

# BCAS International Annual Research Symposium 2016





Building Careers - Transforming Lives

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**BCAS**

International Annual Research Symposium  
2016

**at BCAS Mount Campus**

1<sup>st</sup> December 2016 at 9.00 am

**ISSUE 02 - DECEMBER 2016**

ISSN 2465-6542



ISBN 9789557971018



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18

**YEARS OF**  
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**IN HIGHER EDUCATION**

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# Contents

<b>Key Note 1 - Application of Information Systems in Health</b>	<b>12</b>
--	-----------

## **SCHOOL OF BUILDING STUDIES**

Should New Rules of Measurement (NRM2) be used by The Building Construction Industry of Sri Lanka?	16
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## **SCHOOL OF MANAGEMENT**

An analysis of the Sri Lankan tourism industry compared to its Asian – competitors	22
Impact of organizational culture on employee retention: A Special Reference to IT Industry	25
Investigating Employers' Attitudes towards recruiting employable differently – abled candidates: Special Reference to the private sector companies in Sri Lanka	28
Investigating the reason for customers selecting Traditional as opposed to Modern Retailing in Sri Lanka	30
Upgrading Organizational Performance through Employee Motivation Abstract for the BCAS Internal annual research symposium	33
The Relationship between Followership Styles and Job Performance	36
To Study the Impact of Managerial Skills on Subordinates' Job Satisfaction (Case Study on Garment Industry- Sri Lanka)	40
Customer Satisfaction on Internet Banking Services in Sri Lanka	43
Identifying and Analyzing Corporate Governance Structures of Financial Institutions in Sri Lanka	45
Positive Psychological Capacities and Performance of academic staff, study in Engineering Diploma institutes in Sri Lanka	48
Identify and Analyse the Impact of Trademark Portfolio Management on Customer Equity in B2B Context: A Case Study of XYZ Tea Exporting Company	50

## **SCHOOL OF COMPUTING**

Evaluating the performance of Artificial Neural Network (ANN) classifiers to identify the communicable diseases in Kandy District	52
The Impact of Social Media use on Academic Performance at XYZ Higher Education Institute	55
Improving Traveling and Lifestyle Efficiency by applying Machine Learning to mobile devices	58
Sensory Device for People with Visual Impairment – 'SMART EYE'	61
Application of GoogleMaps for Sri Lanka's logistics industry	66

## **SCHOOL OF ELTU**

An analytical approach to the selected songs of popular music based on the concepts of Existentialism	72
Effective communication in construction industry	75

## **SCHOOL OF ENGINEERING**

Wi-Fi assisted Indoor Positioning System	78
--	----

## SCHOOL OF HEALTH SCIENCE

Evaluation of Feeding Habit of <i>Gambusia affinis</i> ( <i>G. affinis</i> ) using a Molecular Based Technique	84
Evaluation of genetic data for STR locus VGL 3235 and its uses in canine parentage testing of Sri Lankan domestic dogs	86
<i>In vitro</i> sunscreen potential of Sri Lankan medicinal plant <i>Limonia acidissima</i>	88
Investigation of Metal ion Levels in Sri Lankan Ayurveda Pill Yougaraja Guggulu	92
<i>In vitro</i> investigation of anti-inflammatory activity and evaluation of phytochemical profile of <i>Osbeckia octandra</i>	95
Testing the Anti-Inflammatory activity of a Sri Lankan traditional medicine tonic using albumin denaturation assay	100
An Alternative Therapy for Bone Defects: Differentiating Umbilical Cord Derived Mesenchymal Stem Cells to Osteogenic Cells	103
E-learning Adaption of Farmers - Case Study in Sri Lanka	107
Understanding Good Carriers (Natami) as a Sustainable Urban Mobility Practice for Climate Change Adaptation through the case of Pettah, Sri Lanka	108
Circular Economy – The Challenge We Must Face	111
Estimation of Machinery Vibration Signatures Transferred to Ship's Hull using Spectrum Analysis	114
Reusing and recycling urban/industrial ('brownfield') land and the development of the 'UK Midlands Engine'	119

## SCHOOL OF LEGAL STUDIES

A critical evaluation of the issues in implementing customary International Humanitarian Law in respect of the international and non-international armed conflicts	124
A critical analysis of the emerging issues in atypical working arrangements in Sri Lanka in respect of the arena of contract of employment	128
Dimensions of Modern Slavery: A Perspective on Rapid Growth of Trafficking in Persons	133
Socialism beyond Totalitarianism: A Critical Assessment of the term 'Socialist' used in the First and the Second Republican Constitutions of Sri Lanka	136
The Importance of 19th Amendment to the Sri Lankan Constitution	138
The Rationale Behind the Chaotic World in which we habituate	141
The war on terror: the move towards greater surveillance of individuals in United Kingdom with special reference to Sri Lanka	144
Impact of global environmental law making panels: An evaluation on the effect of international environmental norms over the state sovereignty	149
Independence of the Judiciary: A Critical Study	154
Rights of Street Children and their protection: A study (critical study) of applicable laws in preventing misused for begging activities in Sri Lanka	157
Children Raised in Prisons with their Incarcerated Mothers in Sri Lanka. A Human Rights Perspective	161
<b>List of Referees</b>	<b>165</b>
<b>Programme</b>	<b>168</b>

# BCAS CAMPUS

Established in 1999, British College of Applied Studies (now popularly known as BCAS Campus) has rapidly grown into a leading educational provider in Sri Lanka with a large number of students more than 4,000. BCAS Campus has strong international collaboration, especially with the University of Wolverhampton (UK), London South Bank University (UK) and Pearson (Edexcel) UK.

Besides two main campuses in Colombo (City Campus) and Mount Lavinia (Mount Campus) in the Western Province, BCAS Campus has branches in five key cities in Sri Lanka, namely, Kandy, Jaffna, Kurunegala, Batticaloa and Kalmunai with a highly successful overseas centre in the State of Qatar. Plans are under way to open more overseas centres.

The institution is highly esteemed for its exceptional quality, international recognition and market relevant training. To top it all, BCAS Campus was selected as the First of the Five Top higher education providers in Sri Lanka in 2013 by an independent survey conducted by an organization hired by Sri Lanka's pioneering business magazine LMD. Currently more than 4,000 students follow their chosen courses of study at BCAS Campus - Quantity Surveying, IT, Law, Business Management, Telecom Engineering, Civil Engineering and Biomedical Science. These courses are delivered at HND Pearson (Edexcel) UK as well as at degree levels. MSc in Construction Project Management, MBA and LLM (Professional Practice) are the three Master's programme delivered by us.

## International Collaborations

Our relationship with the University of Wolverhampton, UK was established in 2006 with an agreement to transfer students completing BTEC HND in QS to do their BSc (Hons) in QS in the UK. Thus the first batch of 30 students were transferred to the university in 2006. This trend continued steadily and more than 450 students earned their degrees directly from the University between 2006 and 2012. With the introduction of in-country delivery of degrees at BCAS Campus in Colombo in 2011 and formalization of the first agreement to that effect, the number of students opting to complete their Top-up Degrees right here in Sri Lanka gradually increased. Thus making it the most popular option among Sri Lankan Students.

Thereafter, successively, several MOUs were signed to deliver the university's selected degree programmes in Colombo at BCAS Campus itself – BSc (Hons) QS, LLB (2011), BABM, MBA (2012), MSc - CPM (2014), LLM Professional Practice (2015), BSc (Hons) Biomedical Sciences (2015).

The other university we work with is London South Bank University, UK and we deliver their BSc (Hons) degree in Commercial Management (QS) and BSc (Hons) Civil Engineering while our relationship with the Edexcel, UK (now known as Pearson, UK) dates back to 2002.

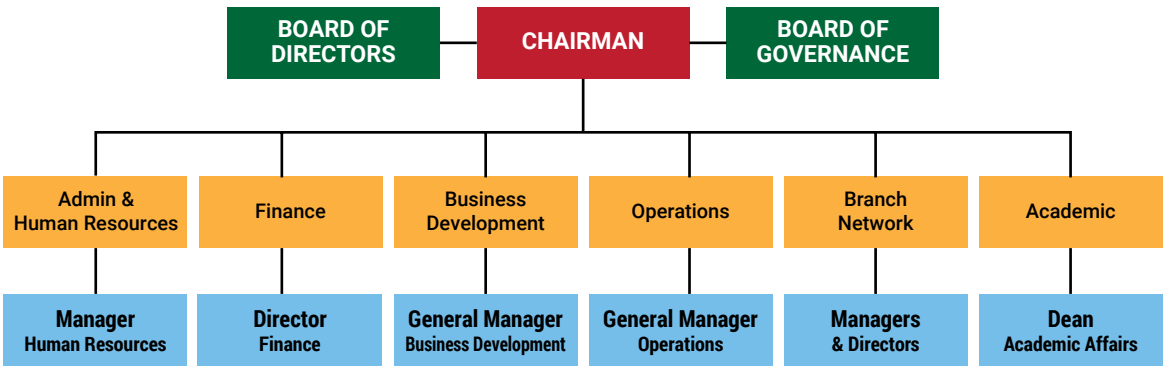
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# BCAS in Brief

<b>1999</b>	<ul style="list-style-type: none"> <li>• Founded as IT/English training institute in Kandy</li> </ul>
<b>2000</b>	<ul style="list-style-type: none"> <li>• BCAS Placement division, placed 12 students-UK Uni's</li> </ul>
<b>2001</b>	<ul style="list-style-type: none"> <li>• Established 1st BCAS Centre in Colombo</li> </ul>
<b>2002</b>	<ul style="list-style-type: none"> <li>• Setup the 'Corporate Office' in Colombo</li> <li>• Launched BTEC HND in IT/Computing</li> </ul>
<b>2004</b>	<ul style="list-style-type: none"> <li>• Vocational Courses in Construction, placed students in Industry.</li> <li>• MoU with Many UK Colleges and Universities</li> <li>• Expanded Kandy Campus /launched HND Computing /IT</li> </ul>
<b>2005</b>	<ul style="list-style-type: none"> <li>• Launched BTEC HND in QS</li> <li>• Launched Vocational Programme – 'CAD and Building Studies'</li> </ul>
<b>2006</b>	<ul style="list-style-type: none"> <li>• Articulation agreement with the UoW for students' progression</li> <li>• Launched Vocational Programme – 'Teacher Training'</li> </ul>
<b>2007</b>	<ul style="list-style-type: none"> <li>• 1st batch of students transferred to UoW</li> <li>• Established HND QS Centre in Dehiwala Campus</li> </ul>
<b>2008</b>	<ul style="list-style-type: none"> <li>• Set up BCAS Qatar Campus / Launches HND in QS</li> <li>• BTEC HND in Business Management</li> </ul>
<b>2009</b>	<ul style="list-style-type: none"> <li>• BTEC HND in Electrical / Electronic (Telecom)</li> <li>• BTEC HND in Law</li> </ul>
<b>2010</b>	<ul style="list-style-type: none"> <li>• QS Top-Up Degrees in Qatar Campus - Bsc (Hons) QS- UoW</li> <li>• QS Top-Up Degrees in Dehiwala Campus - Bsc (Hons) QS- UoW</li> </ul>
<b>2011</b>	<ul style="list-style-type: none"> <li>• BTEC HND in – Biomedical Science - UoW</li> <li>• Established Batti Campus</li> <li>• EDEXCEL UK Award - Fastest/Most Outstanding BTEC HND Centre</li> <li>• ISO 9001 – 2008 Certified</li> </ul>
<b>2012</b>	<ul style="list-style-type: none"> <li>• BM Top-Up Degrees in City Campus - BA(BM) - UoW</li> <li>• LLB Top-Up Degrees in City Campus - LLB- UoW</li> <li>• Established Wayamba Campus</li> <li>• MBA – Launched in City Campus- UoW</li> </ul>
<b>2013</b>	<ul style="list-style-type: none"> <li>• BTEC Level-7 Strategic Management – MBA Pathway- UoW</li> <li>• BTEC HND – Civil Engineering</li> <li>• Recognized by LMD Magazine as the "No.1 Private Education Provider"</li> </ul>
<b>2014</b>	<ul style="list-style-type: none"> <li>• MSc Construction Project Management- UoW</li> <li>• MSc Strategic IT Management- UoW</li> </ul>
<b>2015</b>	<ul style="list-style-type: none"> <li>• MSc IT Management- UoW</li> <li>• BSc (Hons) Management of IT / BSc (Hons) Computing - UoW</li> </ul>

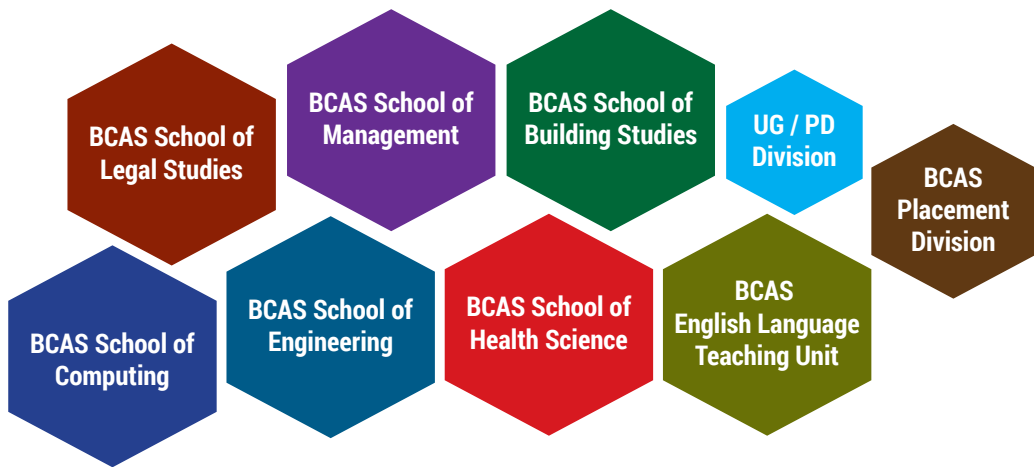
# BCAS Organization Chart



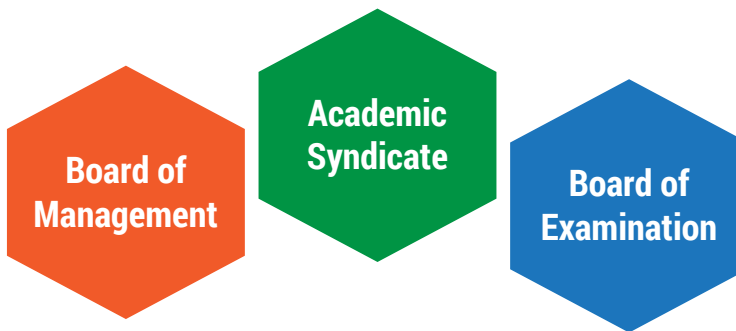
## Board of Governance

- Chairman, CEO - Eng. Abdul Rahman
- Director - Eng. M Mafeel
- Director - Mr J Niwas
- Dean Academic Affairs - Prof. K Hirimburegama
- General Manager Operations - Eng. Kawther Musthafa
- General Manager Business Development - Mr.M.Isthiquar
- Justice Saleem Marsoof PC, Retired Judge of the Supreme Courts of Sri Lanka
- Mr S Asiriwatham, FCA SL, Former President Partner & Country Head - KPMG
- Prof. Rohan Rajapakshe, Former Director - Ministry of Higher Education
- Dr Mahroof, Head, Civil Engineering - University of Peradeniya
- Dr. K. Kobindraraja - Former Vice Chancellor - Eastern University, Sri Lanka
- Dr. Yasa Siriwardana - Director - Medi Calls
- Prof. M.D. Lamawanse - Professor of Surgery - University of Peradeniya

