capita consumption in the Indian Subcontinent was only 16.3 kg while in Latin America it was much greater at 47.2 kg. The world's leading consumer is the Far East, at just over 29 mln tonnes of sugar but average per capita consumption there is only at 25.4 kg.

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. As a result there is in the future tremendous untapped potential for sugar consumption.

Another key driver that is sweeping the world sugar economy is diversification.

The impact of high crude oil prices on oil importing countries, in particular developing countries, means a great absorption of export revenues through rising import bills, higher transportation costs and inflation rates, reduced GDP growth, weaker trade competitiveness and less resources for anti-poverty programmes. Since competing for the world sugar markets gets tougher, particularly when preferential access to markets is reduced or denied, diversification is one obvious option.



It is not by chance that fuel ethanol is the preferred choice based on the experiences of the Brazilian ethanol saga stretching back now over more than 30 years, which became a unique success story.

Today, both the world fuel ethanol production and consumption outlook are bright. The United States and Brazil will account for the lion's share of global fuel ethanol production but others are making fast inroads. Brazil is expected to produce almost 24 billion litres of cane fuel ethanol this year and the United States to produce 32 billion litres of corn fuel ethanol and both are facing booming growth in ethanol off take. Europe is expected to produce 3.4 bln litres of fuel ethanol alone in 2008, up by more than 50% from last year. Consumption in the EU will be greater than 4 billion litres.

Furthermore, there is an increasing number of countries embarking on fuel ethanol programs - many in sugar producing countries - heralding a sustained boom in world ethanol production and demand.

The ethanol opportunity can only be captured with a government policy that helps to establish a solid and viable industry, by giving a clear legal framework as well as financial incentives. The most effective instruments of government assistance are mandated inclusion of ethanol because it creates demand and gives the petroleum industry no option but to collaborate, and suitable fiscal incentives, particularly fuel excise exemptions over a sufficient length of time.

Capital grants also provide support to domestic producers as against imported supplies – an advantage not conferred by fuel tax exemptions.

The dimension of the fuel ethanol opportunity is very much determined by the import needs of developed countries to meet their biofuels target. At the moment, the world ethanol trade is still in its infancy. Key importers at present are the United States, the Caribbean, and the European Union. High ethanol prices and strong export demand for Brazilian ethanol has pushed up fuel ethanol trade in 2007 to over 5 billion litres. Trade is now taking routes not so much developed in the past, especially Brazil – EU, Thailand-Asia, and Brazil-Caribbean. These routes have seen total trade volume double in 2007 compared to 2006.

Tariffs on imports are still substantial and constitute an obstacle to a faster growing trade. Less protective

policies would clearly accelerate international ethanol trading.

Another bottleneck to increase consumption is still the lack of distribution infrastructure in most countries.

It is difficult to anticipate to what extent and how quickly trade in ethanol will be boosted by the prospective ethanol programmes in various parts of the world. Our guess is that trade of fuel ethanol will reach 8 billion litres by 2010.

The good news in the whole ethanol story for us sugar people is that sugar crops are by far the most competitive feed stocks, compared to corn and wheat is that productivity per unit area is highest; production costs are lowest; energy balance is the most positive one and ethanol from sugar cane produces eight times as much energy as it uses, compared to 1.5 times if the feedstock is corn and around 1.2 times in the case of wheat. Sugar crops have clearly the best environmental credentials.

The socio-economic outlook for sugar growers is also sweetened by domestic price levels.

Sugar prices can vary tremendously from country to country. But what is more decisive, domestic retail sugar prices (which are the prices consumers are most familiar with) are a lot higher than world sugar prices. We recently estimated at the ISO that average retail domestic prices can be about 2.5 times the average world sugar price. In importing countries, like Egypt, domestic prices can be even higher, with a further premium as high as 10% over average levels.

Domestic sugar prices are also about twice higher in beet producing countries than in sugarcane producers, possibly reflecting higher beet sugar production costs. But even in the lower-cost sugarcane producers, domestic prices are still about 80% higher than world prices. The trick is that, as the domestic markets expand in emerging markets, prices will almost certainly remain supported by booming consumption, giving additional support to national industries.

But even internationally, there are other price factors that are going to boost the sugar trade, aside from the world price. The most relevant is the move by the European Union to increase its sugar imports from the least-developed countries at a price that is close to its domestic reference price, which is about 3 times as high as the world market price.

