

## AN OVERVIEW OF BAGASSE AS A RESOURCE FOR THE AUSTRALIAN PAPER INDUSTRY

By

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### Abstract

THE NEED to reduce Australian pulp and paper imports and the rapid growth in the nearby Asia Pacific region suggest that an opportunity exists for the establishment of a new pulp mill in Australia. However, the economic environment, specifically currency fluctuations, has not been favourable for the large investment required to build a conventional bleached eucalypt kraft pulp mill. An alternative might be to utilise the relatively cheap bagasse produced in the sugar cane producing regions of Australia. Despite compelling economic advantages, no bagasse pulp mill has yet been constructed. The main problems appear to be the perceived lower quality of bagasse pulps, coupled with processing issues.

### Introduction

Bagasse is the fibrous material that remains after sugar has been extracted from cane by crushing or diffusion. Australian sugar mills and paper manufacturers have investigated the feasibility of pulping bagasse several times during the past few years. The motivation for this interest is clear. In 2001–02, Australia imported more than 1.4 million tonnes of paper products annually, accounting for 88% of the trade deficit in the wood products sector of \$1.7 billion (Macdonald, 2003). Within the nearby Asia Pacific region (particularly in China), demand for paper is expected to grow at 6% to 12% per annum, depending upon grade.

Taken together, these two facts suggest that an opportunity exists for the establishment of a new pulp mill in Australia. However, to establish a conventional hardwood kraft pulp mill, more than \$1 billion of capital expenditure would normally be required, in part because a large mill is needed to capture economies of scale and thereby secure adequate rates of return. An alternative might be to utilise the relatively cheap bagasse produced in the sugar cane producing regions of Australia. However, despite compelling economic advantages, no bagasse pulp mill has yet been constructed. In this paper, possible reasons for this situation are explored.

### Paper grades

Paper products are an integral part of modern living. Your morning breakfast cereal comes from a cardboard box. You eat breakfast while reading a newspaper. You wipe up spilt milk with paper toweling or tissue. Your shopping list is written on paper.

# An Overview Of Bagasse As A Resource For The Australian

**Ian O'Hara, Sagadevan Mundree**



## **An Overview Of Bagasse As A Resource For The Australian:**

Advanced Engineering Materials and Modeling Ashutosh Tiwari, N. Arul Murugan, Rajeev Ahuja, 2016-08-05 The engineering of materials with advanced features is driving the research towards the design of innovative materials with high performances. New materials often deliver the best solution for structural applications precisely contributing towards the finest combination of mechanical properties and low weight. The mimicking of nature's principles lead to a new class of structural materials including biomimetic composites, natural hierarchical materials and smart materials. Meanwhile, computational modeling approaches are the valuable tools complementary to experimental techniques and provide significant information at the microscopic level and explain the properties of materials and their very existence. The modeling also provides useful insights to possible strategies to design and fabricate materials with novel and improved properties. The book brings together these two fascinating areas and offers a comprehensive view of cutting edge research on materials interfaces and technologies in the engineering materials. The topics covered in this book are divided into 2 parts: Engineering of Materials Characterizations Applications and Computational Modeling of Materials. The chapters include the following: Mechanical and resistance behavior of structural glass beams, Nanocrystalline metal carbides microstructure characterization, SMA reinforced laminated glass panel, Sustainable sugarcane bagasse cellulose for papermaking, Electrospun scaffolds for cardiac tissue engineering, Bio inspired composites, Density functional theory for studying extended systems, First principles based approaches for modeling materials, Computer aided materials design, Computational materials for stochastic electromagnets, Computational methods for thermal analysis of heterogeneous materials, Modelling of resistive bilayer structures, Modeling tunneling of superluminal photons through Brain Microtubules, Computer aided surgical workflow modeling, Displaced multiwavelets and splitting algorithms. *Proceedings of the ... Conference of the Australian Society of Sugar Cane Technologists*, Australian Society of Sugar Cane Technologists. Conference, 2008. *Food Processing By-Products and their Utilization* Anil Kumar Anal, 2017-10-23 Food Processing By Products and their Utilization. An in depth look at the economic and environmental benefits that food companies can achieve and the challenges and opportunities they may face by utilizing food processing by products. Food Processing By Products and their Utilization is the first book dedicated to food processing by products and their utilization in a broad spectrum. It provides a comprehensive overview on food processing by products and their utilization as source of novel functional ingredients. It discusses food groups including cereals, pulses, fruits, vegetables, meat, dairy, marine, sugarcane, winery and plantation by products, addresses processing challenges relevant to food by products and delivers insight into the current state of art and emerging technologies to extract valuable phytochemicals from food processing by products. Food Processing By Products and their Utilization offers in depth chapter coverage of fruit processing by products, the application of food by products in medical and pharmaceutical industries, prebiotics and dietary fibers from food processing by products, bioactive compounds and their health effects from