## Divisions / Academic Schools

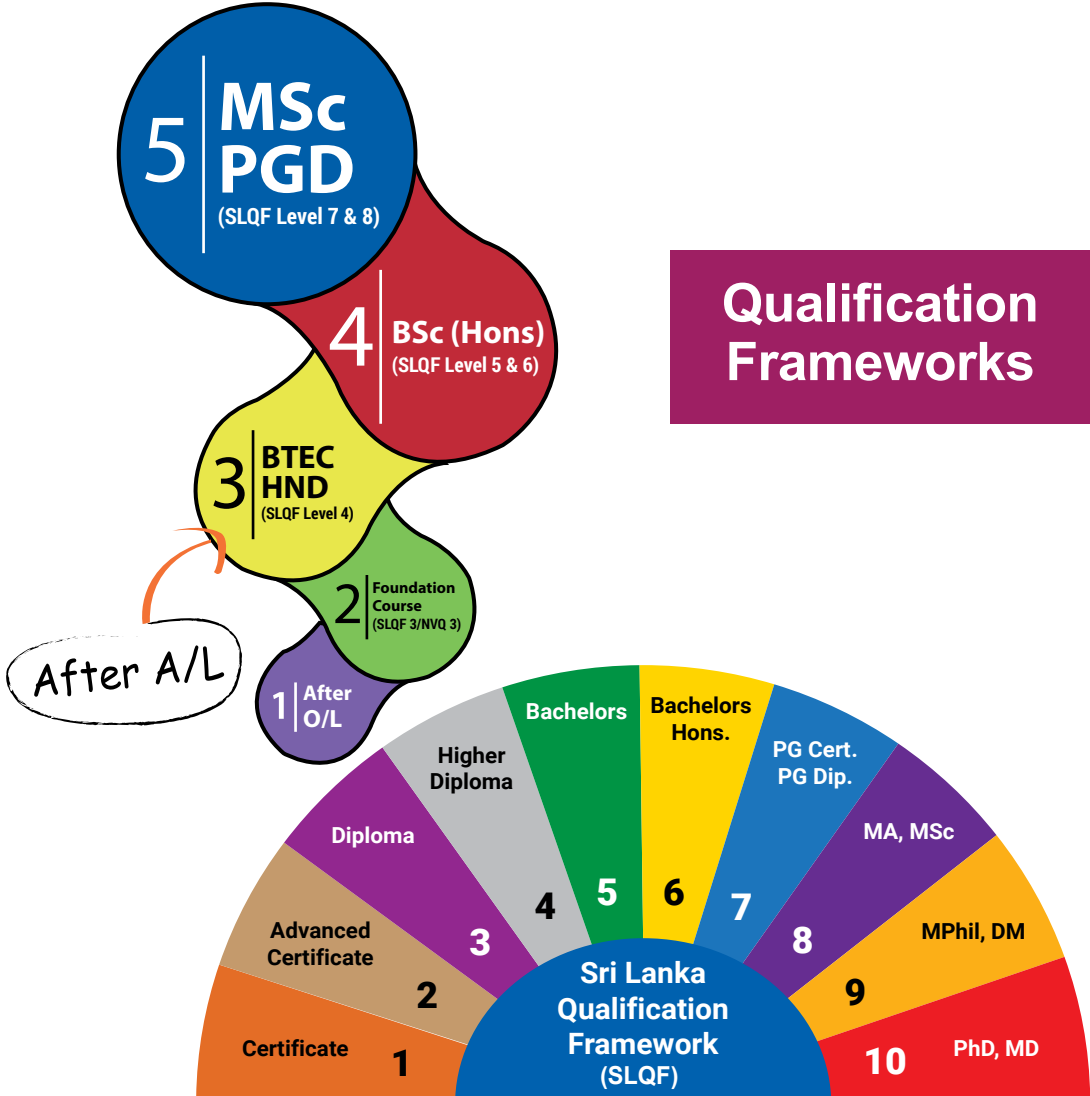


## Quality Management Structure



## Service Divisions





Sri Lankan National			BTEC/UK	
	SLQF	NVQ -	BTEC-QCF (UK)	
Doctorial Degree, MD	SLQL-10		QCF-L8	PhD/DPhil
M.Phil., Masters (Research)	SLQL-9		QCF-L7	Master's degrees
Master (Taught + Research)	SLQL-8			
Master (Taught), PG-D, PG-C	SLQL-7		QCF-L6	Bachelor's degrees, eg BA, BSc
Honours Bachelor	SLQL-6			
Bachelor Degree	SLQL-5	NVQ-7	QCF-L5	BTEC HNDs (Higher National Diplomas)
High Diploma	SLQL-4	NVQ-6	QCF-L4	BTEC HNCs (Higher National Certificates)
Diploma	SLQL-3	NVQ-5	QCF-L3	BTEC National Diploma
Advanced Certificate	SLQL-2	NVQ-4		BTEC National Extended Diploma
Certificate	SLQL-1	NVQ-2, 3		

## Quality Assurance



External Standard Verification by



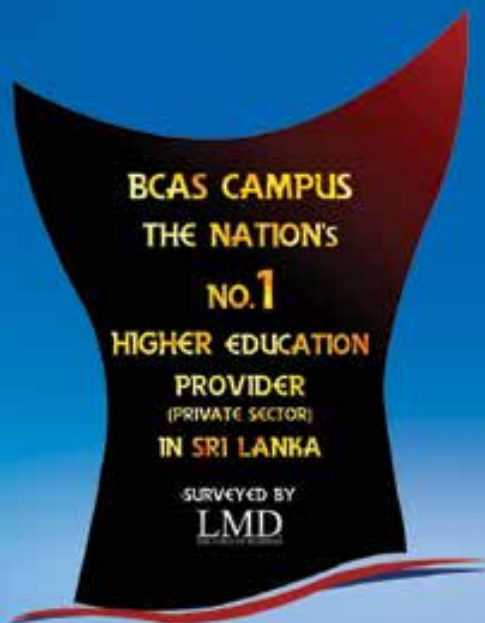
## Approval, Recognition Partnership



TERTIARY AND  
VOCATIONAL EDUCATION  
COMMISSION  
SRI LANKA



# Ranking No.1



**Ranked as No.1  
Higher Education  
Provider (Private Sector)**

by LMD Magazine,  
Sri Lanka  
**2014 / 15**



**Platinum Partner  
No.1 BTEC Centre  
in Sri Lanka**

by Pearson UK @  
BTEC Higher Education Forum  
**October 2016**

# Awards



**Educational Institute  
with Best Academic &  
Industry Interface**

by South Asian Partnership  
Summit & Business Awards  
**October 2016**



**Visionary  
Leadership Award for  
BCAS Chairman**

by South Asian Partnership  
Summit & Business Awards  
**October 2016**



**Academic Impact Winner**  
by International Organization  
QSi - based in UK  
**2016**



**BTEC Gold Partner**  
**2013**



**Performance  
Excellence Award**  
**2011**



**Fastest Growing  
BTEC Centre**  
**2010**



# Key Note 1

## Application of Information Systems in Health

Reima Suomi

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### **Abstract**

Digitalization is touching upon all aspects of life. It is no surprise that digitalization is also deeply impacting the way we deliver and receive healthcare. About one hundred years ago we started to document healthcare delivery activities, and now this documentation is fast turning into a digital form. In addition to digitalization, healthcare and its information systems are also deeply affected by globalization, fragmentation of markets, commercialization and sharing economy. In the healthcare industry, keywords are citizen/patient empowerment and care delivered in a predicting, personalized and preventive mode. In this presentation we discuss how all these affect application of information systems in healthcare, in the pursuit towards more effective and high-quality healthcare.

### **Author keywords**

Health, Healthcare, Digitalization, Patient Empowerment.

### **Introduction**

Health is the most precious asset a human or a population group can have. In principle demand for health is endless. Altering of population, constant flow of new diseases and health risks, as well as the counterweighting constant flow of care and cure innovations – including expensive medicines – keep up high pressures for the healthcare delivery.

Information technology is a key element in answering to these challenges. In addition to clinical devices that all the time save lives, less hand-on systems such as electronic patient records, imaging and laboratory systems, and medical information databases all contribute an important element to improved healthcare. Because of modern information technology, many services and at least information related to them are available all the time in digital form, often even independent of place in mobile platforms.

### **The megatrends behind**

Digitalization is a key megatrend of modern society. For individuals, digitalization is the integration of digital technologies into everyday life. For businesses, digitalization is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business (Gartner, 2016). As said, all information in healthcare is turning fast into digital form, and even most care and cure processes utilize digital technologies in many different ways.

Globalization is the process of international integration arising from the interchange of world views, products, ideas, and other aspects of culture (Albrow and King, 1990).



Most non- or slightly integrated health products such as medicines or clinical devices are globally the same and available everywhere, but massive information systems needing integration and adaption to local environments are still much locally produced and adapted. However, there is a will and pressure towards global solutions, as this will bring integrity and quality to healthcare.

Fragmentation means that people have very varying interests and ways of behaving and acting. In business, specializations increase and business companies act in increasingly smaller niches of the total market. In healthcare and medicine, fragmentation has always been a reality (Burns *et al.*, 2002). There is no healthcare industry actor that would be leading or even close to it in healthcare (in style of say Google in digital services), and medical discipline is deeply anchored to specialized silos, that often lack a total view of the patient.

Commercialization refers to the process of turning activities into business mode of thinking, selling and buying services and goods. Commercialization is not far from privatization that is very visible in healthcare. Little by little, healthcare activities turn to the domain of private companies. Public political and other control of the healthcare provision decreases, and inequality based on capacity to pay is to emerge.

Sharing economy is not the strongest trend in healthcare so far. By definition healthcare must be provided by specific healthcare professionals, not by laymen and peers by our side. However, peer-to-peer support is anyway a reality in healthcare delivery, and often accepted and even valued by the official system. (Eysenbach *et al.*, 2004) Peer-to-peer support in healthcare is often embedded to different social media and app environments. Citizen/patient empowerment (Anderson and Funnell, 2005, Anderson and Funnell, 2010) and care refers to increased responsibility of an individual of his/her health. In some connections it might also have more specific meanings, such as self-efficacy of healthcare professionals to use information systems. To be empowered, citizens/patients need access to relevant data and information systems. Opening up health records and medical databases to citizen is a big mega trend.

Health is not the same for all. Everyone needs personalized services that are delivered in good time, and should prevent diseases and harmful health conditions from emerging. Providing seven billion care plans and clinical pathways is a massive effort that cannot be mastered without the support of modern health technology.

### **Conclusions**

All major mega trends contribute to the increased need of information systems in healthcare. Information systems can help in increasing the quality of care, decreasing the cost of care, and delivering care for everyone everywhere. With all this in mind, it is a surprise that healthcare as an information intensive industry and ecosystem is still rather scarcely digitalized in most countries. The good news of course is that an unopened Pandora's box of opportunities is still available.

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School of  
**Building Studies**

# Should New Rules of Measurement (NRM2) be used by The Building Construction Industry of Sri Lanka?

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## **Abstract**

Cost management is an extremely important aspect of any building construction project. The Bill of Quantity (BOQ) is given considerable importance in cost estimating. The estimation of a building project has still not received due consideration from the industry practitioners, as is evident from the current practice of producing BOQs without following a Standard Method of Measurement (SMM). BOQs and SMMs were initially introduced in the UK and are updated from time to time in order to include new technical approaches. New Rules of Measurements 2 (NRM2) is the recently updated version of SMM. The purpose of this research was to identify the possibilities of using NRM2 in the Sri Lankan construction industry.

A desk study and interviews were carried out to identify ways of changing the existing system and to adopt NRM2. An exploratory semi-structured interview approach was conducted among the selected end-users. A questionnaire survey was developed from the interviews to solicit the opinions of practitioners in regard to adopting NRM2.

This study describes an empirical investigation revealing the knowledge of using NRM2, willingness to use NRM2, ways to change the existing system, critical obstacles to adopting NRM2, methods to overcome those obstacles, and the most significant factors in using NRM2 documents for building construction from the perspective of industry practitioners. A total of 35 questionnaires conducted on Quantity Surveyors (N=35) in the construction industry were collected and used for the study. The desk study, interviews and questionnaires were analysed with statistical methods such as the Relative Important Index (RII) and the SPSS statistical analysis package.

The results show that the most important factors indicate that there is a high knowledge of using Sri Lanka Standard 573 (SLS573) and SMM7 documents, willingness to learn NRM2, implementation of NRM2, incorporating NRM2 with the local SLS573, lack of regulations to implement, awareness of NRM2 by Continuing Professional Development (CPD) and training programmes, and the awareness of the document, along with several other factors.

The findings revealed in detail that the most practical way to adopt NRM2 in Sri Lankan construction industry need to update SLS 573 in line with NRM2 format and implementing pilot projects. In addition to that, findings revealed that providing continuous training programmes is the best approach to mitigating challenges. Most of the respondents were willing to adopt NRM2. It is noted and recommended that the use of NRM2 for preparing BOQs for building projects was identified as a contributing factor for reducing ambiguities between the cost planning and cost controlling processes. It is emphasized that NRM2 should be used by the building construction industry of Sri Lanka.

**Author keywords**

Standard Method of Measurement, New Rules of Measurements 2, Bill of Quantity.

**Introduction**

The Standard Method of Measurement (SMM) is a document that provides “a uniform basis for measuring building works and Civil Engineering works, the purpose is to ensure that Bills Of Quantities (BOQ) fully describe and accurately represent the quantity and quality of the works to be carried out”. It is also described as a document that contains a standard format for the presentation of a measured work and set of rules which are mutually known and accepted. According to SMM set out detailed rules for the measurement of commonly occurring works provide guidelines as to what a tendering contractor is to allow for against each measured item. One important purpose of Standard Method of Measurement is set out in section A (General Rules) of Standard Method of Measurement (SLS 573) clause A.1 which states that (As mentioned above in this same paragraph) “this Standard Method of Measurement provides a uniform basis for measuring building works and embodies the essentials of good practice.....” Clause A.2 further states that “Bills of quantities shall fully describe and accurately represent the quantity and quality of the works to be carried out....”

