

Editorial

This Volume 38 Number 2 includes eleven (11) research articles. The relevance and usefulness of respective articles are summarised below.

I.O. Oladele, M.S. Omokafe and J.S. Olusegun, “Influence of Chemical Treatment on the Constituents and Tensile Properties of Selected Agro-Fibres”, investigate the effect of chemical treatment on the tensile properties of Banana (*Musa acuminata*), Plantain (*Musa parasidica*), Coconut (*Cocos nucifera*) and Sisal (*Agave sisilana*) fibers. These fibres were treated with four different chemical solutions at 60 °C for 4 hours. The percentages of the fibre constituents were characterised and the tensile properties were determined. The results showed that the cellulose, hemicelluloses and lignin contents were all affected. The chemical treatment procedures had great influence on the constituents of the fibres and their eventual tensile properties. Alkaline treatment with sodium hydroxide (NaOH) gave the best result for improved tensile strength in sisal fibre.

M. Nathai-Balkissoon and K.F. Pun, “Factor Analysis of Elements Influencing Occupational Safety and Health Management System (OSHMS) Development in Trinidad and Tobago”, report on factor analysis conducted upon a recent survey of OSHMS implementation in the manufacturing sector. With a targeted group of 40 small and medium-sized manufacturing enterprises (SMEs), the study explored the factors influencing OSHMS development from among 22 elements. It was found that two overarching factors correlate significantly to OSHMS implementation in SMEs were “Safety Structure and Practices” and “Improvement Drivers”. The paper puts forward that government- and industry-supported systems could be critical aids to promote collaboration among SMEs and help them to set up their own formal OSHMS.

D. Sooknanan, S. Bahadoorsingh, A. Joshi and D.P. Sharma, “Smart Grid Analysis for the Caribbean Region”, present a gap analysis of smart grid technology for the Caribbean region, and explore the opportunities for the potential widespread roll-out of this technology, the challenges posed and the exercises employed to assist legacy power systems transition to the smart grid. It was found that, the most important factor is the adoption of renewable energy sources and a distributed generation paradigm that is characteristic of the smart grid, as well as the widespread use of relevant communications and information technologies in the region. Other recommendations include rigorous planning with cost versus benefits analyses being performed with respect to the applicable technologies and a strategic business plan. The paper concludes by describing the transition to the smart grid using micro-grids.

E.J. Peters and L. Goberdhan, “Potential Consumers’ Perception of Treated Wastewater Reuse in Trinidad”, report the main findings of a recent consumer survey on the re-use of treated wastewater, using

unstructured interviews and questionnaires. It was found that the idea of non-potable use of treated wastewater for such purposes as firefighting and watering of public lawns was generally acceptable to the public. However, there was more apprehension about direct uses, particularly those involving human contact. The current perception is significantly influenced by the public’s mistrust of the local water authorities to deliver safe and quality water; a general lack of knowledge of the treatment process; and perceived health risks associated with using treated wastewater.

I.J. Dookie, A. Singh, A. Pooransingh and S. Roche, “A Review of Critical Infrastructure Interdependency Simulation and Modelling for the Caribbean”, investigate the importance of critical infrastructure interdependencies (CII) in disaster risk reduction. This paper contextualises the role of CII simulation as part of a complete disaster and emergency management programme, and reviews the state-of-the-art as pertains to utilisation of such tools among Caribbean emergency management agencies (EMAs). It finds that Caribbean EMAs do not currently utilise CII tools. The paper then reviews some of the most popular simulation tools under development such as CIPDSS, HAZUS, I2Sim/DR-NEP and ESRI Sim Disaster. Their applicability and ease of adoption to the Caribbean context is considered.

In their article, “Soil-Metal Sliding Resistance Forces of Some Trinidadian Soils at High Water Contents”, **R.A. Birch, E.I. Ekwue, and C.J. Phillips**, experiment the soil-metal sliding resistance and acquire data on the normal stress against shear stress at the soil-tool interface for some common soils in Trinidad. Using a soil-metal adapter tool (SMAT) to a Hounsfield tensometer, the measured shear stress at the soil-tool interface was separated into the components of adhesion constant and external friction angle. Analysis of variance showed that the experimental factors such as soil type, water content and compaction effort had significant effect on adhesion constant and the external friction angle. Regression models were developed to predict the behaviour of the soil and the tool at the boundary surfaces. This information could be used in performing simulations at the soil-tool interface and thereby aid in improving designs of earth-working tools.

G. Shrivastava, “A Road Collapse at Pont Cassé, Dominica: Hydrologic and Hydraulic Aspects”, provides a technical note, based on a site visit during 5th to 7th May 2013, to discuss the hydrologic and hydraulic setting of the road collapse, as well as the unavailability of event specific hydrologic data. It concludes that the probable causes of the road failure were twofold - firstly, a flash flood, arguably, with a return period in excess of 100 years, and secondly, an inadequate maintenance of a concrete culvert in a terrain prone to slope instability. It

ends with the several recommendations for the Dominica government and other stakeholders to consider.

J.K. Odusote, D.O. Owalude, S.J. Olusegun, and R.A. Yahya, “Inhibition Efficiency of *Moringa Oleifera* Leaf Extract on the Corrosion of Reinforced Steel Bar in HCl Solution”, report that as the concentration of the extract increases, the inhibition efficiency increases in three investigation scenarios. The volume of the hydrogen gas evolved reduces with an increase in the exposure time during the gasometric test. The formation of an adsorption layer on the surface of the metal reduces the rate at which hydrogen gas is evolved, which is a function of the concentration of the extract. Potentiodynamic polarization results revealed that the *Moringa Oleifera* leaf extract modifies the mechanism of anodic dissolution and cathodic hydrogen evolution. The results showed that the leaf extract could be used as a green inhibitor to slow corrosion of metals in aggressive media.

In their article, “Design of a Special-Effects Wrist-Mounted Flamethrower”, **K. Maharaj, C. Maharaj, and U. Persad**. present the design of a device that facilitates the illusion of the user holding a flame in the palm. It is intended as a cost-effective special effects device to be used in the local entertainment industry. This paper covers the main issues that were considered during the development of the flamethrower from inception to the development of the final design concept. With initial tests of the prototype, the potential utility and usability of the device are demonstrated. The potential of the flamethrower as an enabling tool in the Special Effects sector will also be discussed.

N. Hyatali and K.F. Pun, “Aligning Project Quality and Risks into Business Processes: A Review of Challenges and Strategies”, explore the literature on managing project risks and quality as they relate to business processes. A literature search of project management (PM) processes was conducted using articles abstracted from two databases, Ebscohost and Emerald Insight, spanning the period from 2000 to 2014. The conceptual links between the PM and business processes are discussed, and the attributes of project risks and quality are identified. The paper concludes by advocating a process paradigm for managing project risks and quality in organisations.

C. Mohammed, “Communicating in the Workplace: Self-Reports by New UWI Electrical and Computer Engineering Graduates”, discusses the findings from a recent study on mapping the broad terrain of communicating in local industry. Based on quantitative data gathered from 58 new hires in the field of Electrical and Computer, the study revealed that in an 8-10 hour workday, new hires spend upward of two hours per day writing and three hours in formal oral communication scenarios. New hires can also expect that with and without substantial support they will be required to produce an array of communication artefacts. Respondents rated proficiency in writing, speaking and teaming as critical to career advancement.

On behalf of the Editorial Office, we gratefully acknowledge all authors who have made this special issue possible with their research work. We greatly appreciate the voluntary contributions and unfailing support that our reviewers give to the Journal.

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