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*Value Addition and Product Diversification in Sugarcane* Giriya Pura Shivalingamurthy Suresha, Gopalareddy Krishnappa, Murali Palanichamy, Huskur Kumaraswamy Mahadeva Swamy, Hari Kuppasamy, Hemaprabha Govindakurup, 2024-11-23 This contributed volume covers sugarcane byproducts preservation functional foods bioethanol and liquid fuels It focuses on advancements in value addition and its applications in food and other industries sugarcane biomass and its utilization in the energy sector Sugarcane production has been increasing for several decades however it has only recently gained importance for product diversification and bioenergy applications The book also explores biopharming molecular pharming genomics for product diversification biotechnological manipulations for bioenergy applications metabolic engineering bioenergy policy economics and market intelligence This book provides an opportunity to compile recent technological advancements in value addition and product diversification offering insights into the role of sugarcane in green fuels and global energy security in a sustainable manner This book caters to the needs of various stakeholders including students researchers policymakers and academicians working in functional foods nutraceutical research bioenergy and synthetic biology It is also designed for personnel in the sugar and food industries green fuels chemical industries and textile and recycling industries

**Sugarcane-based Biofuels and Bioproducts** Ian O'Hara, Sagadevan Mundree, 2016-05-16 Sugarcane has garnered much interest for its potential as a viable renewable energy crop While the use of sugar juice for ethanol production has been in practice for years a new focus on using the fibrous co product known as bagasse for producing renewable fuels and bio based chemicals is growing in interest The success of these efforts and the development of new varieties of energy canes could greatly increase the use of sugarcane and sugarcane biomass for fuels while enhancing industry sustainability and competitiveness Sugarcane Based Biofuels and Bioproducts examines the development of a suite of established and developing biofuels and other renewable products derived from sugarcane and sugarcane based co products such as bagasse Chapters provide broad ranging coverage of sugarcane biology

biotechnological advances and breakthroughs in production and processing techniques This text brings together essential information regarding the development and utilization of new fuels and bioproducts derived from sugarcane Authored by experts in the field Sugarcane Based Biofuels and Bioproducts is an invaluable resource for researchers studying biofuels sugarcane and plant biotechnology as well as sugar and biofuels industry personnel **Proceedings of Australian Society of Sugar Cane Technologists** Australian Society of Sugar Cane Technologists,1989 *Sustainable Resource Recovery and Zero Waste Approaches* Mohammad Taherzadeh,Kim Bolton,Jonathan Wong,Ashok Pandey,2019-07-18 Sustainable Resource Recovery and Zero Waste Approaches covers waste reduction biological thermal and recycling methods of waste recovery and their conversion into a variety of products In addition the social economic and environmental aspects are also explored making this a useful textbook for environmental courses and a reference book for both universities and companies Provides a novel approach on how to achieve zero wastes in a society Shows the roadmap on achieving Sustainable Development Goals Considers critical aspects of municipal waste management Covers recent developments in waste biorefinery thermal processes anaerobic digestion material recycling and landfill mining **Abstracts on Tropical Agriculture** ,1989-12 Yearbook Australia , **Nuclear Science Abstracts** ,1972 *Selected Water Resources Abstracts* ,1990 **Australia: Doing Business and Investing in Australia Guide Volume 1 Strategic, Practical Information, Regulations, Contacts** IBP, Inc.,2015-06 Australia Doing Business and Investing in Guide Volume 1 Strategic Practical Information Regulations Contacts Year Book, Australia 2001 Australian Bureau of Statistics,2001 **Green Composites from Natural Resources** Vijay Kumar Thakur,2013-11-25 Global awareness of environmental issues has resulted in the emergence of economically and environmentally friendly bio based materials free from the traditional side effects of synthetics This book delivers an overview of the advancements made in the development of biorenewable resources based materials including processing methods and potential applications in bio based green composites Covering various kinds of cellulosic biofibers the text provides information on more eco friendly and sustainable alternatives to synthetic polymers and discusses the present state and growing utility of green materials from natural resources *Revise in a Month Year 10 School Certificate Science* Carol Anne Neville,2005 *Research Review - Division of Chemical Technology* CSIRO (Australia). Division of Chemical Technology,1982 *The Armed Forces: Instrument of Peace, Strength, Development and Prosperity* Joseph Babatunde Fagoyinbo,2013-05-28 Across the ages technological developments have been accelerated by the military This results from the fact that able bodied vibrant youths are generally involved and are also exposed to high tech training prevailing at their times for assignments defence and security that are essential but not desired They form the Armed Forces for the nations Such brilliant military officers like Caesar and Napoleon made their marks and in contemporary times the Armed Forces of United States France Britain Australia etc are making remarkable contributions to technological developments Such infrastructure as the Internet the GPS and the cell phones are products that have significant military

contributions This book scans across the major regions of the world highlights the efforts of representative countries in the regions and observes that nations that have harnessed the efforts of their Armed Forces have progressively developed It is also observed that developments in America and Europe though not entirely dependent on their Armed Forces have been greatly affected by their efforts In Asia such countries as the People s Republic of China Brazil India Pakistan and Singapore utilise the human and material resources within the Armed Forces for national growth and cohesion Development effort is least in the African Region except South Africa and Egypt notwithstanding the high potentials as exhibited by Nigeria s Armed Forces Although attempts to industrialise through the Armed Forces may be able to create economic development for developing nations such factors as historical background economic resources political climate government policies and infrastructure are equally important Economic development programme of an aspiring country should i promote education and access to knowledge ii aspire to economic self sufficiency in economic power iii allow and promote private sector and foreign participation in defence production research and development iv commit itself to the establishment and support of defence industries v indigenise defence programmes establish a balance between military and economic development and vi mobilise the nation s economy through technology partnership with the private sector and foreign investors *Year Book Australia 1970-.* Australian Bureau of Statistics,2003 *Year Book Australia, 1988, No. 71* ,1988 **Inventory of Water Resources Research in Australia** ,1973

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