The Standard Method of Measurement (SMM) is taught and introduced at the tertiary level education in Sri Lanka. The use of own or inherited method of measurements in construction procurement is commonly done by both private and public sector organizations in Sri Lanka. The absence of the use of the Standard Method of Measurement (SMM) leads to various malpractices, corruptions and disputes in construction payments. It even causes difficulties to carry out a feedback, technical and financial auditing due to this absence of using and practising of the Standard Method of Measurement (SMM).

International companies use the Standard Method of Measurement (SMM) to ensure the financial transparency, accuracy of payments, and accuracy of estimates and ease of dispute resolution among parties. There is a national responsibility in saving funds by using the Standard Method of Measurement (SMM). Adoption of standard-based pricing method for building construction can improve the reliability and consistency of its early budget cost estimate also. This study evaluates the provision of the Standard Method of Measurement (SMM) use in Sri Lanka in relation to cost estimate in building construction. Traditionally, quantification and description based on the Standard Method of Measurement (SMM) are not adopted by Quantity Surveyors (QS) in determining the contract price of building works. The researcher has identified the current procedures and practices in construction organizations but they were not adapted SMM to produce a good BOQ. Although there are empirical evidence from industry people justified the presence of the issues however without any coordinated effort in drawing the desired solution, the issues remain daunting and continue to become an academies and industry wide concern. The concern have prompted questions to asked why SMM is not fully used, what are the current issues pertaining to the current SMMs and why the issues still daunting in construction industry of Sri Lanka.

Further It is widely believed in the construction industry that when the information provided to contractors is inadequate, conflict in, or incorrect, it leads to a reduction in

the quality of the work, causes delays, and increases the costs (Azman, *et al.*, 2012). This kind of variability in information has been traced to the lack of coordination between the contract document (Kodikara & McCaffer, 1993; Cartlidge, 2009) and an ill-defined quantification and estimating process by consultant QS (Azman, *et al.*, 2012).

This study is important because of SMM is a key reference material for teaching Quantity Surveying students and the benefits of adopting it for building works pre-contract price forecast are aimed at the client, consultants, contractors and entire Sri Lankan construction Industry. When developed, the standard will encourage continuous improvement and the adoption of best practices by cost consultants (QS/Cost engineers/cost managers) in the cost management of building works locally and at the international level. The adoption of detailed rules of measurement will also support the procurement to pay strategy in the construction industry.

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# **An analysis of the Sri Lankan tourism industry compared to its Asian - competitors**

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## **Abstract**

In view of the ever-increasing number of tourist arrivals to Sri Lanka, along with the massive infrastructure development, there seems to be very low income in terms of tourism. At the same time the net provision to the national GDP from this sector is far below 3% compared to its competitors in the Asian Region. Accordingly, the present research analyses the tourism sector in Sri Lanka, whilst cross-referencing it with other competitor countries in the Asian region.

Quantitative data was collected by a self-administered but structured survey sent out to tourists at the coastal region of Negombo, which has been an epi Centre for tourist for decades. The results were analyzed on Microsoft Excel in terms of mean and mode to conclude and recommend on the selected problem. The responses from 45 respondents revealed the current stance of the Sri Lankan Tourism Industry at work to contradict with several factors in place. A significant factor analyzed was the expected outcome of tourist's receipts for the year 2016 being lower with majority of tourists preferring to stay in three-star hotels, despite many five-star hotels. The study, further revealed external factors such as proficiency in English, experience, usefulness of current infrastructure, pollution, cleanliness and places of interest contributing to the overall competition in the Asian region.

The authors reaffirm that the recommendations provided would help experts in the field to further develop and implement strategies that would be feasible in the long run in converting this sector into a lucrative industry.

## **Author keywords**

Tourism, Competition, GDP, Tourists arrivals, Tourism-Industry, Economy, Hotels, Skilled Labour, Promotions, Strategies, Feasibility, Infrastructure.

## **Introduction**

Against the backdrop of a quadrupled tourist arrival since 2009 the Sri Lankan tourism industry is booming with several hotels under construction to accommodate more arrivals, along with other tourism developments to meet the ever-rising demands. While on the other hand when cross-referencing Sri Lankan tourism industry with other competing countries in the Asian region, the industry seems to be under performing against the norms.

Considering the ever-increasing arrivals along with the massive infrastructure development there seems to be very low income in terms of tourism. At the same time the net provision to the national GDP from this sector is far below 3% compared to its competitors in the Asian Region, for example Vietnam which contributes 7.5%, Malaysia – 12% and Singapore – 5%. It is to note that the country lacks well trained professionals

to cater the demands. While low end tourist arrivals are increasing, the country is targeting and developing itself for high end customers, when majority of the arrivals are middle end and low end customers.

The research gives an in-depth analysis on the former and current strategies, as per the results of his primary data analysis. The author is keen in identifying the areas, in which the Tourism Industry needs attention and how the country can achieve its targets. The authors reaffirm that this research intends to provide valuable knowledge to industrial specialist in this sector who could take into consideration, the observations and results of this report, which in turn would help them further develop and implement strategies that would be feasible in the long run in terms of converting this sector into a lucrative industry.

### **Research Body**

Tourism in Asia has been progressing remarkably over the last decade displaying a strong and positive trend. It has been regarded as one of the key driving force of national and regional economic development (Chheang V. 2013) though competing countries like Malaysia and Vietnam has contributed considerably a large amount in terms of GDP to its nations, Sri Lanka on the other hand irrespective of a high influx of tourist isn't financially growing as expected. Though the previous regime with an ambitious goal, recognized the multiplier effect of tourism which would help benefit the country economically, put toward a 5-year master plan with an objective of achieving USD 2.7 Bn in FDI and 2.5 Mn arrivals by 2016 (SLTDA, 2011).

Sri Lanka is being promoted as the 'Wonder of Asia', but many critics argue on the appropriateness of the slogan, as the only two noteworthy wonders are Sigiriya and elephant gathering at Minneriya (Kalegama S. 2014), but the country instead of offering what's in the slogan offer something completely different, while competitors draw parallel to their slogans. Prof. Kotagama S. (2015) stated that the country should identify what it must offer. Leading hotel chains face critical skilled labour shortage which hinders the growing industry (Mithipala S. 2014), which leads way to no value for money. Despite high number of 5 star hotels, majority of tourists stay at 3 star hotels, the reason being overpriced room rates compared to competing regions per Lakshman K. (2013). Furthermore, it is to note that a careful estimation needs to be done to judge the situation whether there is an under-supply of rooms (Kalegama S. 2014) contributing to the problem at hand.

Quantitative data was collected by a self-administered but structured survey comprising of 31 questions with both closed and open ended questions, sent out to tourists at the coastal region of Negombo, which has been an epi centre for tourist for decades. Alongside the survey several one-to-one interviews were also conducted among various other individuals who become possible stakeholders to this valuable project. The results were analysed on Microsoft Excel in terms of Mean and Mode to conclude and recommend on the selected problem. The responses from 45 respondents revealed that the current stance of the Sri Lankan Tourism Industry at work to contradict with several factors in place. Apart from the above primary means of data collection, secondary data were collected from an immense number of journals and reports published both locally and internationally, to support the authors' interest of study which hasn't been

investigated before. Through the findings tourist see Sri Lanka as a beach destination thereby placing the country in direct competition to Maldives. Social media play no major role in tourism promotion while English proficiency is quite low regardless being a former British colony. Most tourist prefer to shop and dine at local outlets, which could help with the multiplier effect recognised by the government.

Sri Lanka to achieve its target by the year 2016 it is necessary to have an effective tourism promotional strategy. Hence it is to be noted that branding needs to come from the competitive-strengths the country has and not based on a mere catchy slogan, as tourists do their homework before coming to a country. The country at present need to invest in present demands, especially in the hotel industry, while elevating the quantity and quality of hotel school graduates in creating value for money over the years and to gain a better ROI. Also, there needs to be revised room rates to be eligible to compete in the region. Infrastructure on the other and needs to interconnect well amidst others for a hassle-free stay in the country. Establishment of theme parks, shopping malls and other means of entertainment can raise the standards of the industry to a competitive standard. Having noted that the country has a low contribution in terms of revenue in his sector it is still productive if the sector could take these findings and consider the following recommendations put forwarded by the authors so that the industry become lucrative soon given its demands.

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# Impact of organizational culture on employee retention: A special reference to IT industry

Ashra Alikhan and Aishath Shimaz

## **Abstract**

As with several organizations worldwide, staff retention problems affect organizational productivity and performance. Managers face the challenge of having to address employee retention in the face of increasing competition in the global marketplace. Hence, against this background this research explores into employee retention problems within Colombo, bringing into focus the extent to which organizational culture impacts employee retention in Colombo, specifically in the IT industry.

Turnover studies by numerous previous authors mentioned several factors as the cause of labour turnover. However, there is still a research gap on whether the solution taken to solve the workers problems which include retention strategies adopted by different organization or companies are useful and satisfactory to enable the organization to retain their employees.

Accordingly, the study is highlighted on organizational culture and other factors such as employee retention and employee turnover that affect with emphasis on organizations. To accomplish this task, quantitative research approaches were employed.

The self-administered questionnaire 50 respondents indicated employees of needing an organisational culture that is more employee oriented, specifically in terms of giving recognition for the jobs they perform well.

The results also provide a practical guide to managers and policy makers, to enable them to recognize and initiate measures that will make the workplace experience a more pleasant and "worthy of service" place for employees, and so weaken employees' intent to leave.

## **Author keywords**

Organizational culture, Employee retention, Innovation and risk taking, Attention to detail, Outcome orientation, People orientation, Aggressiveness, Stability, Employee turnover.

## **Introduction**

If an employer is supposed to have a high turnover experienced to its competitors, it means that employees of that company have a shorter standard residence than those of other company in the similar business. High turnover can be risky to a company's efficiency if skilled employees are often departure and the worker population controls a high percentage of apprentice employees. Employee turnover assemble in the IT Industry is a massive 50%, sufficient to make managers lose sleep above the tangible and intangible expenses of employee turnover. Against the backdrop of increasing multinational corporations, a greater comprehension of cultural dimensions becomes a key requirement. There is a general agreement that culture is reflected in the way things are done by a group and most researchers concur on the six aspects of culture.

Previous researchers indicate service in the IT companies engages an interpersonal deal that takes position between a customer and a difficult human delivery system. It is the interaction between the front line employee and the customer, known as the “service encounter” or the “moment of truth,” that has the most direct impact on the customer’s level of satisfaction and overall awareness of the company. And further described culture as a descriptive term, in that it is concerned with how employees perceive the characteristics of an organization’s culture, not with whether or not they like them. Research on organization seeks to measure how employees see their organization.

The study focuses on the increasing employee turnover, its causes and impact of culture. It looks at various methods to improve employee retention in an organization.

### **Research Body**

A few studies that use the term ‘organizational culture’ reveal enormous variation in the definitions of the term and even more in the use of the term ‘culture’. ‘Culture’ has no fixed or broadly agreed meaning even in anthropology, but variations in its use is especially noticeable in the literature on organizational culture. The broad variations of scientific disciplines and research orientations involved in ‘organizational culture’ studies makes the field very heterogeneous. Mainly the concept of culture seems to lend itself to very different uses as collectively shared forms for example, ideas and cognition, symbols and meanings, values and ideologies, rules and norms, emotions and expressiveness, as the collective unconscious, as behaviour patterns, structures and practices.

Previous researchers suggested seven characteristics that, in aggregate, capture the essence of organizational culture.

- **Innovation and risk taking:** the degree to which employees in an organization are encouraged to be innovative and risk taking
- **Attention to detail:** the degree to which employees are expected to exhibit precision, analysis, and attention to detail or task.
- **Outcome orientation:** the degree to which management focuses on results or outcomes rather than on the techniques and processes used to achieve these outcomes.
- **People orientation:** the degree to which management decisions take into consideration the effect of outcomes on people within the organization.
- **Team orientation:** the degree to which work activities are organized around teams rather than individuals.
- **Aggressiveness:** the degree to which the people are aggressive and competitive regarding their work rather than easy going.
- **Stability:** the degree to which organizational activities emphasis maintaining the status quo in contrast to growth.

Organizational culture is responsible for creating the high level of commitment and performance as per suggested by the results of the global research. Organizational culture is directly proportional to the performance of the organization. Organizational culture is a significant tool for the managers to create a desired enthusiasm among the employees for the betterment of the organizational outcome, researchers suggests that managers and employees do not behave in a value free vacuum. They are governed,

directed, and tempered by the organization's culture. This research will go through approaches of different dimensions of culture like gender, religion, and ethnicity in order to investigate the impact of organizations' culture on employee retention, resulting in the better performance of the organization.

According to different turnover studies, there are many factors that causes labour turnover. Nevertheless, there is still a gap on whether the solution taken to solve the workers problems which include retention strategies adopted by different organization or companies are useful and satisfactory to enable the organization to retain their employees. Furthermore, most of the existing studies on employee turnover and retention in the non-profit sector have been carried out in the western context. The researcher comes to a solution and comprehensive investigation of the issue of employee turnover and retention of organization.

Employee retention is a critical issue facing today's enterprises as they compete for talent in a recovering economy. Previous researchers stated "Retention starts from the application process to screening applicants to choosing who to interview.

Organizational culture is increasingly being touted as an important selling feature as companies attempt to attract and retain valued employees. Employers are being advised to evaluate their cultures and, where necessary, change them to increase their attractiveness to employees. In another study, measured organizational culture within several major accounting firms located within a single metropolitan area.

The main aim of this research study is to examine the impact of organizational culture on employee retention at IT Industry. The researcher adopted a positivist quantitative method, facilitated through a questionnaire, designed to collect data at an individual level.

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# **Investigating Employers' Attitudes towards recruiting employable differently – abled candidates: Special Reference to the private sector companies in Sri Lanka**

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## **Abstract**

Unemployment and underemployment have been a resolute concern for differently abled candidates, despite their effort to grow to be a highly competent and successful candidate pool. Although there is a general optimistic perspective about differently abled employees, it is discernible that some enduring reluctance is certainly in existence among the employers in Sri Lanka, in terms of recruiting them. Preceding literatures on this area of study have also established that one of the most common factors that cause the low employment rate of employable differently-abled persons is the reluctance and unwillingness of employers to take in employees from this particular group.

## **Author keywords**

Attitudes, Differently-abled employees, Diversity, Employers, Inclusion, Perspectives, Private Sector, Recruitment, Sri Lanka.

