

Review of Carbo Solutions International's Technical Sugar Conference 2018 Bangkok, Thailand

The event took place from 31st July to 1st August 2018 in Bangkok, Thailand bringing together some 200 delegates from 10 countries, predominantly Thailand, Pakistan and Philippines. It was supported by the sponsors/exhibitors from international technology providers namely; IPRO, PROSEP, Pirs, Real Soluplus, TCS Solutions & Consultancy, Broadbent, Su-Enco, CMD Groupe, Guangxi Construction Engineering Group (GXGA), Riedel Filtertechnik and Iteca Socadei.

The first two presentations addressed challenges and developments in the Thai Sugar Industry. Mr. Rangsit Hiangrat of Thai Sugar Millers Corporation Ltd. traced the expansion of its sugar industry. Over the past 10 years, sugarcane production in Thailand has increased from 68.5 million tonnes to 135 million tonnes. It is currently supported by 54 sugar mills at the present with three more under construction. With 70% of its sugar sold in the world market, it is undoubtedly vulnerable to swings in prices in the global market place. To address this challenge, sugar millers in Thailand are actively involved in diversifying their businesses operations. Dr Klanarong Sriroth of Mitr Phol acknowledged this. He focused on biorefining of sugarcane. Besides cogeneration and ethanol production, various innovative technology options have been developed by start-



ups to extract lignin from lignocellulosic feedstocks. However, while purified lignin is a high value chemical, extracting it is a challenging process, otherwise most of the producers of cellulosic biofuel would be producing it.

As most practitioners in sugar processing agree, crystallization is a combination of art and science. In his two presentations, Mr. Craig Parker of British Sugar, UK spoke about the practical application of Linear Pan growth principles. He referred to practical observations made from British Sugar's Wittington beet sugar factory highlighting the merits of instruments (e.g. from K-Patent, Neltec) in real time data collection and analysis.

Mr Dost Mohammed Baloch, President

of PSST in Pakistan provided an overview of Pakistan's sugar industry. Over the past few years, the country's sugar output has been on a rising trend. This appears to be on the back of expansion in sugarcane acreage rather than rise in productivity. Mr Baloch pointed out that the cane payment system does not entirely lend itself to quality when farmers are paid on weight-basis only. He suggested planting miller-grower-friendly sugarcane varieties would pave way for increased productivity and probably also sugar recovery which is woeful at 9-10%.

Dr Boris Morgenroth, Project Manager of (IPRO Germany) presented an excellent overview on opportunities to drive efficiency and productivity in the processing value chain with reference to modern factories with technology upgrade. He pointed out that in the cane sugar sector in the emerging and developing economies, sugar factories tended to be overmanned – with some 500-1000 personnel/factory whereas in the beet sugar sector, the figure is one-tenth of this. This probably explains why many of the cane sugar producers are simply not globally competitive. His colleague Harjit Singh focused on merits of batch pan automation as opposed to the limitation of manual control. He highlighted the pre-requisites for the automation system. These included good



Carbo Solutions International team. Centre Emmanuel Sarir (CEO and President)



Dr Wirat Vanichsritatana (Kasetsart University)



Dr Rodolfo Espinosa Smith (Carbo Solutions International)



Ms Triantari (Indonesian Sugar Research Institute)



Mr. Thorsten Kurz (Reidel Filtertechnik)

pan design and high-performance stirrers. Above all, he stressed skilled operators in pan boiling.

Dr Robert Burke from Prosep Ltd. USA provided a compelling overview of the company's ash reduction technology which he claimed can reduce the ash content in refined sugar to 0.01%.

Mr. Jira Kanchanapun of Sutech Engineering Co. Ltd., Thailand described and discussed Tongaat Hulett's cylindrical continuous pan which it has licensed.

Dr Clive Grimwood of Broadbent Ltd. Thailand focused on the merits of Broadbent's CL1800 centrifugal series, installed in many sugar factories. He highlighted how the newly designed

centrifugal machine limits vibrations, the root cause of many problems.

Dr Rodolfo Espinosa Smith of Carbo Solutions International Guatemala (CSI) gave an illuminating review on the various factors involved in the production of ethanol. He highlighted what could go wrong – resulting in low yields and inefficient fermentation – from inadequately trained staff to both poor quality and choice of feedstock. In his second presentation, Dr Smith detailed chemical, physical and biological conditions necessary for optimum ethanol production. He pointed out that fermentable sugar content in molasses is more important than brix.

Mr. Nour Tharwat of United Sugar, Saudi Arabia provided a fine review on sugar caking and measures that can be implemented to prevent this.

Mr. Emmanuel Sarir, CEO & President of Carbo Solutions International presented the economic justification of HPA application as an innovative technology option to substitute existing secondary decolorization refinery technologies, resulting in drastic reduction in Capex, Opex and process flexibility. Citing case studies, he pointed out how this simple HPA technology enhances operational efficiency in sugar refining in terms of increased profitability for customers.

Mr. Mohammed Al Raei of United Sugar



L-R Emmanuel Sarir, Craig Parker (British Sugar); Nour Tharwat (United Sugar); Mr. Sanaullah Arain's (Mehran Sugar Mills); Mohammed Al Raei (United Sugar); Sharif Khan (Mirpurkhas Sugar Mills)



Company Jeddah, KSA discussed various wastewater treatment technologies that can be employed in a sugar refinery, resulting waste minimization. He focused on biological treatments.

Mr. Sharif Khan of Mirpurkhas Sugar Mills, Pakistan made the case for liquor concentration as a tool in energy saving. While he acknowledged that doing so increased liquor colour, this was not too aggressive to offset the benefit.

Dr Wirat Vanichsiratana of Kasetsart University, Thailand discussed R&D support for the sugarcane and sugar production as well as the emerging bio economy in Thailand. Dr. Wirat focused on a variety of high-value co-products; from cane wax to cellulose, lignin and hemicellulose (separated from bagasse).

Mr. Sanaullah Arain's of Mehran Sugar Mills, Pakistan gave a presentation on

improving batch pan performance by jiggling steam. He highlighted performance enhancement that came with automation of Mehran Sugar Mills batch pans. This resulted, amongst other benefits, a significant reduction in water use in the factory from 400 t/day to 180 t/day.

Mr. Gamal Omar Syed of Carbo Solutions International presented on working performance of high-performance decolourants (HPD) with reference to six case studies, which consistently showed their benefits in increasing refining performance and productivity.

Ms Triantari of Indonesian Sugar Research Institute provided a candid overview of Indonesia's sugar industry supported by 48 state and 15 private sugar factories as well as 11 sugar refineries. Locally produced sugar comes at a high cost - US\$55-60 cents/lb. Sugar

production has been flat over the last 15 years while consumption has been rising. After China, Indonesia is the second biggest sugar importer.

Mr. Thorsten Kurz of Reidel Filtertechnik Germany discussed Reidel's design criteria for building sugar silos that supports a conditioning system that avoids caking as well as addressing other quality parameters.

Ms Cleotilde Gubaton of Busco Sugar Mills, Philippines noted that adding bagacillo to mud produced several benefits – including savings in energy use and sugar recovery.

Mr. Norbert Duc and Natchanok Silapalert of Iteca Socadei described and discussed the value of Iteca Socadei's Crystobserver which monitors crystal growth in real time online basis.

Mr. Naveen Chadha of Carbo Solutions International spoke about the operational challenges in the modern sugar refineries, resulting in exploring low cost, eco-friendly technology options for sustainable and profitable operations.