Many factors like changes in trade patterns (raw/white), trade flows and destination refining are playing a crucial role for future developments.

The removal of about 5-6 million tonnes price-sensitive, white sugar from the world market as a consequence of the EU sugar policy reform has major implications for the volatility of sugar values and the trade flows. The past few years have already seen substantial changes in the global sugar trade flows. There has been a greater reliance on unrefined or VHP raw sugar imports from Brazil and India, which can be refined at a relatively low cost and sold at a premium in several local markets in the Middle East and Africa. This is prompting the setting up of a record number of projects for refining sugar at destination, in countries like Yemen, Syria, Morocco, Nigeria, Bangladesh, Egypt and India, among others. And as a result, raw sugar trade has developed faster than white sugar trade over the recent years. The impact of this new role of destination refineries can already be seen by the significant rising volume of raw sugar imports from Brazil and India by the Middle East, North Africa and Nigeria over the past years.

The share of raw sugar imports in total in the regions has increased from less than 20% in 1995 to 60% today.

There can be no doubt that, in order to maintain the scope for future economic viability and profitability, the preservation of ecological functions and the natural environment is essential. To strengthen the socio-economic

dimension of sugar in the interest of millions of cane and beet growers in the long term, sustainable production is an indispensable objective. But also sustainability is a dynamic process. Therefore technological and scientific advances and innovations have to be embraced to the fullest extent possible.

There are still a lot of productivity and efficiency reserves which will be tapped over the coming years in field and factory. They will make sugar crops even more competitive as a food and energy supplier. Let me just mention a few examples:

Genetically modified, high yielding, more disease resistant beet and cane varieties. Tropical beets and winter beets, better transport infrastructure, more sophisticated logistics and last but not least state of the art technology in processing to reduce post harvest losses, to augment extraction rates and to develop alternative and complimentary uses like bio-degradable plastics.

In many cane producing countries, major steps have been taken to develop ethanol production by rapid hydrolysis and economic viability seems to be getting closer and closer.

It is hoped that, with hard work, dedication, a spirit of innovation and creativity, the world sugar economy is well prepared to embrace these new challenges successfully. Therefore a great deal of optimism regarding the future socio-economic perspectives for developing countries is justified.

Excerpts from the lecture delivered during 3rd International Sugar Conference IS-2008 "Meeting the Challenges of Sugar Crops and Integrated Industries in Developing Countries held at Al Arish, Egypt on 11-14 September 2008

HIGHLIGHTS

3rd International Sugar Conference : Meeting the Challenges of Sugar Crops and Integrated Industries in Developing Countries, Al-Arish, Egypt

The 3rd International Conference IS-2008 was held at Sinai University, Al Arish (Egypt) from 11-14th September, 2008. The conference was jointly organized by International Association of Professionals in Sugar and Integrated Technologies (IAPSIT) and Sinai University. The IS-2008 conference was well attended and represented by over 300 delegates came from 23 developed and developing countries. The IS-2008 conference was organized under the auspices of H.E. Hosni Mubarak, President of Egypt and supported by the Department of

Agriculture, Egyptian Sugar Crops Council and many other government and private bodies. The conference delegates came from China (67), India (39), Indonesia (13), Brazil (7), Pakistan (3), Nigeria (4), France (1), Kenya (1), Thailand (3), Myanmar (4), Australia (3), USA (3), South Africa (3), Vietnam (1), Fiji (1), Sudan (5), Bangladesh (1), Mauritius (2), Egypt (100), Tanzania (1), Reunion (2) and U.K. (1).

The theme of the IS-2008 conference was 'Meeting the Challenges of Sugar Crops and Integrated

Industries in Developing Countries'. The conference was inaugurated by H.E. Amin Abaza, Minister of Agriculture and Land Reclamation, Egypt. The inaugural ceremony of IS-2008 was graced by Mr. Abdel Fadel, Governor of North Sinai, Dr. Peter Baron, President, International Sugar Organization, Mr.S.L.Jain, Director General, Indian Sugar Mills Association (ISMA), Mr. Zhao Zhang, China Ministry of Agriculture, Dr.Hassan Rateb, President Board of Trustees Sinai University, Dr.Yang-Rui Li, President of IAPSIT, Dr. S. Solomon, Secretary IAPSIT & IS-2008, Prof. M. I. Nasr, Coordinator IS-2008 and members of Executive Committee of IAPSIT. Prof. Hassan Rateb appreciated the excellent work being done by IAPSIT in promoting "Peace and Goodwill" among the people's of developing countries.