## **Introduction**

The research objective of the present study is to investigate the factors that affect or compose the attitudes of the Sri Lankan employers (Private Sector) towards recruitment of employable differently-abled candidates and how these factors affect the employment of such candidates and to shed light on the hidden employability of them, as this group as this particular group, by default, is considered to be a component of the economically inactive population in Sri Lanka. The importance of this research is to contribute to the existing literature base on this area of study and to provide recommendations for policy makers and employers, so as to reduce the unemployment in a national outlook in the long run, as well as to increase the awareness of importance of fostering a business culture that promotes diversity and inclusion in the workplaces in Sri Lanka.

## **Method**

The author has used an 'interpretative' philosophy and has selected a sample of 35 consists of both owners and HR professionals who have decision making role from various industries of private sector such as Banking, Insurance, Hospitality, FMCG, Education, Apparel, Housekeeping and Healthcare in the Western province of Sri Lanka and questionnaire survey and in-depth interviews were conducted for the collection and analysis of primary qualitative data along with the pertinent secondary data collection. For a more critical qualitative analysis, the author has further categorised the chosen sample group into two, where one being the employers that have recruited differently-abled employees and the other, employers that have not recruited or avoided recruiting employable differently-abled candidates. Research ethics on privacy and confidentiality



of sample subjects were maintained in data collection as well as throughout the process of the research.

### **Conclusion**

The conclusion is partially comparable to and in agreement with studies undertaken by Chi & Qu, 2003; Kalargyrou 2014; and Unger, 2002. However the results established several other distinctive factors that compose the attitude of Sri Lankan employers. The foremost crucial factor that influences the positive attitude of Sri Lankan employers in recruiting employable differently-abled candidates is their awareness and understanding of the importance of diversity and inclusion in the workplace. This level of awareness and understanding is mainly dependent on their level of education and organisational culture that has a great emphasis on learning and transforming. It was revealed that inclusion of differently-abled employees, has, in fact, created a positive attitude and a more harmonious environment among the non disabled employees too. Employers who have previously recruited such candidates are also of the view that differently-abled employees demonstrate a great deal of loyalty, punctuality, dependability and commitment and at times better than them. Moreover, certain physiognomies of the organisation such as the size and industry also have an impact on the level of understanding. The bigger the size the organisation is higher the level of awareness and understanding. However, it is critical to note that certain relatively smaller organisations in size are also positive about recruitment of the aforementioned type of candidates on the grounds of sociocultural factor- the religious belief in Christianity and Buddhism on supporting the disabled/ injured and the sick. On the other hand, the adverse attitude is triggered by various factors, mainly ambiguous perceptions about their attendance, productivity, additional accommodation cost and additional health and safety measures due to frequent workplace accidents. It was also revealed that characteristics and attributes of a differently-abled candidate such as the gender, appearance, job position, the type of disability, education level and prior employment experience also play a major role in employers' attitude and recruitment decision making. Employers believe that recruiting male differently-abled candidates over females is less risky. In summary, the Sri Lankan employers, in general, tend to have a constructive attitude towards recruitment of employable differently-abled candidates and it is recommended to foster a learning culture that promotes the importance of diversity and inclusion in order to eradicate the adverse attitude.

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## **Investigating the reason for customers selecting Traditional as opposed to Modern Retailing in Sri Lanka**

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### **Abstract**

Several supermarkets have opened in Sri Lanka over the past few years. However, with 225 supermarkets around Sri Lanka, a mere 15% of the population is seen in making use of these supermarkets, with rest of the 85% of population making use of traditional retailing method. The traditional retailing is dominating the retail industry in Sri Lanka. Therefore, this research is purely based on investigating the reasons for Sri Lankan customers practicing traditional retailing (Local Grocery) as opposed to modern retailing (Supermarket), with the objective being to understand the Sri Lankan market, customer behaviour towards supermarket, number of customers doing modern and traditional retailing and the factors that influence them to choose between the two retailing methods.

With most researches in this context conducted on Western, Middle Eastern, India in Asian region, and one specific study conducted for Ampara Coastal region, the findings may not be applicable to Sri Lanka as a whole mainly due to cultural differences. Accordingly, this research is aimed at fulfilling the aforementioned research gap.

Responses from 100 respondents evidenced to customers choosing traditional retailing over modern retailing mainly due to socio cultural factors such as income, habits, and buying patterns. In addition, customer satisfaction level in terms of product availability, accessibility of the retail outlet, credit facilities are key factors that contribute to customers preference for traditional means of retailing. Furthermore, loyalty of customers towards local vendors emerged as a key role player in Sri Lankans choosing traditional retailing versus modern retail.

**Author keywords**

Socio cultural Factors, Accessibility, Loyalty, Credit Facility, Buying behaviour, Promotion & Advertisement, Customer satisfaction.

**Introduction**

The Sunday Times (2013), reports Sri Lanka of having more than 225 supermarkets all over the country. This includes with Cargills Food City having over 150 outlets, Keells Super (45 to 50 outlets), Arpico Supercentre's (8 outlets), Laugfs Supermarkets (25 to 30 outlets) and Lak Sathosa (over 225 outlets). However, a mere 15% of the populations are making use of it with the remaining 85% making use of traditional stores. This practice needs to be changed, mainly because customers would have more benefits, such as lower costs, better quality products, by purchasing through a modern retailing outlet.

The present research is intended to understand the reasons behind customers selecting traditional retailing (Local Grocery) as opposed to modern retailing (Supermarket), along with the objectives to understand the Sri Lankan market, customer behaviour towards supermarket and to analyse the factors that influence customers to choose between the two methods. With this sector being the lowest revenue driver to the GDP, the present research is aimed to help increase the contribution of retail industry to the GDP.

**Research Body**

Most of the previous studies on this particular topic was conducted on Western region, Middle East, and some Asian region like India. Therefore, these findings not may applicable to Sri Lanka as whole mainly due to cultural differences, hence this research is aimed to fulfil the aforementioned research gap.

Mathur, Jain and Sharma (2013), concluded that the demographic factors like income, occupation, lifestyle, habits, and religion as major influencing factors that impact consumer selection of purchasing method. Further, Narayana, Samal, and Rao (2013), reasoned customer go for traditional retailing mainly due to facilities such as bargaining, loose products, credit facilities, due to convenience and goodwill. In addition, Kethireddie (2015), stated consumer behavior towards modern retailing of being primarily about the availability of products, retail space, wider availability of products and brands, also the way they organized their retail store in a systematic way. Lu and Lucoma (2011), found through his studies that the customer satisfaction level being solely dependent on quality of the products offered in the supermarket, value for money, additional service, and facilities.

For purpose of the study, researcher conducts an extensive literature review of aspects of traditional and modern retailing and eventually arrived at a conceptual framework to demonstrate the relationship among the key constructs. Five concepts of reasons for customers selecting traditional retailing were established as independent variables, along with modern retailing determined as the dependent variables. Consequently, eight hypotheses and eight null hypotheses were developed for the aim of investigating the relationship among the constructs of the conceptual framework.

The research was conducted using a Stratified Sampling method. The population of

Central Colombo is 318,048, as reported by the department of census and statistics (2012). 10 divisions, namely Slave Island, Kollupitiya, Bambalapitiya, Wellawatte, Dematagoda, Maradana, Hultsdof, Kotahena, Grandpass and Mattakuliya were selected from Colombo Central, with 10 respondents from each strata. A positivist quantitative approach was utilised, facilitated through a questionnaire, consisting of 32 questions designed to collect data at an individual level.

Main findings indicated 72% people making use of local grocery. However, 66% prefer to do their shopping in supermarket, with 85% of the population satisfied with supermarket method. A noteworthy 81% of the customers earning less than Rupees 200,000 prefer the local stores, along with 19% Customers who are earning above Rupees. 200,000 opt for supermarkets. In addition, 91% of respondents indicated the availability of credit flexibility in local grocery stores, with only a 9% of the supermarkets are offering this facilities. Responses from 100 respondents evidenced to customers choosing traditional retailing over modern retailing mainly due to socio cultural factors such as income, habits, and buying patterns. In addition, customer satisfaction level in terms of product availability, accessibility of the retail outlet, credit facilities are key factors that contribute to customers preference for traditional means of retailing. It is also worthy to note that Loyalty towards local groceries indicated a higher percentage than supermarkets.

In practical terms, the present research aimed to investigate the reasons for customers selecting traditional as opposed to modern retailing in Sri Lanka would help in enhancing the strategies currently used in order to increase the contribution of retail industry to the GDP of the country.

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# Upgrading Organizational Performance through Employee Motivation

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## **Abstract**

In today organizations, superiors keen about their employee Motivation hence it gives off an impression of being a standout amongst the hugest instruments in managing human resources. Organizations' format the inspiration plan to urge representatives to achieve in an utmost productive manner furthermore to force some potential competitors towards the organization.

The center of current investigation to improve the association execution through motivation and attention to the employee involvement at XYZ and its adequacy and contrast and organization execution, figure out if there is an immediate relationship and discover in what way involvement of employees effect the organization performance. The information has assembled through self-composed survey questionnaire appropriated to the XYZ company representatives in almost every department. The present examination uncovered commitment rate of the employees at f XYZ's workers is exceptionally lacking and motivation could not found from them. Poor employee engagement have contrarily affected on the organization execution.

## **Author keywords**

Organizational Performance, Employee Commitment, Motivation.

## **Introduction**

Employers in the current world, concur that the modern business look for more profitability and capability, before they had. Sanchez and McCauley (2006) stated that Organizations are doing even more hard work to expand their execution so as to place particular organization on topmost of the opponents. At certain period fulfilled workers was the settled formula for achievement, fulfilled representatives would not have liked move from the organization and contributed beneficially. According to Abraham (2012), yet, those periods don't exist any longer and it has been changed timely with the competitive environment. The exchange environment is general and extremely forceful, accordingly exclusively fulfilled workers are not adequate to bring crucial business results in the current world and also Abraham (2012) was pointed out that fulfilled representatives can manage just the work prerequisites, however this won't prompt hoist the organization performance

The present circumstance at XYZ is truly distinctive and the initiative of the organization delineates their workers at this very moment resource, so organization committed through structure furthermore empowering an amicable domain for their representatives to achieve their highest as much as possible. The organization has sketched out number of routes as far as captivating and propelling the workers which prompt increase the general execution however fizzled. In numerous events, rather than administration

asking the workers in regards to requirements and commitment ratio, alternately they compose workshops and behavior reviews no action taken or providing answer on concern emerge from studies.

### ***Experimental***

Babbie (2004) proposed that overview is perfect for the reasons of spellbinding, logical and exploratory examination. What's more he contended that reviews are for the most part utilized as a part of the research to investigate the distinct and this technique is paramount to break down the discernments, practices and sentiments of individuals. The research methodology has been used According to Cooper and Schindler (2003), the three vital fundamentals of any investigation plan are: 1) The exploration configuration has the capacity pick the wellspring of data and sort of data to be utilized as a part of request to response the examination query, 2). The exploration outline works as a system to distinguish the association among the unique variables of examination.3).The exploration configuration bolsters in portraying the phases in the method from theory to the information investigation As indicated by Bryman and Bell (2007) the moral analysts have a propensity to bunch their discoveries into two noteworthy gatherings and also they are besides quantitative examination or subjective exploration (qualitative research). Coldwell and Herbst (2004), exhibits that Populace is a gathering of individual, things or a substance frame in which tests are procured to gage. The motivation behind current investigation to build up the perspectives that elevating representative commitment and to identify development needs it is regarded in the organization. The number of inhabitants in this study rotates around 385 work force in XYZ.

Representatives who work in XYZ separation has dove the hierarchical execution. It is clear as can be seen an immediate association between worker commitment, inspiration and authoritative execution and further demonstrated that representative commitment can without a doubt improve the hierarchical execution. Disappointment prompted withdrawal and subsequently poor execution prompted poor benefit. The consequences of the examination show that XYZ ought to concentrate on rousing the workers, mindful of representative commitment and the revisions in the initiative style. Besides thorough consideration ought to be considered that the non-commitment and variables affecting the representative commitment.

The XYZ atmosphere is not developed with safe place but rather with apprehension and doubt, along these lines representatives are disintegrated bit by bit. Pioneers and departmental directors being an authoritative operator, they ought to build and expand the degree of the reliable among the workers and the head of the departments. Each and every element must practice the abnormal state of trust, in this manner the energy at workplace will be upgraded mechanically. Administration ought to be straightforward and must have the cooperation of representatives in choice making and course occupation related obliged data to workers without obstructions. The administration needs to make a picture that they think about the representatives by providing high administrative backing in discriminating conditions to workers. When every one of these fixings are situated, the result will be safe place.

The current investigation has found the beneath suggestion for this exploration: Workforce is not inspired by the administration, Workforce at XYZ are separated, Workforce see

XYZ pioneers as exceptionally intense and impolite, many of employees are expecting to resign from the organization, the exploration did affirm the above suggestions. XYZ needs to assume an enormous part in engaging the workers by providing them a chance to unravel predicaments and set out some proposal. Subsequently workers with experience and in this way earn better than current and shifted arrangements in differed perspectives. Cooperation is boundlessly obliged and ought to energize the group exhibitions and entertainers as they draw in successfully to take care of the issues. As per McGregor's X and Y theories, XYZ needs to alteration the administration style with a specific end goal to utilize and procure the advantages from employee motivation and their commitments.

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# The Relationship between Followership Styles and Job Performance

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## **Abstract**

Although, organizational successes or failures are often attributed by effective/ ineffective followership, there is scarcity of studies centering on the role of followers. Today followers are far more educated, mobile, diverse, and younger than the followers of past. It doesn't say that all followers have the same level of capacity. These differences may be largely attributed by their inherent personality. According to followership literature, it describes five types of followership styles; alienated, conformist, passive, exemplary and pragmatic based on two behavioral dimensions of independent critical thinking and active engagement. One question often arises in this manner is; how these different followership styles attribute to the performance of subordinates. Therefore this study aims to identify the relationship between followership styles and job performance. In this study, employee performance is classified into 'will-do' and 'can-do'. The former refers to individuals' knowledge, skills, abilities, and other characteristics needed to perform certain tasks and latter indicates the level of motivation individual may have in performing their work. 132 graduated employees were participated and purposive sampling procedure was applied. Data has been gathered through two questionnaires. Kelley's (1992) followership style questionnaire was used to identify the respondents' followership style and Williams and Anderson (1991) job performance questionnaire was used to gain the self-perception on one's job performance. The principal data analysis tool used was Spearman's correlation coefficient. Findings reveal that the majority (34.8%) of the participants acted as effective followers and active engagement strongly related to job performance than independent critical thinking. Among the different followership styles, conformist followership style was highly correlated to job performance and effective followership style shows the moderate relationships.

