Editorial

This Volume 38 Number 1 includes twelve (12) research articles. The relevance and usefulness of respective articles are summarised below.

J.K. Ssegawa, "A Domain-Based and Integrated Conceptual Framework for Effective Project Leadership", proposes an integrated framework made of four project leadership domains. Theories and studies conducted in leadership or project leadership coupled with a reflection of experiences of the author having been a project leader or a project team member, For an effective project leadership process to take place, the project leader requires self-leadership in order to exercise leadership of project stakeholders, leadership of project tasks and leadership of the project situation. The framework deviates from the normal premise of viewing project leadership as a process directed only influencing at project team or stakeholders.

K.S. Banerjee and R.S. Melville, "Preliminary Investigation of Geotechnical Properties of the Rock Aggregates Commonly Used for Civil Engineering Construction in Trinidad and Tobago", confirm the importance of a good control of geological parameters on the strength of the rock aggregates. Blue Limestone is heavily used in the Trinidad and Tobago construction industry as aggregates for ready mix concrete, asphalt design mixes and for the production of steel among other uses. The paper suggests quartzite to be more compatible than limestone for these types of construction purposes. If limestone is the only choice for these purposes, then layered variety of limestone may be avoided because of its anomalous mechanical properties, which is resulted by alternate layers of different mineral assemblages.

E.J. Peters and V. Joseph, "An Evaluation of the Compliance of the Water Pollution Control Rules in Port of Spain, Trinidad", reports a recent study on compliance to the Water Pollution Rules (WPR) at selected facilities in the Port of Spain watershed in Trinidad. It was found that the management of facilities would not have volunteered pollution remedial actions in the absence of WPR and WPP. Moreover, the results of policy implementation appear to be quite encouraging. Overall, the compliance for the monitored stations ranged from 20% to 75% which is considered acceptable in the early stage of implementing the WPR. It is recognised that the WPR as currently implemented cannot guarantee the desirable water quality.

I.A. Samotua et al., "A Preliminary Study on the Effect of Reinforcing Polyesters with Kenaf and Sisal Fibres on Their Mechanical Properties", evaluate the potentials of using weaved and un-weaved indigenous sisal and kenaf fibre to reinforce polyester resin based on the physical and mechanical properties obtainable from the resulted composites. The composites materials and sampling were prepared in the laboratory by introducing 10g of the fibre which is about 20% fibre content into the matrix using the hand lay-up method for un-weaved and coating method for weaved samples with the aid of a mechanical roller. The results showed that density of the material reduced on introduction of fibres while the rate at which the material absorbs water increased though sisal fibre reinforced materials would absorb more.

O.S. Ismail and C.I. Chukwuemeka, "Flame Detection and Suppression System for Petroleum Facilities", present an adaptive model for fire detection and subsequent suppression is presented. The model applies a Pyro-electric Infrared sensor (PIR)/Passive Infrared Detector (PID) for infrared fire detection. Sample analog signals were generated and simulated within the framework of the modeled PIR sensor/PID. The signals were modeled around the flame flicker region (1-13Hz) and outside the region. A Joint Time Frequency Analysis (JTFA) function was applied to model the Digital Signal Processing (DSP). This involved extraction of fire and non-fire features from the sample signals. A Piecewise Modified Artificial Neural Network (PMANN) and the Intraclass Correlation Coefficient (ICC) were employed in the decision framework.

S. Bahadoorsingh et al., "A Re-engineered Transmission Line Parameter Calculator", document the development and testing of a Transmission Line Parameter Calculator (TLPC), which computes the impedance parameters for short and medium transmission lines. LPARA, an existing software at The Trinidad and Tobago Electricity Commission (T&TEC), has been taken as the standard for comparison, since it has been tested and proved consistent with Power World Software, as well as it has been satisfactorily employed for decades at T&TEC. Comparative testing of the newly developed TLPC with LPARA revealed a maximum percentage difference of 0.05%, 0.02% and 0.80% in Series Resistance, Series Reactance and Shunt Admittance Matrices, respectively. It is claimed that the TLPC has interactive program help, error checking, and validation of all user inputs.