Mr. Amin Abaza emphasized that "although the global sugar production has crossed 150 million tons mark, there is an ardent need to augment average sugar productivity if food-fuel balance is to be maintained. This is very important in context of food supply situation in developing countries. He said that the recommendations of the conference, to some extent will help bridging the gap between food-fuel shortage, which is a real concern all over the world".

The conference started with the invited lectures, first presentation on '*Socio-economic perspective of the sugar –ethanol business in developing countries*' was presented by Dr. Peter Baron, Executive Director of International Sugar Organization. Dr. Baron in his theme lecture said that there are many policy and economy related drivers shaping the socio-economic perspectives in developing countries and the most pertinent ones are consumption potential, diversification (ethanol, electricity cogeneration), sugar crops as feeds-tocks for ethanol, prices (international and domestic), self-sufficiency as a policy objective, trade patterns, trade flows, destination refining and sustainable production – an indispensable objective.

Dr. S. L. Jain of ISMA spoke about the *Economic Importance of Sugar and Integrated Industry in Developing Countries*. He pointed out that "sugar is one of the major agricultural commodities just after cereals and oils, which accounts for 10% of dietary calories worldwide. Over 75% of cane sugar is produced in ten developing countries. Sugarcane is a major source of income to millions of farmers in the developing countries

and therefore, the sugar industry plays an extremely important role in the economies of respective countries. Mr. Jain said that In 2008-09, world sugar production is expected to decrease to 161.64 million tonnes, raw value and for the first time in 2008-09, the sugar consumption will sizably exceed the production estimate by about 4 million tonnes". Prof. Abou Donia, Department of Pharmacology and Cancer Biology, Duke University Medical Center, Durham, USA delivered a lecture on *Splenda alters gut micro-flora and increases intestinal p-glycoprotein and cytochrome p450 in male rats*.

Prof. Mahmoud I. Nasr, appreciated the efforts of IAPSIT Executive Committee and the management of Sinai University in organising IS-2008 in Egypt.

The IS-2008 conference was arranged in six technical sessions and a special session on *Premier Sugar Crops Research Institutes and Associations of the world* was organized on 11th September, 2009.

- Session I : Sugar Crops Production Technologies
- Session II : Sugar Crops Improvement Technologies
- Session III : Sugar Crops Protection Technologies
- Session IV : Sugar Crops Physiology, Quality and Management of Abiotic Stress
- Session V : Sugar Processing Technologies, Biofuels, Diversification and Value Additions
- Session VI : Sugar Crops Marketing, Management Information System and Human & Economic Resource Management