Although, organizational successes or failures are often attributed by effective/ ineffective followership, there is scarcity of studies centering on the role of followers. Today followers are far more educated, mobile, diverse, and younger than the followers of past. It doesn't say that all followers have the same level of capacity. These differences may be largely attributed by their inherent personality. According to followership literature, it describes five types of followership styles; alienated, conformist, passive, exemplary and pragmatic based on two behavioral dimensions of independent critical thinking and active engagement. One question often arises in this manner is; how these different followership styles attribute to the performance of subordinates. Therefore this study aims to identify the relationship between followership styles and job performance. In this study, employee performance is classified into 'will-do' and 'can-do'. The former refers to individuals' knowledge, skills, abilities, and other characteristics needed to perform certain tasks and latter indicates the level of motivation individual may have in performing their work. 132



graduated employees were participated and purposive sampling procedure was applied. Data has been gathered through two questionnaires. Kelley's (1992) followership style questionnaire was used to identify the respondents' followership style and Williams and Anderson (1991) job performance questionnaire was used to gain the self-perception on one's job performance. The principal data analysis tool used was Spearman's correlation coefficient. Findings reveal that the majority (34.8%) of the participants acted as effective followers and active engagement strongly related to job performance than independent critical thinking. Among the different followership styles, conformist followership style was highly correlated to job performance and effective followership style shows the moderate relationships.

### **Author keywords**

Key Words: Followership personality, Graduated employees, Job performance.

### **Introduction**

Although, organizational successes or failures are often attributed by effective\ ineffective followership, there is scarcity of studies centering on the role of followers. Followers with valuable skills, experience and personalities is the most valuable assets in any organization. Today followers are far more educated, mobile, diverse, and younger than the followers of past. It doesn't say that all followers have the same level of capacity/ competent. These differences may be largely attributed by their inherent personality or style. According to followership literature, it describes five types of followership styles; alienated, conformist, passive, effective and pragmatic based on two behavioral dimensions of independent critical thinking and active engagement. Employee performance is classified into 'will-do' and 'can-do'. The former refers to individuals' knowledge, skills, abilities, and other characteristics needed to perform certain tasks. Latter indicates the level of motivation individual may have in performing their work, because employees with relevant skills and competencies are not motivated to do such work will cause to decrease their performance. One question that often arises in this manner is; how these different followership styles attribute to the performance of subordinates. Therefore this study aims to identify the relationship between different followership styles and job performance and as well as the most significant style relate with the job performance. Accordingly, the findings of this study would benefit to academicians and practitioners and as well as managers and subordinates of organizations in identifying how followership styles would contribute to employee performance in achieving the organizational success.

The study concerned the graduated employees who work in public and private sector organization as the population. Purposive sampling procedure was applied to select the sample. The main research instrument in this study was questionnaires. Kelley's (1992) followership style questionnaire was used to identify the respondents' followership style and Williams and Anderson (1991) job performance questionnaire was used to gain the self-perception on one's job performance. A total of 150 questionnaires were distributed and 132 questionnaires were returned with the response rate of 88%. The internal consistency reliability of the scale was (Cronbach alpha = 0.79). The principal data analysis tool used was Spearman's correlation coefficient.

Effective followers present a consistent image of commitment, innovation, creativity, and hard work for achieving organizational goals. The findings indicate that majority (34.8%)

of the participants exhibited that followership style. This category of followers does more than their job requirements. They do their work with enthusiasm, support their managers and offer constructive criticism when it is appropriate.

Conformist follower is an active yet dependent, non critical thinker. They are the “yes people” of the organization and carry out all orders without considering the consequences of such orders and would do anything to avoid conflict. 20.6% of respondents were conformists. They try to develop high quality relationship with their managers, as a result, carry out all the orders without questioning or thinking. Conformists are loyal to the organization and believe that leaders and the organization have their interest at heart. They are therefore prepared to give up or compromise their own needs for the betterment of the organization.

Alienated followers are capable but unwilling to participate in developing solutions to problems. It was revealed that 15.9% of the participants are alienators. They are competent but do not use their competence. The alienated followers hardly see anything good in the organization; they use their judgmental comments and unenthusiastic attitudes to discourage others from performing their roles. They expend their energy on negativity and it is most likely that these followers have a negative influence on others (Oyetunji, 2013)

According to Kelley (1992) passive followers are passive, dependent, noncritical thinking workers who are ineffective. Findings revealed that 6.8% of participants are in this group. They are neither competent nor active. They are lacking in initiative and a sense of responsibility, require constant supervision and never go beyond their formal job requirements.

Pragmatist followership style exhibits a little of all four styles depending on which style fits with the prevailing situation (Lussier and Achua, 2010). Findings revealed that 21.9% of the respondents were in this category. The implication of this is that these followers are average in independent, critical thinking and active engagement. They are “stuck in the middle” most of the time.

In terms of the employees’ performance, 52% of respondents recorded satisfactory level of performance, 39% recorded moderate level of performance and 9% scored unsatisfactory level. Further study revealed that active engagement strongly related to job performance than independent critical thinking.

Among the different followership styles, effective followership style was highly correlated to job performance and conformist followership style shows the moderate relationships. Because followership is not just a blind obedience, it is important to support the leader to implement the decisions and as well as raise issues about those decisions when they are unethical, illegal or may have significant adverse consequences on the organizations. Followers do not play the passive role of accepting leaders’ ideas without independent evaluation. They should be creative, innovative, willing to offer constructive criticism when it is appropriate and as well as initiative, participative and working beyond their normally assigned duties. Based on these findings, it is important to make conscious effort to develop effective followership style by expressing support and encouragement

to a leader, take initiative to do what is necessary without being told, raise issues and/or concerns when necessary, provide appreciation when leader perform a good deed that benefits others, resist inappropriate influence of leader (Lussier and Achua, 2010).

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# **To Study the Impact of Managerial Skills on Subordinates' Job Satisfaction**

## **(Case Study on Garment Industry- Sri Lanka)**

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### **Abstract**

A manager's job is difficult and complex. To perform the task effectively and efficiently, managers require complex blend of skills. Principle components analysis of a managerial skills inventory identified three broad variables of conceptual skill, technical skill and human relations skill. Effective management of all these three skills would contribute to enhance the subordinates' job satisfaction and thus, enhance the performance of an organization. Present study was done with the intention of examine to what extent managerial skills effect on subordinates' job satisfaction. The study specially refers to the first-tier production managers in garment manufacturing organizations. Study was adopted random sampling technique to select twenty garment manufacturing organizations in Sri Lanka. Five first-tier managers were selected from the respective twenty organizations and have been used to collect the data regarding managerial skills. 200 subordinates, 2 subordinates from the respective 100 managers were participated to view the ideas about their job satisfaction. To measure subordinate job satisfaction, subordinates completed a questionnaire based on two dimensions of supervisory style that affect their job satisfaction named employee centeredness and participation. The principal data analysis tools used were regression analysis, correlation coefficient and factor analysis test. Based on data analysis, managerial skills were found to be positive significant determinant on subordinates' job satisfaction and human relation skills provide incremental value on subordinates' job satisfaction over conceptual and technical skills. Research findings also revealed that in garment manufacturing industries first-tier managers' human relations ability is not up to the expected level and acquisition of this ability may enable managers to develop more positive attitudes about himself and about others.

### **Author keywords**

Managerial skills, Garment Industry, Job satisfaction.

### **Introduction**

A manager's job is difficult and complex. To get the work done more effectively and efficiently, managers require complex blend of skills. Managerial skills are list of qualities and attributes in the personality of managers that enable them to effectively manage the working of a firm. These skills helps manager to formulate and execute the policies, strategies and activities associated with being a manager. Principal components analysis of a managerial skills inventory identified three broad variables of conceptual skill,

technical skill and human relation skill. Effective management of all these three skills would contribute to enhance the subordinates' job satisfaction and ultimately, enhance the performance of an organization.

According to Kelegama and Eparachchi (2001) the majority of enterprises in the Sri Lankan garment industry are "weak" in terms of productivity. Companies with low levels of productivity could theoretically get significantly more work done, but they have factors that hold them back from their full potential. This leads to wasting money and losing ground to competitors. Ineffective management practices are a key reason to decrease a company's productivity. The overall strategy for such a company contains inefficiencies because the manager doesn't see and take steps to implement the most productive ways to complete. Therefore it is concluded that these problems are due to the lapses of managerial skills. It was evident that, Jayawardane et al (2001) have pointed out "many efficiency losses in the garment industry also occurred because of mistakes made by management".

Shortage of skilled labour available to the industry is one factor adversely affecting to productivity. Consequently, it is more difficult to use existing labour in most efficient manner, and as supply of labour is less than the demand, low productivity results. The garment sector has recorded average labour turnover rates of around 55% per annum. Absenteeism is another serious problem contributing to low productivity. The average rate of monthly absenteeism amongst labour in that industry is approximately 7.4%. There are number of reasons attributed to high rates of labour turnover and absenteeism. Employee job dissatisfaction and worker-stress are among the main reasons. A poor social image of factory workers and the reputation the industry has gained for harassment of women workers and the poor working conditions, factory worker has a social stigma. These factors too have led to high job dissatisfaction then to labour turnover, which, in turn has impeded the productivity of labour and affected to competitiveness. Based on these rational it was evident that garment industry still suffers the problems of low level of managerial skills/ competencies and employee dissatisfaction. Accordingly, this study was done with the intention to examine to what extent managerial skills effect on subordinates' job satisfaction. The study specially refers to the first-tier production managers in garment manufacturing organizations.

The study was made on a selected sample and random sampling technique was adopted to select twenty garment manufacturing organizations in Sri Lanka. Five first-tier managers were selected from the respective twenty organizations and they have been used to collect the data regarding managerial skills. 200 subordinates, 2 subordinates from the respective 100 managers were participated to view the ideas about their job satisfaction. To measure subordinate job satisfaction, subordinates completed a questionnaire based on two dimensions of supervisory style that affect their job satisfaction named employee centeredness and participation. The principal data analysis tools used here were regression analysis and correlation coefficient.

It was revealed that, correlation coefficient between human relations skill and subordinates' job satisfaction is 0.82 and P value of 0.00 ( $p < 0.01$ ). This concluded that subordinates tend to be highly satisfied with the managers who is high in human relations skill. Basically, developing human relations skill is necessary for managers

in the garment industry though, it is a labour intensive industry. Managers whose their human relations skill have been raised to perfection, are aware of their belief and attitudes about others and they are to represent their meanings by their behaviors and language that can be understood by others and also they are able to create healthy and refresh environments in their organizations.

Further, there is a moderate relationship between technical skill and subordinates' job satisfaction. The resulting correlation coefficient between these two variables is 0.49 with a P value of 0.00 ( $p < 0.01$ ). This indicates that subordinates show marginal satisfaction with their managers who is high in technical skill. First tier managers' technical skillfulness include assignment of jobs and tasks to various workers, guide and instruct workers for day to day activities, responsible for the quality as well as quantity of production, supervise & guide the subordinates, arrange necessary materials, machines, tools etc. for getting the things done, know how to monitor activities of employees and prevent errors and job mistakes, and provide feedback for the accomplishments.

The conceptual skills were not found to be positive significant determinant on subordinates' job satisfaction. According to research findings managers' human relations ability is not up to the expected level and acquisition of this ability may enable managers to increase subordinates job satisfaction. High satisfaction may help improve performance, and reduce turnover and absenteeism. In addition to that, highly satisfied employees tend to have better physical health, learn new job related tasks more quickly, have fewer on-the-job accidents, and file fewer grievances. Based on Luthans (2005), it is suggested that managers must attempt to create a culture and climate to increase follower satisfaction by; making jobs more fun, having fair pay, benefits, and promotion opportunities, matching people with jobs that fit their interests and skills, designing jobs to make them exciting and satisfaction.

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# Customer Satisfaction on Internet Banking Services in Sri Lanka

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## **Abstract**

The competition and the innovation if the financial sector has dramatically change the banking sector with more customer orientation. Even though these changes has alter the nature of the bank products customer adaptation to such changes is limited ordelayed. Therefore, the purpose of this study is to assess the factors influencing the adoption and usage of internet banking services in Sri Lanka. The approach of this study is deductive research approach. Theoretical model developed based on the Technological Adaptation Model. In addition to that research model developed by incorporating some other variables such as perceived risk, and perceived self-efficacy. On empirical ground the relevant factors are identified using Likert scale questionnaire. The 200 Sample is selected randomly from western province to address the research problem. According to the model factors of adoption which are perceived usefulness, ease of use, perceived risk, and self-efficacy used as independent variables while the intention to use is considered as dependent variable in the linear regression model. The findings of the study confirmed that perceived usefulness, ease of use has positive significant impact on intention to use while negative moderate relationship between risk and intention to use internet banking services. The study provides important implications for policy makers while enlightening substantial scope for future research.

## **Author keywords**

Customer Satisfaction, Internet Banking, Technology Adaptation Model.

## **Introduction**

The competition and innovations in the financial sector associated with the technological development has altered the banking products and services with more customer orientation. Grandy (1998) argues that technological developments have dominated the revolution in the banking sector during last decades. Moreover, confirming the impact, Mols (2000) mentioned that technological innovations are likely to key factor driving change within the banking sector for foreseeable future. Today, banking philosophy has changed dramatically with the introduction of the on line or internet banking services. Internet banking services provide distinct advantages to customers on one side in various ways and also for the banking institutions on the other side. Although the benefits are more significant and banks allocate large budget for the development of such services, Sri Lankan banking customers are reluctant to use them and hence internet banking adaptation is relatively low in Sri Lanka. According to the Internet World Statistics(2016) the number of internet users in Sri Lanka in June 2016 is approximately 6 million and corresponding penetration ratio of 27 per cent. Consequently, there is a significant opportunity for increasing the adaptation of internet banking services in Sri Lanka. There has been wide discussion in the literature about the adaptation process of internet banking services (Wang Lin Tang 2003, Pikkarainen and Pikkarainen, 2004,



Fink 2005, Ndubisi Sinti 2006). All these studies used TAM as the basis for the analytical model and identified number of factors which caused to intension to use of internet banking services. All these studies done in other countries and there is a dearth of study in Sri Lanka focusing on demand for internet banking services. As such, this study will enrich the research gap and investigate the possible factors which caused to demand for internet banking services in Sri Lanka. Therefore, the purpose of this study is to assess the factors influencing the adoption and usage of internet banking services in Sri Lanka.

Thus, an understanding of the determinants of adaptation and usage of internet banking services significant for rational policy formulation and implementation in order to stimulate demand for the bank product and services and thereby to improve the process of financial intermediation by banks for achieving sustainable economic growth and development.

