

ISSCT MANAGEMENT WORKSHOP

Mt. Edgecombe, Durban, SOUTH AFRICA
11-14 July 2006

"Managing Change in Mature Sugar Cane Industries"

- Programme
- Report

REPORT

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Following the creation of a Management Section at the XXVth Congress in Guatemala in 2005, 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 sugar cane in 2020, and**
- (4) Market demands and dynamics.**

The detailed [Programme](#) can be consulted on this website.

The benefit of the workshop in general was the resulting interactive discussion at the end of each topic, with a strong participation of the audience. Visits were organized on Wednesday 31 May to two sugar estates, Gledhow factory about 50 km north of Durban and Uskukela Milling Company.

This Management Workshop was also used as a focal point to bring together CEOs from major research organisations to brainstorm common issues (coordinated by Eoin Wallis, CEO of BSES, Australia), as well as to 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 Autrey, Director of MSIRI, Mauritius. Details on this meeting which was held on 11 July 2006 are given on this website at <http://www.issct.org/isbucrep.html>.

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 Management Workshop delegates attended.

In essence, the main features of the Workshop and its outcome were as follows.

Managing Research And Development

The three presentations were made 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 major unexpected event such as the EU sugar reforms to induce stakeholders to question their modus operandi and focus the minds of industry principals in terms of improving efficiencies and change management.
- In the absence of major unexpected events, 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.

Managing The Supply Chain

The three presentations were as follows:

- 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 can be 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.]*

The Role of Sugarcane in 2020

The three presentations made were

- 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 aforementioned research.

Market Demands and Dynamics

The three presentations made were

- 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).

The following 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.

Review and Future of the ISSCT Management Workshop

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 in order to have a better evaluation of the Workshop. Full details of the Workshop will be presented in a paper to be presented at the XXVIth Congress in Durban in 2007.