A REPORT BACK ON THE FIRST ISSCT MANAGEMENT WORKSHOP, JULY 2006

By

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Abstract

The Executive and Council of the International Society of Sugar Cane Technologists (ISSCT) prior to the XXV Jubilee Congress in Guatemala 2005, set up a “Management Commission”. Its intention was to enlarge the role of senior industry managers in the ISSCT, with particular reference to integrating management aspects into research and technological initiatives with a view to further enhance overall efficiencies. The first ISSCT Management Workshop was held in Durban, South Africa in July, 2006 and was attended by 41 delegates from 10 countries. The workshop objectives were to (1) attract delegates from wide ranging fields of expertise to provide specialist inputs, and (2) facilitate discussion focused on improving efficiencies and sustainability. Each of the four workshop sessions comprised three presentations that were intended to initiate discussion around a particular theme, enabling delegates to interactively participate in defining their contextual problems and to jointly take part in finding solutions. The respective themes were (1) managing research and development, (2) managing the supply chain, (3) the role of sugarcane in 2020 and (4) market demands and dynamics. One of the challenges for future workshops will be how to attract managers into the forum. In this regard senior managers from the various research organizations and other sugar industry related organizations should be targeted. Some of the main topics recommended for future workshops include the management of (1) technology transfer, (2) environmental impacts, (3) water scarcity, (4) the implementation of GMO’s, (5) health, safety and human resource related issues, (6) benchmarking the costs of production, (7) integrating industry and research strategies, (8) optimizing the mix between managers, researchers and technicians, (9) the incorporation of bio-energy production into sugar industries, and (10) international cooperative research initiatives.
Introduction

The Executive and Council of the International Society of Sugar Cane Technologists (ISSCT) prior to the XXV Jubilee Congress in Guatemala 2005, set up a “Management Commission”. Its intention was to enlarge the role of senior industry managers in the ISSCT, with particular reference to integrating management aspects into research and technological initiatives with a view to further enhance overall efficiencies. The first ISSCT Management Workshop was held in Durban, South Africa in July, 2006 and was attended by 41 delegates from 10 countries. The workshop objectives were to (1) attract delegates from wide ranging fields of expertise to provide specialist inputs, and (2) facilitate discussion focused on improving efficiencies and sustainability. Each of the four workshop sessions comprised three presentations that were intended to initiate discussion around a particular theme, enabling delegates to interactively participate in defining their contextual problems and to jointly take part in finding solutions. Full scientific papers were not requested or submitted, only a powerpoint presentation. The benefit of the workshop in general was the resulting interactive discussion.

This Management Workshop was also used as a focal point to bring together CEO’s from major research organisations to brain-storm common issues (coordinated by Eoin Wallis, Director of BSES, Australia), as well as provide a platform for the first meeting of the International Sugar Cane Biomass Utilization Consortium (ISBUC, coordinated by Peter Rein, Director of Audubon Sugar Institute, USA and Jean Claude Autry, Director of MSIRI, Mauritius). Furthermore, the workshop coincided with the annual South African Sugar Cane Technologists Association (SASTA) congress that took place the following week, which many of the ISSCT Management Workshop delegates attended. In essence, the program was as follows:

Tuesday 11 July: International Sugarcane Biomass Utilisation Consortium (ISBUC)
Wednesday 12 July: Workshop Session 1: Managing Research and Development
Workshop Session 2: Managing the Supply Chain
Thursday 13 July: Workshop Session 3: The role of sugarcane in 2020
Workshop Session 4: Market demands and dynamics
Review and future of the ISSCT Management Workshop
Friday 14 July: Field Visit
The purpose of this paper is to give ISSCT members a précis of the proceedings and the main lessons learned, with the intention of providing a foundation for subsequent ISSCT Management Workshops. As almost all the ISSCT Management Workshop delegates attended the ISBUC meeting, a few brief comments are made in this regard.

International Sugarcane Biomass Utilisation Consortium (ISBUC)

All the delegates demonstrated a keen interest in the renewable energy attributes of sugarcane (cogeneration and ethanol). In essence, the day’s proceedings could be summarised as follows:

- There was a consensus view that all major sugar industries around the world will at some point in the not too distant future be participating in the renewable energy market.
- Considerable interest was expressed in initiating collaboration between sugar industries, the benefit being that developments will be fast tracked for what is a potentially “massive” renewable energy market.
- Concern was raised regarding Intellectual Property (IP) and how this would be managed between collaborating parties, which will continue to be a discussion point at subsequent ISBUC meetings.
- ISBUC would focus on sugarcane processing and exclude “energy cane” breeding activities. It was acknowledged, however, that appropriate breeding programmes are important but its exclusion from ISBUC’s terms of reference was made on the grounds that ISBUC’s “focus” would otherwise become too broad.
- The first collaborative research project should possibly concentrate on gasification. However, one of ISBUC’s early tasks will be to prioritise research proposals and locate suitable research providers.