### ***Material and Methods***

The literature provides a number of factors which determines the adoption of internet banking services. The model framework developed based on the Technology Adaptation Model(TAM) developed by Davis (1989) and empirical literature identified perceived usefulness, perceived ease of use, perceived risk as the main determinants of demand for internet banking services. Thus, the study uses those variables as the independent variables of the study to explain adaptation and usage of internet banking services in Sri Lanka. In addition, current study incorporates self-efficacy as mention in the conceptual model and as another independent variable since the change in bank products poses a real challenge for the customers to maximize their utility. The above variables are measured in the questionnaire by using different indicators. Accordingly perceived usefulness is measured in three aspects easy learning, flexibility, the ease of performing tasks. Perceived ease of use has four indicators namely, quickness, convenience time, convenience place and reduction of costs. Perceived risk relating to internet banking is measured through indicators of customer attitude on data security, bank reputation, privacy of customers, and reliability of internet banking. Finally, the dependent variable, actual usage will measure through the intervening variable; intension to use. The relevant data were obtained from the structured questionnaire by selecting 200 samples randomly covering the western province in Sri Lanka. In addition to the descriptive statistical tools, Ordinary Least Square Regression was used in the analysis of data. All analysis was performed using SPSS statistical software.

### ***Results and Conclusion***

The findings of the study confirmed that perceived usefulness, ease of use has positive significant impact on intention to use while negative moderate relationship between risk and intention to use of internet banking services. Results were found to be consistent with previous studies. The research model explains the variance in intension to adopt internet banking and though it was lower than expected but it was supported by previous studies in other countries. Findings of the study shed light for the banking institutions in Sri Lanka in designing appropriate banking strategies by emphasizing indicators in each phase mention in the model to stimulate demand for internet banking in Sri Lanka in the future.

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# Identifying and Analyzing Corporate Governance Structures of Financial Institutions in Sri Lanka

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## **Abstract**

This study will review the literature to understand the tools and concepts used in governance to map the current ideologies of governance in Sri Lanka to shed new light on literature and finally find the optimum governance structure in Sri Lankan organizations with special reference to financial services.

## **Author keywords**

Corporate Governance, Ethics, Financial Institutions, Greed, Morality, Governance Structures.

## **Introduction**

The paper offers great insight into the conceptualization of understanding all aspects of the governance practices in the financial industry in Sri Lanka. The current literature is given highest priority and sheds new light in realizing the moral basis and the policies which are involved in world financial markets and how it is governed. The findings will be providing consultants, agencies and future researches alike with a conceptualization that has not been explored before in a developing country such as Sri Lanka. This gives an in depth understanding of how governance evolved and the models around it and serve as a reminder that unethical practice is never far away. A questionnaire will be distributed among 50 financial professionals in Sri Lanka to identify the ideologies and the firm performances associated with such systems. The results will be analyzed using the SPSS statistical measures to find new insights on the influential factors governing Sri Lankan governance structures.

In Sri Lanka, apart from weak regulatory and institutional frameworks, unstable political environments, manipulated exchange rates and ever changing economic conditions continuous to cause ongoing macro-economic difficulties. The public trusts on financial organizations have been reduced over the last few years due to the lack of transparency. According to Spanos (2005) proper governance practices reduce risk for investors and attract more investor which leads to higher organizational performance. Disclosure and trust are integral parts of corporate governance. The public have the right to know the operations and effectiveness in carrying out their designated organizational objectives. This provoked this study on the governance practices among the financial institutions. The aforementioned fact has been discussed further in the literature of corporate governance that dictates the establishment of a sound internal control and financial reporting system to provide transparent and reliable financial and non-financial information for the stakeholders including the voting process of different world markets.

As such, with the increased concern over the concept of corporate governance in the

recent past, it has become inevitable for the financial institutions to adapt a proper model for corporate governance. Accordingly, the study has identified the prevailing governance practices and this paper is aimed at establishing the relationship between the core principles of corporate governance and the performance of financial institutions. Even though there is ever growing literature around governance practices, there is very little research done about corporate governance on financial institutions in countries like Sri Lanka which operates in different environments compared to developed nations, these may include political instabilities, war victims, Tsunami devastations and etc. Cadbury Committee (1992) defines corporate governance as the system by which companies are directed and controlled. Governance model should generate results in favor of all stakeholders in an organization. Decision making and implementation should be transparent. There should be proper accountability at all levels for the better benefit of all stakeholders. So identifying the governance practices and the relationship between it and the financial performance will make the organization concern about stakeholder interests and responsibility towards them, as stakeholders invest in a company's future.

Poor corporate governance encourage the fraudulent activities, misuse of firm capital and these bad examples will affect the good name of the financial institutions who are actually concerned in the objectives of their company. According to Daily News (2009) Sri Lankan stock market was reported as one the best performing stock markets in the world. The study helps to identify the prevailing governance practices (board committees, board leadership and board composition) and the relationship with firm performance. Lack of transparency absence of standard governance practices are the root cause for this problem. Ultimately, if a proper governance structure is maintained, the benefits would mount up to the society at large from well governed and transparent financial institutions with increased fair market value backed by confident investors locally and internationally.

It is clear that there is a high need for research on the governing patterns in financial institutions in Sri Lanka. This will be further discussed by an in-depth literature review followed up by research methodology and data analysis. Finally, the conclusions drawn upon from this study will be beneficial for future researches and organizations. The research will follow an in depth literature review to support the methodology and for the development of the research hypothesis.

### ***Experimental***

Due to the nature and the complexity of the research the data is given high confidentiality. The questionnaire is based on the 3 independent variables identified through literature and is the foundation of the hypothesis created. This variables includes separate leadership structure, board composition and board committees of an organization. The total of 50 questionnaire results were analyzed. The profile of the respondents are highly confidential and the respondents were selected through the referral process backed by the snowball sampling method to be the highly influential board members in Sri Lankan financial organizations. Thus demographic data is not valid for this research due to its sensitiveness of data collected. The questionnaire is set accordingly that higher the agree rate higher the association with firm performance. The data is analyzed using the T-test which includes descriptive statistics and Chi-Square and the Relative Importance

Index (RII) statistical tools through SPSS. The variables tested through the questionnaire statements are as follow:

- Statement 1 – 7 - Board Composition (H2)
- Statement 8 – 14 - Board Leadership Structure (H1)
- Statement 15 – 21 - Board Committees (H3)
- Statement 22 – 25 - Firm Performance

Hypothesis were constructed based on the variable which includes board composition, leadership structure, boards committee on an extensive literature review and tested using the data collected through a questionnaire. Even though many researchers have deployed this model to assess the relationship between corporate governance and the financial performance however, this research takes into consideration more non-materialistic aspects of life / ideologies through a questionnaire which made this research more unique from the rest who evaluated these variables against traditional accounting based measurements. The analysis further proves that there is a positive relationship between separate leadership structures of CEO and Chairman, board composition with higher non-executive directors and implementation of board committees on firm performance. The measures of firm performance was based on higher fair market value, low gearing ratios, steady cash flows which further proved the positive relationship to board leadership structure, board composition, board committees which validated the hypothesis put forward.

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# **Positive Psychological Capacities and Performance of academic staff, studying in Engineering Diploma Institutes in Sri Lanka**

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## **Abstract**

This study focuses on the administrative and operational activities of the academic institutes that researcher has identified as poorly performed. There are many factors effecting the performance of the institutes. Hence, the study is mainly focused on the performance of the academic staff attached to those institutes. Researcher has selected the tertiary educational engineering diploma institutes for the research study as there are only five engineering diploma institutes controlled by the Government of Sri Lanka in various disciplines of engineering sciences.

The study in depth focused on the positive psychological capacities of personal characteristics of academic staff. At the outset, it was revealed from primary data that the courses offered by the most of the institutes are demand driven and relevant to the industry but the institutes are finding difficult to achieve successful end results. One reason to this is that the academics are not fully motivated or not interested in their work.

Positive Psychological Capacities such as Self Efficacy, Hope, Optimism, Resiliency and Emotional Intelligence may have a direct impact of the performance of the employees of any organization, as the mind plays dominant role in any action. In this study, the major objective is to examine whether or not the academic staff of the Engineering Diploma Institutes are harnessing their psychological capacities fully or not.

In this study performance is assumed to be a major function of psychological capacities and forces other than positive psychology have been kept constant. Therefore in this conceptual model dependent and independent variables are Performance improvement and psychological capacities of academic staff. In order to obtain information regarding performance of the academics, primary source of information, through the Annual Performance Appraisal Reports were obtained.

In order to test these variables a sample survey of one hundred (100) academics out of one hundred seventy two (172) academics in five institutes have been considered. The sample of twenty each academics was selected from each academic institute to represent the whole population. Then the academics were randomly selected and the questionnaire was distributed among them. The data was collected personally by the researcher, so that the opportunities were given to have face to face interviews and also received necessary clarifications then and there. Furthermore, the observation method was utilized to confirm the results of the survey, then the collected data was analyzed. The responses were tabulated in tables and constructed according to Lickert scale. Mean, Standard Deviation, Reliability, Correlation, Simple Regression Analysis, Multivariate Analysis were used for calculation of the relevant sections. Cronbach's 'α' is used to measure

the reliability for the preparation of questionnaire and also adopted to measure independent and dependent variables.

The result of the study through the Multiple Regression Analysis method was that the Optimism had been identified as the most important variable in the model. Other variables Hope, Happiness, Resiliency, Emotional intelligence, and Self efficacy, do not make considerable change. Basic relationships to be tested by this study are the relationship of six psychological capacities namely optimism, hope, happiness, resiliency, emotional intelligence and self efficacy with the performance. It has been proved by the statistical analysis that there is a negative relationship between emotional intelligence and performance. It has also been statistically proved that there is a positive relationship between optimism and performance; there is also positive relationship between hope and performance too. The total effect of the all independent variables on performance is proved as to 96.5 %. The seventh hypothesis that is ' There is a positive impact between psychological capacities and performance of the Academic staff in Engineering Diploma Institutes in Sri Lanka ' establishes high impact and high accuracy of prediction. The overall results indicate that human performance is moderately influenced by Psychological Capacities. Majority of hypothesizes paths of the conceptual model was supported by the study.

As recommendations, therefore, it is suggested that policy makers should take necessary steps to utilize the psychological capacities to improve performance not only among the academics of these institutes but overall human performances.

## **Identify and Analyse the Impact of Trademark Portfolio Management on Customer Equity in B2B Context: A Case Study of XYZ Tea Exporting Company**

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Due to intense competition organizations are urged to treat their customers as an asset. The concept of Customer Equity takes into account the aggregate customer lifetime values of all existing and prospective customers. Brands play a significant role in acquiring and retaining customers as signs used to distinguish products of one organization from another. However, unless brands are legally protected, the threat from rivals can deprive an organization of the competitive edge created by a successful brand. Law provides a framework for protection of brands and such legally protected brands are called trademarks. Trademarks serve the primary purpose of protecting brands that distinguish the products of one enterprise from the products of another. Investment in branding would be pointless unless competitors are prevented from exploiting the market opportunities created by brands. In its start-up stage an organization does not find it difficult to keep track of its limited number of trademarks. However, when an organization grows its portfolio of trademarks also multiplies. Failure to manage the trademark portfolio of an organization can result in loss of its most valuable brands. Hence, management of trademark portfolio of an organization is key to safeguard its brands and market share. Trademark portfolio management requires acquisition, monitoring and enforcement of trademark rights over brands. The facts observed indicated a phenomenon where trademark portfolio management has a relation to the customer equity of an organization. However, scholars have not embarked on a study of this problem area. This research study expects to fill this research gap and explores into the impact of trademark portfolio management on customer equity in the B2B context.

The deduction method of scientific investigation was employed in this research and a pluralist research strategy combining both quantitative and qualitative elements was followed. The case study research approach was considered as appropriate in order to do an in-depth analysis of correlation between “Trademark Portfolio Management” and “Customer Equity”. A leading tea exporting company in Sri Lanka was chosen for the case study. The research design used for this study was Conclusive Descriptive Cross-Sectional Research Design. This research study was based on both primary data and secondary data and a questionnaire survey was carried out to collect primary data. A hybrid sampling technique comprising of both Stratified sampling and simple random sampling was used to define the samples for this research.

Being the Second Largest Tea Exporter in Sri Lanka XYZ Tea Exporting Company produces export-oriented tea based products and exports its products to about 40 countries in the continents of Europe, Asia, Africa and North America. Key brands cum trademarks of XYZ Tea Exporting Company include “Tea4u”, “Anverally Tea”, “Al-Otuor” and “Sultan”. The Trademark Portfolio of XYZ Tea Exporting Company consists of about 900 local trademark applications filed in Sri Lanka and about 50 foreign trademark applications filed abroad.



School of  
**Computing**

# **Evaluating the performance of Artificial Neural Network (ANN) classifiers to identify the communicable diseases in Kandy District**

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## **Abstract**

Developing a knowledge based management system is a critical task in a way of capturing the knowledge. Knowledge is generated from the experience and leaning, also domain based. Considering medical field the disease diagnosis is the primary and crucial task for to finding the cure to specific disease. In this article we trying to evaluate the performance of Artificial Neural Network (ANN) to capture the knowledge from five years disease log record. The four ANN classifier were selected for study and Based on the study, the multilayer perceptron shows the better performance with 99.7 correctly identified instances,  $K = 0.996$ ,  $MAE=0.0014$  and  $RMSE=0.0186$  than other four classifiers. Finally, the multilayer perceptron was selected to implement the Disease diagnosis knowledge base System.

## **Author keywords**

Communicable diseases, diagnosis, classifier, artificial neural network, knowledge base, SVM, ANN, KBS.

## **Introduction**

Communicable diseases are adversely course the death in most part of the world, especially in developing countries including Sri Lanka, which are constitute the major cause of morbidity and mortality in nation population. To control the invasion of this diseases the early diagnosis and treatment is the sounder solution. When considering the Kandy General and Peradeniya hospital nearly 60% of cases have the difficulty to identify the Dengue Fever, Leptoprisis, Dysenty and Hepatis due to the similar symptoms. Therefore a specialised tool is needed to facilitate the identification of specific disease which is knowledge based management system (KBS) [ref 2]. A KBS mimicking human brain process to identify and classify the different classes with set of attribute matching same as brain doing the analysis based on experience learned from past [ref 2]. Classification of classes is not an easy task like as brain functioning, to perform the classification in computer science we using the neural network classifier which are consist layers of artificial neurons to generate the summertime conclusion for a specific class based on provided attributes. Total five ANN classification procedure have been used for this performance based study which are multilayer perceptron, support vector machine (SVM), J48 IBK and naive Bayesian. Multilayer Perceptron is a nonlinear back propagation with one or more layers of neuron and SVM is a discriminative, supervised leaning and separating hyper plane algorithm. J48 is tree based decision tree use the greedy method for creating trees and IBk is using k-nearest neighbor for local



approximation. Naive Bayesian classifier is developed on bayes conditional probability rule used for performing classification tasks [ref 5].