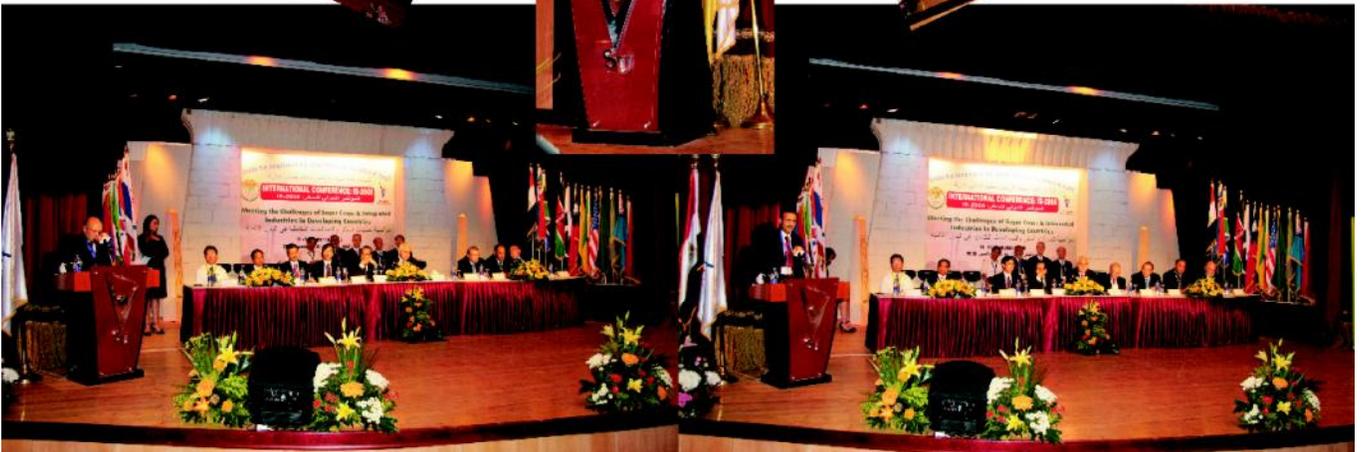
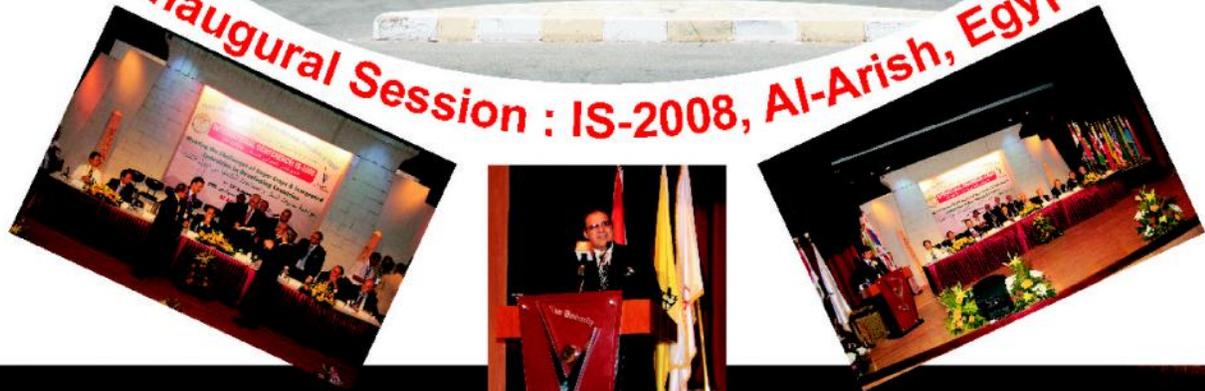
Life in Sama Al Arish resort

The Al Arish resort on Mediterranean coast provided a very pleasant venue as accommodation for IS-2008. Adjacent to Sinai University, the conference venue, the resort provided the ideal and comfortable location and made it easy for the conference participants to move to and from IS-2008 sessions.

The whole resort was capped off by the excellent grounds. Date palms, a luxurious swimming pool and landscaping made it a very pleasant place to stay. In the cool of the evenings, dinner was served by the pool-side enabling conference participants to mix in an easy-going social setting. This brought together peoples from many varied backgrounds and ethnic origins. Brightly coloured lighting and tasteful decorum made the experience memorable and enjoyable.



Inaugural Session : IS-2008, Al-Arish, Egypt



Valedictory Session



Valedictory Session in progress



T.S.G. Lee : Report Presentation - Session I



Y.B. Pan : Report Presentation - Session II



R.C. Magarey : Report Presentation - Session III



Y.R. Li : Report Presentation - Session IV



J.J. Bhagat : Report Presentation - Session V



K.M. Hurly : Report Presentation - Session VI



Mr. Atulya Misra, Commissioner of Sugar, Tamil Nadu, India honouring Governor of North Sinai, Egypt



Mr. S.L. Jain, Director General, Indian Sugar Mills Association (ISMA)

Glimpses of Technical Sessions



Visit to Giza Pyramids and Nile Cruise at Pharaoh restaurant by night

The organizing committee of IS 2008 invited all delegates to a gala dinner on a cruise boat "Pharaoh" on the Nile with belly dancer, folklore show and western music. The exquisite Egyptian cuisine and beer made it a memorable dining experience for everybody. All participants enjoyed a magnificent view of Cairo City. During the cruise, following dinner, delegates enjoyed a folklore show and belly dancing in which most of our delegates danced to the tune of Egyptian-Western music. Towards the end of the cruise, delegates were taken on the top deck to enjoy fresh air and the beautiful city lights of Cairo.

The IS-2008 delegates were also taken to visit Giza Pyramids and Hawamdia Sugar Unit, about 30 kilometers

from Cairo. The management of mill had arranged for a sumptuous Egyptian lunch which was highly appreciated by everybody. On their way back, delegates were taken to some important historical monuments and shopping malls.