E.I. Ekwue et al., "Thermal Conductivities of Some Agricultural Soils in Trinidad as Affected by Density, Water and Peat Content", measure the thermal conductivities of twenty-six (26) agricultural soils in Trinidad in the field and the laboratory with a KD2 sensor and probe. Results show that there are agreement between the laboratory and field measurements of thermal conductivity and the corresponding predicted values using the Campbell model of thermal conductivity. The results obtained are discussed in relation to pipe laying and agricultural operations in Trinidad and Tobago. Apart from soils with appreciable sand contents, most soils would require standard backfills during cable laying.

The need for professional staff capable of functioning with accepted survey standards is fundamental to maritime safety. In his article, "Needs for Professional

Hydrography in the Caribbean towards Risk Reduction in Maritime Navigation", **K. Miller** explores whether the requirements for provision of hydrographic data to the international community are being maintained. It is anticipated that shipping activities will increase in both density and size of vessels, the need for professional staff capable of functioning with accepted survey standards is then fundamental to maritime safety. This article identifies the need for professionally qualified staff to maintain state services.

S. Patterson and K.F. Pun, "A Value Management Approach for Managing Social Project Risks of International Funding Discontinuity in Guyana", explore the efficacy of using Value Management (VM) as an approach to minimise the risks of the projects going into cessation after funding from International Development Partners (IDPs) is no longer forthcoming. A simulated "Value Statement" workshop was facilitated by VM experts to identify obstacles and examine factors affecting project sustainability. A VM-based strategic framework was then developed. It was found that adopting VM at the initial stage of social development projects could bring impact on reducing the risks of projects being unsustainable when external funding ends. Risk management (RM) and Gateway (GW) methods could be synchronised with VM as parallel processes for successful project implementation.

In their article, "An Evaporative Cooler for the Storage of Fresh Fruits and Vegetables", **S. Deoraj et al.** present the design, development and testing of an evaporative cooler for the storage of fruits and vegetables. The cooler comprised of two extraction fans, a cooling pad media, a plate-fin heat exchanger, a water tank, a storage and a cooling chamber. It is claimed that the system is an economical and efficient method used for the reduction of temperature and increase in the relative humidity for the storage of produce by applying the principles of the evaporative of water. The cooler would be one best storage method in terms of preserving the acidity of the tomatoes as well as their total solubility solids

O.O. Daramola et al., "Influence of Submicron Agro Waste Silica Particles and Vinyl Acetate on Mechanical Properties of High Density Polyethylene Matrix Composites", investigate mechanical behaviour and microstructure of the developed composites. The study developed two groups of High Density Polyethylene (HDPE) matrix composites reinforced with silica particles extracted from rice husk ash (RHA) and Vinyl Acetate. It was observed that the mechanical properties increased with an optimum value of 4wt. % of silica particles in HDPE. There was improvement in the mechanical properties of the siliceous HDPE composites when compared with Ethylene Vinyl Acetate (EVA) composites

J.B. Saitoo and A. Pooransingh, "Automated Money Detection Application for Trinidad and Tobago Currency Notes", investigate the Local Binary Patterns (LBP) as a method to recognise Trinidad and Tobago currency notes. A mobile application was developed and the effectiveness of the LBP algorithm was tested in terms of speed, robustness to illumination, scale and rotation. The LBP algorithm realised a recognition rate of at least 95 percent for Trinidad and Tobago currency. The recognition rates on mobile devices were compared for the LBP and the ORB (Oriented FAST and Rotated BRIEF) methods.

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KIT FAI PUN, *Editor-in-Chief*
Faculty of Engineering,
The University of the West Indies,
St Augustine, Trinidad and Tobago
West Indies
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