### ***Experimental***

For this study the Kandy, Peradeniya hospital was selected as field location which is the center part of nation consist of 12.97% nation population. From the hospital 500 patients' diagnosis samples were collected with following twenty two attributes (symptoms) which are month, sex, age range, area, fever, headache, abdominal pain vomiting, fatigue, skin rash, mild bleeding, jaundice, painful passing of stools, intermittent constipation, ful-like symptoms, dark urine, red eyes, unexplained weight loss, loss of appetite, chill and pale stool during the period of 2010-2015, for classes of dengue, leptoprosis, dysentery and hepatitis. Based on above data facts, the attribute relation file format (arff) was created for further analysis. The developed data set has been submitted to JAVA based open source data mining tool called WEKA [ref 3] and all experiments were done with same hardware and software configurations. In same condition, dataset was analysed as unsupervised classification with two testing types such as 10-fold cross-validation and percentage split 66% [ref 4]. During the process of classification some portion of samples were used as testing, the remaining used as test data which leads to the algorithm test itself and train the sample for identification of particular class of disease. Based on the results to evaluate the performance of ANN for this study the following parameters were analysed (see the table 1 and 2). Based on the study, the testing mode the 10 fold cross validation shows high performance than 66% parentage split. In both testing mode multilayer perceptron showing high performance in correctly identifying classes than SVM but it is showing poor performance in time taken to classify the classes. According to the time the K-nearest neighbor and naïve Bayesian were performed with high performance but still poor in class identification. However the selection of algorithm for implementation of KBS not only based on the running time, also depend on the nature of data and domain. In this study we mainly focused the accuracy of classification rather than the running of algorithms due to importance of identification diseases. A minor error will leads to life dead because of wrong identification of disease [ref 3]. Anyhow still we need a human interaction to get the 100% of accuracy in implementation. Based on this performance evaluation study multilayer perceptron shows the better performance with 99.7 correctly identified instances,  $K = 0.996$ ,  $MAE=0.0014$  and  $RMSE=0.0186$  with 10-fold cross validation test mode than other four classifiers. Therefore, the multilayer perceptron was selected to implement the Disease diagnosis of knowledge base System.

Classification	Time taken seconds	Correctly Classified Instances	Incorrectly Classified Instances	Kappa statistic	Mean absolute error	Root mean squared error	Relative absolute error	Root relative squared error
Multilayer Perceptron	69.56	99.7299	0.2701	0.996	0.0014	0.0186	0.5218	5.0233
Support Vector Machine	14.23	97.5617	2.4383	0.9641	0.0098	0.0988	3.5721	26.7298
J48	0.03	97.0525	2.9475	0.9568	0.0153	0.0951	5.6151	25.7324
k-nearest neighbor	0	98.3796	1.6204	0.9761	0.0859	0.1466	31.474	39.6775
Naive Bayesian	0	90.3241	9.6759	0.8567	0.0765	0.1767	28.0234	47.8152

Table 1 Results summary of 10 fold cross validation

Classification	Time taken seconds	Correctly Classified Instances	Incorrectly Classified Instances	Kappa statistic	Mean absolute error	Root mean squared error	Relative absolute error	Root relative squared error
Multilayer Perceptron	69.28	97.4353	2.5647	0.962	0.006	0.0514	2.1843	13.9063
Support Vector Machine	8.62	97.4353	2.5647	0.962	0.006	0.0514	2.1843	13.9063
J48	0.14	96.4821	3.5179	0.9483	0.0186	0.1055	6.7947	28.5491
k-nearest neighbor	0	97.5261	2.4739	0.9636	0.0854	0.1512	31.2706	40.9314
Naive Bayesian	0.03	90.6718	9.3282	0.8618	0.077	0.1766	28.185	47.7877

Table 2 Results summary of 66% split

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# The Impact of Social Media use on Academic Performance at XYZ Higher Education Institute

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## **Abstract**

The motive behind this study was to start investigating the conceivable effect of online networking use on the academic performance of students studying at XYZ Institute. The study's essential objective is to distinguish key subjects, patterns, and additionally discernments that can be utilized as an establishment for additional inside and out observational research, and can be utilized to create strategy suggestions to manage this developing phenomenon. A subjective research plan was utilized, and three preparatory research questions were shaped to guide this study: (1) How basic is the utilization of online networking among undergrads? (2) For those understudies who do use informal communication locales, by and large what amount of time do they spend on those destinations all in all every day and additionally every week? what's more, (3) How does the academic performance of students spending more on online networking? Discoveries from this study appear to affirm impression of high understudy utilization of online networking among undergrads; in any case, they likewise appear to repudiate other research writing discoveries in regards to power of use and gender utilization slants.

## **Author keywords**

Social media, Academic performance, Student.

## **Introduction**

As of late, there has been extensive exchange with respect to the continuous utilization of online networking tools like Facebook, Whatsapp, Twitter, Xanga, Friendster) by secondary school and undergrads, and the conceivable impact of those apparatuses on understudies' academic performances (Connolly, 2011; Hargitai, and Hsieh, 2010; Karpinski, and Duberstein, 2009). At the center of this open deliberation is whether the developing utilization of online networking by secondary school and additionally undergrads really enhances or intensifies an understudy's academic execution. With the normal proceeded with development in the use of these devices by understudies as right on time as the grade school level (Anderson, and Rainie, 2012; Lenhart, 2009), this issue has far reaching suggestions especially for the ranges of training (e.g., the distinguishing proof and utilization of perfect showing techniques, the outline and usage of complimentary educational modules choices, and the plan of non-classroom instructive assignments); correspondences (e.g., the recognizable proof of fitting channels to trade instructive data among people); and financial matters (e.g., the distribution of open money related assets towards instructive and social administrations exercises, and the formation of future business openings) (Chen, and Bryer, 2012; Anderson, and Rainie, 2012).

The motivation behind this study is to start investigating the conceivable effect of online networking use on the scholastic execution of undergrads going to XYZ found. This issue is being researched keeping in mind the end goal to: gauge the scholastic effect of web-based social networking use by college undergrads; add to the developing assortment of information in regards to recognized linkages between the utilization of web-based social networking and undergrads' scholarly execution; and to give approach proposals to college authorities to consider in regards to adjusting to instructive changes connected with the utilization of web-based social networking by undergrads. By at first adopting an exploratory strategy, the objective is to distinguish key topics, patterns, as well as recognitions that can be utilized as an establishment for additional top to bottom observational research. This study speaks to the initial phase in inspecting this issue with the end goal of creating examination grounded arrangement suggestions tending to this developing issue.

### ***Experimental***

The significance of this exploration subject issue is associated with it having far reaching suggestions for the zones of instructive direction; developing types of human cooperation; and future sorts of financial trade (Chen, and Bryer, 2012; Anderson, and Rainie, 2012; Down, 2009; Phusavat, Ketsarpong, Ooi, and Shyu, 2012). Also, the significance of this examination is gotten from the sheer size of the quantity of individuals conceivably affected and the expenses of giving instruction to those students. An audit of late research writing shows there are both positive and negative mental, social, and instructive perspectives to the developing utilization of online networking by all age bunches. There is a developing concern and open level headed discussion with respect to whether web-based social networking is adding to a decrease in academic performance by secondary school as well as undergrads. What appears to be clearer in the exploration writing is that for a few undergrads the utilization of online networking can be useful or potentially unsafe to their academic performance, and for different undergrads it seems to have no impact. Similarly clear in the exploration writing are discoveries of other intervening variables that must be considered before achieving any authoritative conclusions on the effect of web-based social networking and an students'. These elements incorporate such factors as the recurrence and force of web-based social networking utilization; the identity sort of the online networking user (e.g., outgoing, withdrawn); the financial and social foundation of the user; the capacity of the user to "self-direct/restrict" their conduct as far as time spent on-and disconnected; the distinctions among the interpersonal interaction destinations as far as their substance, reason, and structure; and the scholastic capacity of the web-based social networking user.

Discoveries from this current study exploratory center gathering examination and composed study fragments appear to affirm view of high understudy use of online networking. Key subjects that rose up out of these exploratory exercises were likewise strong of research writing discoveries in regards to: the part of understudy self-restraint/self-control; the pretended by an understudy's identity slants; and the potential for web-based social networking use to be useful and additionally destructive. Exploratory discoveries additionally appear to affirm the conflicting way of other research discoveries with respect to force of utilization and gender use slants. Just like the way of exploratory research, these discoveries will be utilized to guide and structure future research. The following period of this exploration will extend to a bigger, all the more factually illustrative

specimen of the grounds populace, and will look to analyze more in-depthly those other interceding elements which have been appeared to affect both student academic performance and online networking use.

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# Improving Traveling and Lifestyle Efficiency by applying Machine Learning to mobile devices

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## **Abstract**

Machine Learning is making a large impact on application related to data mining, natural language processing, image recognition, and expert systems. Machine Learning provides potential solutions in all these domains and more, and is said to be a pillar of our future civilization. The second most influencing force in our daily life is the mobile devices. They record our entire digital life. They record our call data, text data, browsing data, location data and many more. This paper joins Machine Learning and the data collected from mobile devices to learn the travel pattern of an individual and predict best traveling times to optimize the time spend for traveling.

## **Author keywords**

Machine Learning, Predictive analysis, Instance Based algorithms, k-Nearest Neighbor (kNN), GPS.

## **Introduction**

Machine learning is the key component behind the advancement in the Information technology industry, Machine learning is the process of making the computer learn without the need of explicit programming using smart algorithms. This study uses the k-Nearest Neighbor (kNN) algorithm which belongs to the family of instance –based competitive learning, lazy learning algorithm. kNN algorithm uses the data instances in order to make predictive decisions, it uses competition between model element (data instances) in order to make predictive decision. The algorithm builds a model at the time of a prediction is required, this is referred as lazy learning because the prediction is done in the last second.

Traveling is a major element of human life, the travel time spent every day can be optimized using an application based on machine learning and by using prediction.

This paper applies kNN machine learning algorithm to travel data, to optimize the traveling time by predicting the best time to travel each day.

## **Methodology**

The mobile application used in this study, saves the travel time each day to a database, the data saved is as follows :-

Time of departure, the time of arrival, the date (day, month, and year) and the day of the week (Monday, Tuesday... etc.)

The data from one individual traveling from Pussellawa to Kandy is collected daily, for a period of six months. The individual travels six days per week (Monday to Saturday)

throughout the year time of departure was strictly between 5.00 p.m. to 6.00 p.m.

The main goal of this study is to predict best departure times each day based on data set collected.

### ***Experimental***

The test was done with data from six months of traveling consisting of 156 days. There are three measurements of total time spent for a single journey in minutes, the departure time of the journey and the day of the travel. The predicted attribute is the time to depart based on the given day of the week.

The kNN algorithm was implemented using in Python (2.7). The data collected in 156 days were given to the application as a comma separated value file (.csv), then the data set is split into days corresponding to a week giving six data sets, one data set per day of the week.

In order to predict the best travel data time to a given data set for a day, first the k most similar data instances in the training dataset must be found, the Euclidean distance measure is used to decide the distance between two instances, the distance is defined as the square root of the sum of the squared differences between the two array of numbers

$$\text{dist}((x, y), (a, b)) = \sqrt{(x - a)^2 + (y - b)^2}$$

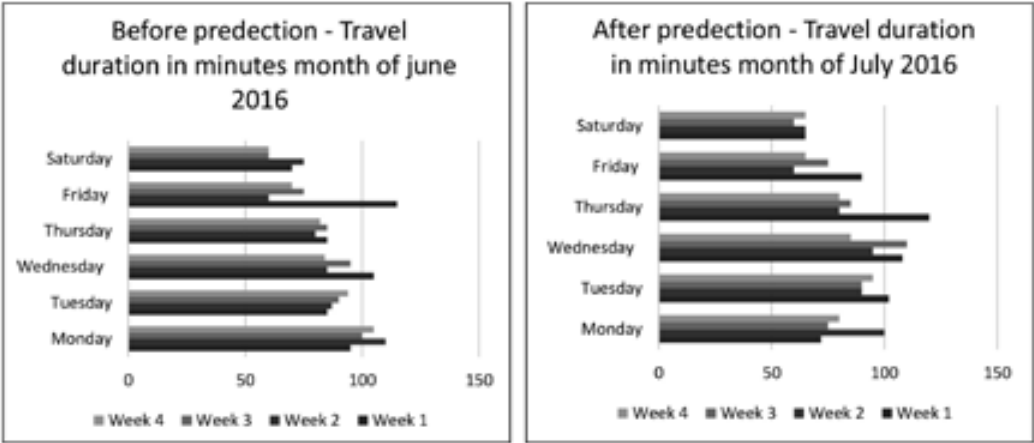
After getting the similarity measure, it is used to collect the k most similar instances for a given unseen instance. Once the most similar neighbors for a test instance is located the predicted response based on those neighbors are devised.

This is achieved through allowing each neighbor to vote for their nearest instance and the highest voted is selected as the prediction, in this case the time of departure based on a day.

The predictions are fed back to the system again to improve the accuracy of the prediction.

The results were tested by traveling at the predicted time each day and record the travel duration for one month

The travel duration of 1 month before the prediction per each day.



Comparison of prediction results

Day	Average time spent before prediction	Average time spent after prediction	Difference
Monday	102.50	81.75	20.75
Tuesday	89.00	94.25	-5.25
Wednesday	92.25	99.50	-7.25
Thursday	83.00	91.25	-8.25
Friday	80.00	72.50	7.5
Saturday	66.25	63.75	2.5

Based on the table above table and graphs the time spent to travel decreased on Monday, Friday and Saturday and the time spent traveling increased on Tuesday, Wednesday and Thursday. The output show a 50% increased efficiency and 50% decreased efficiency in the prediction. Still the study proves that using kNN machine learning algorithm is increasing the efficiency of traveling by reducing the time to travel and this is based on one month of following the prediction. Since the kNN algorithm continues to add the current predicted data to the upcoming prediction dataset the accuracy and efficiency can be expected to improve, so this study proves that the machine learning can be a key factor Improving traveling and increase the efficiency of the time spent for traveling.