Valedictory function

Dr. Hassan Rateb, Chairman Board of Trustees, Sinai University conferred "**Sinai University Peace Award**" to Prof. Yang-Rui Li, Dr.S.Solomon and Prof. M.I.Nasr for their outstanding contribution in promoting peace, goodwill and mutual understanding among the people of developing countries. Dr. Yang-Rui Li, President of IAPSIT presented "**Global Award for Excellence-2008**" to Dr.S.Solomon, Dr.G.P.Rao and Dr.Q.Z.Tang for their great contribution in promotion of science & technology among developing countries through IAPSIT.

SUGAR INDUSTRY EVENTS & NEWS: GLOBAL ROUND UP

World Sugar Market

In the third assessment of the ISO, world sugar production is put at 161.527 MT. A significant production shortfall in India and China and a further contraction of production in the EU, on the one hand, and a continuing expansion of sugar output in Brazil, on the other hand, are the three major supply features of 2008/09. The combined effect of output reductions in the EU and India is expected to shave off a massive 7.084 MT from world sugar supply, despite record high growth in sugar output in Brazil. So far, a lowering in forecasted production in India (from 23.9 MT projected in August to the current projection of 19.55 MT) has been neatly matched by a practically identical increase in Brazil (from 33.22 MT to 37.54 MT). The sugar output in China decreased by 15% in 2008-09, compared to 2007-08. Meanwhile, global consumption is forecasted to grow at the rate of 2.19% to 165.801 MT, raw value. World production is now expected to be 4.274 MT lower than world consumption as against 3.626 MT projected in November. Consequently, the statistical outlook for the market till the end of the season in September 2009 remains constructive and supportive to world market values. The ISO puts world export availability for 2008/09 at 49.608 MT, raw value, as against 46.25 MT in the previous crop cycle. Smaller output in importing countries and in India, in particular, is expected to trigger additional import demand which is estimated to reach 49.621 MT, up 3.673 MT.

A summary of the third assessment of the world sugar balance in 2008/09 is provided in the table below.

World Sugar Balance

	2008/09	2007/08	Change	
	(MT, raw value)		in MT	in %
Production	161.527	168.611	-7.084	-4.20
Consumption	165.801	162.241	3.560	2.19
Surplus / Deficit	-4.274	6.370		
Import demand	49.621	45.948	3.673	7.99
Export availability	49.608	46.245	3.363	7.27
End Stocks	66.272	70.533	-4.261	-6.04
Stocks/Consumption ratio in %	39.97	43.47		

Source: ISO quarterly market outlook, February 2009

Seminar on Technologies Innovation for Cane Sugar Industry and Trade Fair for Sugar Industry, Chongzuo City, Guangxi, China

Seminar on Technologies Innovation for Cane Sugar Industry and Trade Fair for Sugar Industry was held in Chongzuo City, Guangxi, China on February 18, 2009. The meeting was co-sponsored by Guangxi Department of Sciences and Technology and Chongzuo Municipal



People's Government. Sugar industry has become a pillar industry in Chongzou City and its sugar output reached 2.61 million tons, accounting for 27.8% of the total in Guangxi in 2007-08 milling year. The seminar theme was "Sugar industry innovation and development". How to realize great-leap-forward development relying on science and technology, strengthen the cooperation of sugar mills and research institutions, accelerate the transformation of new technologies and new achievements to practical production were discussed. About 480 delegates including Ri-Bo Huang, Vice President of Guangxi People's Political Consultative Committee and President of Guangxi Academy of Sciences, Prof. Yang-Rui Li, President of IAPSIT and President of Guangxi Academy of Agricultural Sciences (GXAAS), Zhi-Ren Jia, President of China Sugar Association, Da-Ke Chen, Director of Guangxi Department of Science and Technology, and the experts from sugar research institutions, universities and sugar industry entrepreneurs attended the seminar and fair. Prof. Yang-Rui Li gave a speech on introduction of new sugarcane varieties bred by GXAAS and new technologies for applying vinasse from sugar mill based on rational quantity in sugarcane field.

Brazil draws new diesel from sugar cane

A U.S. based biotech firm and a Brazilian ethanol distributor are looking to commercialise a renewable diesel derived from sugar cane by 2010. The renewable diesel will be drawn from a new process developed by Amyris.

Amyris claimed the diesel can be readily produced in existing ethanol facilities with limited manufacturing changes. The diesel is a product of a biological fermentation process that is touted to reduce emissions by 80 percent over petroleum diesel. The new fuel is also said to work in current automotive and jet engines with no performance trade-offs.