The next ISBUC meeting was scheduled for 17 November after the ISSCT Co-products Workshop to be held in Maceio, Brazil. Further information about ISBUC can be found at [www.issct.org/isbuc.htm](http://www.issct.org/isbuc.htm).
Workshop Session 1 - Managing Research And Development

Three presentations were made; viz by Eoin Wallis (BSES, Australia), Jean Claude Autrey (MSIRI, Mauritius) and Peter Rein (Audubon Sugar Institute, USA). A number of questions were raised in the subsequent discussion; (1) how are relevant and highly skilled researchers attracted? (2) how is external funding obtained? (3) how can research best be commercialised? (4) how can industry demands be best linked to research programmes? (5) how can effective multi disciplinary teams be created? and (6) how can researchers best challenge industry principles regarding “change”? Some of the salient points emanating from the discussion are summarised as follows:

- The business environment is changing more rapidly than ever before in history and therefore the relevance of research increases. However, this means that organisations need to build up their core competencies and thereafter outsource and/or collaborate. Proactive collaboration was considered essential to maintaining market “relevance” in research programmes. Multidisciplinary team work is essential going forward and research organisations will do well to attract and retain technically competent individuals with leadership skills. To achieve this research organisations will need to be adaptable and innovative in terms of their employment contracts, terms and conditions.

- Research is a long term initiative that attracts risk, not all research projects will deliver direct benefits. Some flexibility is essential in the research program to facilitate a change in focus as interim research results become available and research priorities alter. Consequently, a commensurate flexibility is required in the budget and resource allocation procedures.

- External funding should always be aligned to the organisations strategic objectives.

- Research is only “half the story”, delivering research benefits to customers is the other “half”. Technology transfer is essential and should be “appropriate” to the circumstances of the local industry. In most cases this will encompass a significant emphasis on change management techniques.

- As in the case of Mauritius, there is nothing like a crisis (EU sugar reforms) to focus the minds of industry principals in terms of improving efficiencies and change management.

- In the absence of a crisis, research institutions need to better understand their customers and their customers perceptions. Recent BSES surveys demonstrated that customer
perceptions are sometimes poorly aligned with reality and continuous public relations and extension appears to be an important attribute of a successful research organisation.

- The strategic objectives of research institutions should be aligned to the “needs” of the customers and not necessarily to the “wants” of the customers.

- In terms of an appropriate research organisational structure, BSES in Australia was recently excised from the conventional industry structures and converted to a “private company” comprising eight directors; two growers, two millers, three independents and the CEO. The reasons for this were (1) the new structure enables BSES to better leverage its funding with sources external to the industry and (2) by law forces the directors to make decisions in the best interests of the company (i.e. the industry) rather than the best interests of their section. BSES has a clear and well thought out vision and mission that is widely communicated to industry stakeholders to which the directors are accountable.

**Workshop Session 2 – Managing The Supply Chain**

Three presentations were made; viz communication and negotiation by David Hanlon (RCS International, Australia), benchmarking and efficiencies by Andrew Crickmay (CA, South Africa) and remote sensing applications by Helene Lemonnier (Spot Image, France). A number of questions were raised in the subsequent discussion; (1) what is the definition of the supply chain in the sugarcane context? (2) what are the most significant constraints in the supply chain? (3) how can these constraints be overcome? (4) “you can’t manage what you can’t measure”, is this true? (5) what role can technology play in “streamlining” the supply chain? and (6) what are the research and extension roles or is this a private sector domain? Some of the salient points emanating from the discussion are summarised as follows:

- The traditional definition of a sugar industry supply chain is “on-farm sugarcane production, sugarcane harvesting and transport to the mill, sugar manufacture in the mill and dispatch to the customers receiving sugar and other by-products produced in the mill”.

- The most significant constraints in many sugar industry supply chains are (1) poor communication between stakeholders, (2) a dearth of understanding of common problems and (3) little or no commitment to jointly address these problems.

- Breaking down barriers in the supply chain requires (1) an acceptance that change is required (2) an ability to consider an array of possible options that are realistic and
mutually beneficial to supply chain stakeholders and (3) an ability to explore the consequences of doing nothing.