Amyris and ethanol distributor Crystalsev plan to open a research and development headquarters in Campinas to scale up the process.

Increase in sugarcane production in Brazil

In the 2008-09 harvests, the central-southern region of Brazil produced nearly 500 million tons of sugarcane, which is more than 90% of the total Brazilian production in the last harvest (547.2 million tons). Some of this harvest's characteristics are the increase in the sugar and alcohol exports and the advance in mechanization.

This represents a 16% increase over the last 2007-08 harvests. Official data estimates that 498.1 million tons of sugarcane will be processed, resulting in 42% of sugar and 58% of alcohol. Therefore, total production of alcohol will be up to 24.3 billion liters, or 19% above the 20.3 billions produced in the 2007-08 harvests.

Alcohol exports will also increase 27%, totaling 3.9 billion liters, mainly to the United States and Europe, while sugar exports should increase 15% (total of 18.9 million tons), to Russia, Saudi Arabia and Arabian Emirates.

New sugar mill units and larger planted area help to explain this increase in production. Since 2005, 84 new units have started operating in the central-southern region. According to official data, in this harvest, other 32 new sugarmills shall start operations in this region.

This harvest will also bring an increase in mechanization, and over 50% of the harvesting should be mechanical, against 47% recorded in the 2007-08 harvests. More and more processing units have signed a protocol anticipating the end of sugarcane burning and the introduction of mechanical harvesting, showing a tendency to completely abolish sugarcane burning, which is not well accepted by populations living around the sugar-ethanol complexes.

Indian sugar industry to focus on carbon credit trading

Indian sugar industry has the potential to save millions of dollars annually by engaging in carbon credit trading and focussing on ethanol production, "Given the scale of the sugar enterprises in India, the industry should come up in a big way to encash the potential of Certified Emission Reductions (CERs) trading," Heavy Industries Secretary S.N. Dash said in a national seminar on indian sugar machinery industry, organised by the Confederation of Indian Industry (CII).

At present, about 930 carbon credit projects are in the Indian carbon trade basket, while 160-180 such projects are likely to be added every year. While india has so far earned \$300 million from carbon credit trade, it has the capacity to gross \$100 billion, Dash said.

ICRISAT develops method to grow sugarcane with less water

Scientists at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and World Wide Fund for Nature (WWF) joined hands to develop



Sustainable Sugarcane Initiative (SSI), that will take the sugarcane industry to drip method for cultivating the water-intensive crop, reducing input costs and also get higher yield. According to a report, agricultural scientists have taken a cue from the SRI (System of Rice Intensification) cultivation, which caught the imagination of progressive farmers as it consumed less water and yielded more, and applied the vital principles to the sugar industry. The method is expected to increase yields by 20%, reduce water consumption by 30% and chemical inputs by 25%.

Sony develops battery using sugar as energy source

The electronics giant Sony announced the development of a bio battery that generates electricity from carbohydrates (sugar) by using enzymes as its catalyst, through the application of power generation principles found in living organisms. In other words, the company likely understood the effect that sugar has on small children and sought a means with which to harness such power.

The successful test cells of this bio battery have achieved power output of 50 mW, currently the world's highest level for passive-type bio batteries. The output of these test cells provides sufficient energy to power music playback on a memory-type Walkman.

Sugar Asia-2009: Conference & Expo to be held on 02-04 July, 2009 at Pragati Maidan, New Delhi, India.

Sugar Asia is the only international exhibition on Sugar, distillery, ethanol, co-generation and cane farming in entire South Asian region. It is an unified platform related to sugar & downstream industry enabling equipment manufacturer, technology providers as well as input suppliers to showcase their products in front of a focused and targeted audience. This is an expo where potential clients can easily compare and experience the different products, technologies, materials, rates and services all under one roof thus saving considerable time energy money & efforts.

Sugar Asia 2009 will provide a unique opportunity to companies from India and abroad to showcase their products, technology, research and services to the audience from India and neighboring countries of the Asian region. At this expo, exhibitors and visitors can attend the conference where experts from the industry would speak on various technologies, developments and day to day problems faced by end users as well as manufacturers.

Sugar Asia Conference on *Sugar an Emerging Energy Commodity*

Conference Speakers

- Shri S.L.Jain Director General, Indian Sugar Mills Association (ISMA)
- Mr. Jose Luiz Oliverio, Senior Technology and Development Vice President, Dedini S/A Indústrias de Base, Brazil
- Dr. Li-Tao Yang, Director, Sugarcane Research Institute, Guangxi University, Nanning, China
- Mr. David Willers, General Manager The Better Sugar Cane Initiative Limited, London, U.K.
- Mr. M. Gopinathan, Director R & D, EID Parry, Bangalore, India
- Mr. V.N. Raina Secretary General, All India Distillers Association
- Mr. Arvind Chudasama, Editor, International Sugar Journal/Sugar Cane International
- Dr. Yang-Rui Li, President, Guangxi Academy of Agricultural Sciences, Nanning, China
- Mr Phani Mohan, Consultant on Sugar Bio Fuel & President, Anagha Datta Trade, Chennai
- Dr. J.R. Meshram Director, Ministry of New & Renewable Energy, Government of India
- Mr.S.C.Natu, Member Secretary, Cogeneration Association of India
- Mr. Indra Guha, Senior Manager, Climate Change & Sustainability Services, Ernst & Young Private Limited. (Topic 'carbon market opportunities for the sugar industry')
- Mr. Michael Ferrari, Vice President, Weather Trends International Inc., USA
- Dr. S.V. Nair, Director, Sugarcane Breeding Institute, Coimbatore-641007
- Mr. S.S.Grewal, President, Crystal Sugar, Chandigarh, India
- Mr. K. Nagendran, Senior President, Sakhti Sugars Group Ltd.
- Dr. G. Hunsigi, Director KIAAR, Sameerwadi

PEOPLE IN THE NEWS

Sinai University Peace Award - 2008



Dr. Yang-Rui Li, P.R. China



Dr. S. Solomon, India



Prof. M.I. Nasr, Egypt

IAPSIT - Global Award of Excellence - 2008



Dr. S. Solomon, India



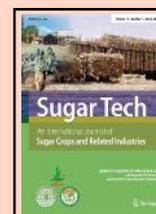
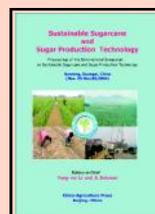
Dr. Qizhan Tang, P.R. China



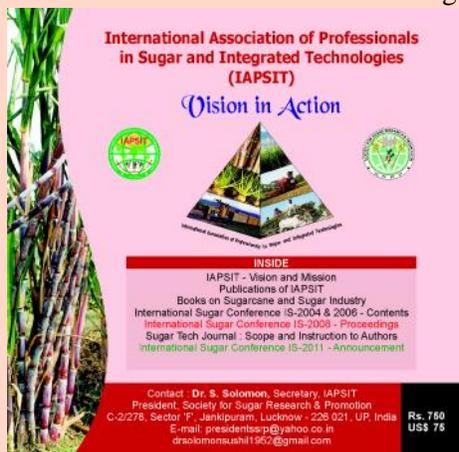
Dr. G.P. Rao, India

PUBLICATIONS OF IAPSIT

1. **Sustainable Sugarcane and Sugar Production Technology** (Eds. Yang-Rui Li and S. Solomon) China Agriculture Press, Beijing, China, 2004, Price US \$ 80.
2. **Sugar Tech - An International Journal of Sugar Crops and related industries**, Published quarterly by Springer.
3. **Technologies to Improve Sugar Productivity in Developing Countries** (Eds. Yang-Rui Li and S. Solomon) China Agriculture Press, Beijing, China, 2006, Price US \$ 80.



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Please add Packaging & Postal Charges of US \$ 25 for each book.



Price : US\$ 75, INR 750

NEW RELEASE

Special Electronic version CD containing Activities of IAPSIT and Proceedings of IS-2008.

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- Publications of IAPSIT
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- International Sugar Conference IS-2004 & 2006 - Brief Report and Contents
- International Sugar Conference IS-2008 - Proceedings
- Sugar Tech Journal : Scope and Instruction to Authors

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4th IAPSIT International Sugar Conference & Sugar Expo IS-2011

December, 2011
New Delhi, India

Highlights

- Expected participation of over 40 countries
- Focus on Sugar Industry of developing countries
- Interactive sessions on Sugar Crops Production and Processing technologies, Biotechnology, Stewardship of Environment, Byproducts, Bio-energy and Cane Development and Marketing
- Visit to a Modern Milling Plant in India
- Special visit to Taj Mahal, Agra.

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