- Stakeholders (particularly millers and growers) need to take time to understand the positions of other stakeholders and thereafter focus on the areas of interest rather than positions of self interest. Separating the people from the problem is also an important attribute.

- Effective change in a sugar industry supply chain usually requires (1) buy-in from the captains of industry (2) appropriate resources to implement the change and (3) a concerted effort of developing trust between stakeholders. Forging strategic partnerships is another key element.

- The effective management of supply chains that involve numerous stakeholders requires measurement and benchmarking, without which communication is based on hearsay resulting in a breakdown of trust, a fundamental element of efficient supply chains.

- Benchmarking is about understanding variability and “chasing” best practice; i.e. continually identifying new and better ways of doing things and thereafter effectively implementing them. In terms of poor performance it also requires consideration of “exit strategies”.

- Supply chain strategy should always precede technology adoption and never visa versa. Technology is usually an accelerator of business strategy and seldom the basis of business strategy itself.

- Remote sensing and mapping as a supply chain technology is currently used to monitor the use of varieties in Brazil, which will have particular relevance when GMO varieties are released. Delegates indicated that the market was softening towards GMO sugarcane and expectations were that GMO sugarcane might become commercial soon after 2010. [Subsequent to the workshop, Brazil, followed by Australia, announced their intentions to release GMO sugarcane in 2011.]

Workshop Session 3 – The Role of Sugarcane in 2020

Three presentations were made; viz capturing the full potential of the sugarcane plant by Frikkie Botha (SASRI, South Africa), plant breeders rights and biotechnology licences by Eoin Wallis in Ross Gilmour’s absence (BSES, Australia) and integrating a biorefinery into a sugar mill by Peter Rein (Audubon Sugar Institute, USA). A number of questions were raised in the subsequent discussion; (1) is the production of sugar the competitive advantage of
sugarcane? (2) what will sugarcane be used for in 2020? (3) how should sugarcane breeding programs plan for 2020? (4) what role do patents, licenses & partnerships have regarding intellectual property? and (5) how can the production of new products be incorporated in existing factories? Some of the salient points emanating from the discussion are summarised as follows:

• Sugarcane as a plant has (1) a high photosynthetic efficiency (2) a high water use efficiency and (3) is capable of producing a wide range of valuable chemicals. In addition, GM technology in sugarcane is well developed.

• Making money out of a host of products that can potentially be produced from sugarcane also needs research, but cognisance always needs to be taken of the these products’ economic viability. High prices associated with current niche products might be eroded if these products are produced in large quantities.

• At present, the large-scale competitive advantage of sugarcane is primarily in the production of sugar, particularly to markets with preferential prices. Nevertheless, government policy in some countries has already or is in the process of creating attractive economic incentives to produce renewable energy (ethanol and/or cogeneration). Regardless of government policy, an increasing global demand for energy on the back of finite fossil fuel reserves bodes well for the renewable energy attributes of sugarcane.

• To realise the full potential of sugarcane given the rate of change in world markets, plant breeding programs need to start focusing on energy cane with immediate effect.

• Plant breeding is essential to the relevance of all major sugar industries that are geographically isolated with specific pests and disease problems. Therefore, research and development in this regard is an investment and not a cost, it is a commitment to the long-term sustainability of an industry.

• Plant breeding is considered to be BSES’s greatest asset, as it is at many other sugarcane research institutes. Although most growers currently subscribe to BSES voluntarily, the use of plant breeders rights to recover costs in future will help mitigate the threat of increasing numbers of “free-riders”.

• In future, it is expected that most of the cane plant will be delivered to the factory for the production of renewable energy. The technological challenge at present is the pre-treatment of sugarcane, with gasification and hydrolysis/fermentation being the focus of much research at present.
• It is expected that the rate at which existing sugar factories will be converted to biorefineries will exceed the rate at which new “greenfields” biorefineries will be commissioned, where a biorefinery is defined as a plant producing sugar, ethanol and cogeneration.

• Research collaboration will be important going forward, especially in attempts to de-bottleneck the supply chain.

• The importance of prioritising research increases as the scope of research that organisations are involved in expands. A three stage research prioritisation process was discussed; viz (1) determine through discussion amongst senior researchers the best guess estimate of the size of the benefit of each research outcome in Net Present Value (NPV) terms (2) discount the NPV by the probability of success and rate of expected adoption and (3) determine staffing capacity and budget to undertake the afore mentioned research.

Workshop Session 4 – Market Demands and Dynamics

Three presentations were made; viz export sugar market dynamics by Jonathan Norton (SASA, South Africa), international freight dynamics by Brandon Paul (MUR Shipping, South Africa) and new white sugar milling (WSM) technology by David Meadows (THS, South Africa). A number of questions were raised in the subsequent discussion; (1) are market demands for refined sugar changing and if so in what direction? (2) can milling and refining technology play a role in meeting these demands? (3) how do freight dynamics impact export markets? (4) are market demands impacting cane growing and milling research and if not, why? (5) is there scope for multinational cooperation regarding exports? Some of the salient points emanating from the discussion are summarised as follows:

• Understanding sugar price and sugar quality is important information that should impact research direction. Although interesting, many of the delegates indicated that they are exposed to this type of information in their home countries.

• The large volumes of VHP sugar entering the world market from Brazil has raised the “bar” in terms of export raw sugar quality. High quality Brazilian sugar can largely be attributed to their dual ethanol and sugar processing facilities. As destination refineries begin to expect Brazilian type sugar quality, other sugar exporting countries will need to consider (1) migrating towards dual ethanol and sugar processing facilities, (2) adopting
new technology or (3) re-visiting existing sugar production facilities and streamlining logistics chains.

- Researching production techniques to manufacture high quality raw is generally the domain of milling company research programmes, the outcomes of which are usually protected by patents. If research outcomes result in a direct competitive advantage, research collaboration will generally not materialise.

- THS has innovative and patented white sugar milling technology. The market dynamics associated with “destination or origin refining” might limit the uptake of this technology because at present, the majority of sugar refining investment seems to be associated with destination refineries largely because of the reduced logistics costs of bulk raw sugar relative to pre-packed refined sugar for direct human consumption. Nevertheless, a significant proportion of world sugar production is not exported.

- Freight is a very dynamic element of sugar exports that needs to be managed carefully.

**Field Trip**

The field trip comprised a trip to Gledhow mill, ±50 km north of Durban. On arrival delegates were met by Mrs Jabu Sokhela (Mill Owner) and thereafter addressed by Mr Stan Rau (Mill General Manager) on the South African sugar industry in general and the Uskukela Milling Company. Delegates then split into two, most opting for the field trip which went down to the Glendale valley and the balance went on a factory tour. After a picnic lunch both groups met up in Stanger town at the uShaka memorial, where a guided tour and traditional Zulu dancing were arranged.

**Workshop Session 5: Meeting of Research Organisation CEO’s**

Eoin Wallis (BSES) coordinated this session in parallel to the field trip. Issues such as future research collaboration were discussed together with the cross pollination of ideas problem solving of current issues. Attending delegates indicated that this was a constructive and useful session.

**Review And Future Of The ISSCT Management Workshop**
At the end of the plenary workshop session 4, some time was spent reviewing the overall workshop. All delegates indicated that the workshop was a success and supported its continuation. In terms of improving future workshops, many delegates suggested the inclusion of breakaway groups to address special interests with a plenary report back; i.e. similar to the meeting of research organisation CEO’s in Session 5. This would facilitate wider participation and more inclusive discussion. The value of the discussions lies in the diversity or variability of responses to common issues.

One of the challenges going forward will be how to attract commercial managers into the forum in addition to research managers. This will require some marketing and the compilation of relevant programmes. It was agreed that senior managers should continue to be targeted such as the Directors of research organisations and their second in command but that people at similar levels in other sugarcane industry related organisations also be contacted. In future, it was suggested that the workshop be restricted to a maximum of two days with the possibility of optional extras thereafter. The timing of the workshop should coincide with other initiatives to optimise attendance. Some of the main topics recommended for future workshops include:

- Technology transfer and management thereof
- Environmental impacts and management thereof
- Water scarcity and management thereof
- Implementation/regulation of GMOs, patents, etc and the management thereof
- Health, safety and human resource related issues
- Benchmarking, costs of production and efficiency improvements
- Integrating industry research strategies
- Optimizing the mix between managers, researchers and technicians
- Incorporating bio-energy production into sugar industries
- International cooperative research initiatives.

A questionnaire was e-mailed to delegates immediately after the workshop. Only eleven responses were received (27%), representing six countries. Figure 1 summarises the results. In future it is recommended that delegates be requested to complete an evaluation questionnaire during the last session of the workshop; this should increase the response rate.
Figure 1: Results from the workshop delegate questionnaire