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# Sensory Device for People with Visual Impairment in Sri Lanka - 'SMART EYE'

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## **Abstract**

Visual deficiency causes significant social difficulties, visually impaired individual couldn't take apart in most of the activities such as traveling and walking down a swarmed road may give great trouble. In fact, difficulties involves with mobility are complex. Individuals with partial or complete visual impairment will bring a companion to help explore obscure situations. Thousands of visually impaired people find it difficult to step outside into the local streets and walk with confidence because the probability of being subjected to injury. Therefore, 40 million of visual impaired individuals using the white cane or assistive cane as their companion. Device for visually impaired people may make use of the sense of touch as an alternative to visual information. This can create difficulties, if only because the hands are most useful for the manipulation of objects in the environment and for picking up pattern information. Ergonomic consideration in the development of sensory aids for visually impaired people is extreme important. Blind people vary greatly age, education. And this implicate the development of assisting device. Many individuals and manufacturers produced various solutions starting from white cane to smart devices with the use of innovative technologies. However most of them are reluctant to address the flexibility in mobility, freedom of using both hands and ergonomic issues having with visual impairment people.

## **Author keywords**

Ultrasonic Sensors, Arduino Mini, Arduino UNO, MP3, GPS, GSM, CAN.

## **Introduction**

Sri Lanka has a population of 20 million. Another 400,000 are having low vision. Refractive errors, glaucoma, diabetic retinopathy and blindness in children are the other causes of vision impairment. Of these, around 200,000 people are believed to be blind. 90% of blind people live in low-income. White cane is the most common among the Sri Lankan blind community and also there are plenty of other systems available for blind personals. Each system gives different functionalities when compares to each other's.

## ***Present system and drawbacks***

### **White Cane**

Such as the white cane is mostly designed to identify the obstacles below the waist. Long cane training or the Hoover Method. Basic technique is to swing the cane from the center of the body back and forth before the feet. The cane should be swing into both directions (left and right) including tapping the ground to identify for any obstacle. It is not smart enough to capture the obstacle above, steps and dept. Also stick might be hit another person walking towards and may damage properties and may cause repetitive strain injuries (ergonomics issues).



Figure: 1 Hover Method

### **Tactile paving**

Tactile paving or detectable warning surfaces is a system of textured ground surface indicator found on footpaths to assist pedestrians who are blind or visually impaired. There is a disagreement in the design and user community as to whether installing this aid may cause a tripping hazard.



Figure: 2 Tactile Paving

### Recommended Solutions

The solutions address the following issues describe in the following figures;



Figure: 3 Obstacles

The Proposed device includes ultrasonic sensors to cover four directions (Left, Right, Straight, Bottom). The bottom sensor specially allows to capture the steps or depths. This device is cater to address all the issues face by Sri Lankan blind community.

All these four sensors will be connect to a microcontroller unit. Further a buzzer (speaker) is available to indicate the user about the sensor status. It generate individual tones for four different sensors and also consist audio MP3, GPS receiver, GSM Modem, LCD display unit. The system is trilingual (Sinhala, Tamil and English) to cater the Sri Lankan context. Language can be select via pressing the button. Further unit will support the user to change the mode such as buzzer or vibration.

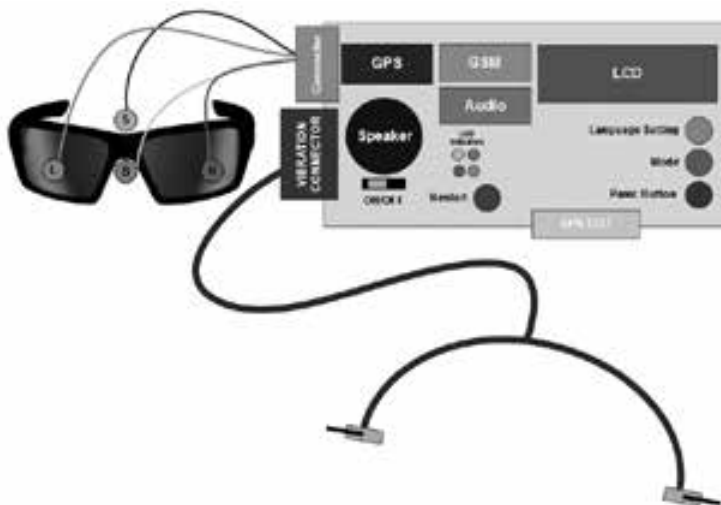


Figure: 4 Proposed Solution

Panic Button is included into this unit to alert a mobile number in an emergency situation. This was specially included for blind children. Speaker mode, status can be output via a Sound (Voice). Unit consist with an inbuilt speaker and a speaker connect (3.5mm) Jack to connect the headset if the environment is too noisy. Vibration mode, additional connector is available to connect a neck wearable vibration ring. And an android mobile app will be design for parents to monitor and protect their love ones. When parents needs to track the device. First parent will send a SMS ("TRACK ON") to the dedicated mobile number in the Navigator Unit through the android app. Once the SMS received by the unit the unit will send the GPS location to the App where the location can be projected in google map.

### **Conclusions**

However most of existing systems and technologies they are adept were reluctant to address the flexibility in mobility, freedom of using both hands and ergonomic issues having with visual impairment people. The proposed solution is an answer for all the above addressed drawbacks.

The following are found to be conclusions for the complicated issue of existing systems drawbacks.

- Developing a low cost solution
- ABCD- Anybody Can Do It
- Develop a system to outfit the Sri Lankan community. A system that has locales such as Trilingual operation (Sinhala, Tamil and English Languages)
- Reduce the repetitive movements and make the system more user-friendly
- Be able to customize the system according to the user
- Mechanism to identify the depth and step.
- Parents to track and protect their children

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# Application of Google Maps for Sri Lanka’s logistics industry

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## Introduction

A web-based software application based on Google Maps is referenced here for one of Sri Lanka’s petroleum product suppliers. The project objective is to establish an independent system, which provides the distances and approved route information between supplier locations and its’ customers, based on Google Maps. The requirement for an independent platform is a mean to settle the various distance related disputes between the stakeholders such as transport payments/claims. The application utilizes Google Map’s many layers containing satellite imagery, terrain, maps and other features.

The system would store essential customer information and will assist distribution and marketing departments to carry out transport related transactions and operations.

Table 1 – Up/Low country denominations

Route	Low Country	Up Country
Kandy Road	Colombo to Mawanella	Mawanella to locations in Kandy/ Matale/ Nuwara Eliya districts.
Karawanella/ Hatton/ Nuwara Eliya Route	Colombo to Karawanella	Karawanella to locations in Nuwara Eliya/ Badulla districts
Badulla via Rathnapura route	Colombo to Balangoda	Balangoda to locations in Nuwara Eliya/ Badulla districts

## Methodology

Evaluation of the currently followed methods, stakeholder disputes emphasized objective of the project. Google Maps was chosen, considering the availability of latest geographical data, with many layers of contents. The design objective was to utilize the various layers of Google Maps to address the requirement at hand, whilst developing and customizing the features readily available via the Google Maps API.

Research and development was applied as and when required when faced up with a limitation. Developments were made by the application to store the once calculated routes permanently, handle one-way information, traffic, diversions etc. The results obtained via the application were cross checked physically with the utilization of vehicles. Lack of geographical and infrastructure details resulted in plotting the missing details in Google Maps.

### ***System Implementation***

Supplier locations were plotted initially. Existing customer locations were plotted, while new customers are being plotted upon creation. Customers, marketing, distribution and IT departments play various roles during the implementation such as providing landmarks, geography, route, road condition information, customer contact details, tank lorry driver/porter contact details, sharing of experiences/practices adopted in distribution operations, identifying distribution patterns, permission to adopt the derived distance etc.

Customer locations are identified with map and satellite views. Google Street View introduced to Sri Lanka on March 2016, [2,3] is utilized for available areas. Certain customer locations required visits from the field personnel to determine the exact physical location. Customer information is embedded during plotting exercise.

Routes are plotted by considering the routes permitted for delivery vehicles. Distance is devised into low and up country portions to comply with payment regulations. Trip-time is derived upon permitted speed limits. The results are updated on the 01st of each month to take effect on operations and transactions. Disputes could be considered and rectified in the coming month.

### ***Strengths of the application***

The application has extended the distance and route instructions provided by Google Maps. It has the provision to adjust and redirect the initial suggested route. Google Maps complies with the rapidly changing road infrastructure, where expressways and development projects have significantly changed the geography of Sri Lanka. The application acts as a stakeholder independent, unbiased platform, since Google Maps are moderated independently by Google along with the user feedback. The application provides various customer views geographically, which provides the base for a decision support system.

### ***Limitations of the application***

It is a challenge to identify and match the physical location in the map due to the lack of landmarks, unclear satellite images and strategically sensitive locations being deliberately blurred. [4] This was dealt by provisioning field officers to visit the locations to provide further landmarks in plotting the exact location. Internal warehouse road structure and unavailable roads were plotted via Google Map Maker. The road closure/maintenance information provided by Google Maps is not sufficient for route planning. This would have been essential during the September 2015/May 2016 landslides and May 2016 flood.

Some of the Google Maps one-way information was not matching with the actual practice. A workaround was utilized to resolve this by switching the destination and point of origin. Google Maps derives a route dynamically, which is suitable for a one-time journey. A permanent route is required for a logistical operation. A variable route and distance usually results in a dispute. The application stores the latitude, longitude information of a route in the database. Additional trip time is provided upon manual analysis to mitigate the traffic, road condition and hill areas. Analyzing of Google Maps traffic information's historical data is required for productive application.

### ***Research and Development / Discussion***

Limitations were handled with applying of innovative solutions, workarounds and strategies after continuous research and development. Eradicating the limitations involved introducing circulars/procedures and conducting of system familiarization trainings for users. The continuous solution seeking for overcoming the limitations opened up various avenues for enhancements and value additions.

### ***Empirical evolution of the system***

Until the system implementation, transport payments were made to the existing distances, which were calculated a long time ago, where the method of distance determination is not defined, documented and unclear. The implementation drastically reduced the transport tariff by reducing the existing distance records. Massive savings were observed in the transport bill, own-use fuel consumption, and overtime and other payments.

The implementation resulted in resolving a considerable no. of payment disputes. A decrease of the no. of payment disputes could be observed. Further, it resulted in reconciling of customer database records with multiple shipping locations.

Implementation was carried out under heavy resistance from employees, trade unions and transport vendors. Trade union action would have resulted in a fuel shortage. The uninterrupted system implementation was achieved by warehouse-wise implementation and overall operational process transparency. In order to familiarize and expedite the process several training programmes were carried out for field officers, whilst providing VPN access and laptops.

Table 2 – Summary of distance variation

Locations	No. Of Locations	Total Distance - Old (Km)	Total Distance – New (Km)	Difference (Km)
Haputhale	36	1,576.00	1,419.00	(157.00)
Badulla	42	3,487.50	3,305.50	(182.00)
Kotagala	50	1,794.00	1,577.00	(217.00)
Vavuniya	58	3,457.10	3,163.00	(294.10)
S' Uyana	60	1,811.00	1,551.00	(260.00)
KKS	74	1,707.50	1,432.00	(275.50)
Galle	75	2,248.90	2,078.50	(170.40)
Matara	82	4,422.00	4,168.80	(253.20)
Batticaloa	96	4,010.00	3,906.00	(104.00)
Peradeniya	112	4,155.00	3,755.00	(400.00)
A'pura	114	7,563.50	7,363.00	(200.50)
Kurunegala	121	11,892.60	10,422.00	(1,470.60)
<b>Total</b>	<b>920</b>	<b>48,125.10</b>	<b>44,140.80</b>	<b>(3,984.30)</b>



## Conclusion

The end-users distributed island-wide has shown a comparatively longer adaptation time for embracing Google Maps technology. Utilizing of plotted locations and routes will benefit the enterprise resource planning aspects and devising proactive strategies. There exist various non-technical limitations such as resistance to change and non-productive attitude of the employees and politically motivated trade union actions, obstructing from reaping the benefits of technology, which needs to be overcome by innovations and technical savvy policy planning.

## Future application extensions and utilization

It is planned to extend the application to two more stakeholder operated warehouses Fleet Management solutions with Geo-fencing option can be embedded to the application, since it has the base to locate vehicle movements such as diversions, unscheduled stoppages in real-time. The stock levels maintained by each customer can be embedded to the application in real-time, transmitted via sensors. The readily available customer outlet information can be provided to general public via an android or ios application.

## Appendix



Fig. 1 -Customer information view of the application



Fig. 2 -Route information view from a supplier location to a customer outlet



Fig. 3 - Customer served by a supplier location in Matara, Sri Lanka.



Fig. 4- Custom plotted road within a warehouse premises.

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School of  
**ELTU**

# **An analytical approach to the selected songs of popular music based on the concepts of Existentialism**

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## **Abstract**

Existentialism as a philosophical moment which addresses the fundamental issues of the human existence has developed a questioning approach towards the essence, validity and the reality of the existence of the man thus perceiving the societal context and the social lives through a scrutiny which extends beyond the conventional boundaries of the social complex. Popular music which has been evolved through diverse genres extends its scope towards the prevalent societal and individual issues which relate with the oppression and liberation of the social being thus developing a critical discourse on the identity survival and empowering one's own self. Elaborating on these argumentative perspectives this research analytical paper has focused on identifying the linkage between existentialist ideas and the themes of the popular music and on examining how and to which extent the concepts and thematic notions of popular music addresses the existential viewpoints. Within the analyzing process the songs of Queen (Bohemian Rhapsody), Metallica (Master of puppets, Nothing Else Matters, The Day That Never Comes), Simon and Garfunkel (The sound of silence), Pink Floyd (Time) and Grateful Dead (Truckin) have been examined based on the prominent notions of existentialism and the theoretical perspectives of Jean Paul Sartre and Simone de Beauvoir have been given a thorough concentration. Through bringing forth the undecipherable reality which lies hidden beneath the social façade that plays with human existence, the referred songs have developed revolutionary thematic notions of existentialism addressing the awareness of the people thus allowing them to enlighten themselves in critically applying the implied themes to the prevailing circumstances of human existence.

## **Author keywords**

Existentialism, Identity, Popular music, Self, Absurd nature.

## **Introduction**

Existence of Man with the individual identities amid the miscellaneous social realities have been defined and observed through the disparate social and religious ideologies thus elucidating it depending on their beliefs, prejudices and judgments. Thus the existential identities of the social being tend to waver between distinct realities questioning the true essence of their existence. Viewing this perplexing social milieu the philosophical ideology 'Existentialism' with a broad perspective addresses the dichotomy between the negation and acceptance that the individual identities confront in front of the meaninglessness and absurd nature of the social sphere.

'Existentialism is the movement in nineteenth- and twentieth-century philosophy that addresses fundamental problems of human existence.' (Priest, 2001)

Popular Music as a newly evolved communicative method within the modern and postmodern socio cultural transformations has laid the foundation for a critical and ground breaking discussion on the human existence and the reality, futility and incomprehensible emptiness which permeate the social whole. Addressing the crucial issues which threaten the emancipation of the social beings the artists who belong to this genre have made the people realize their situation amidst the intricate social controversies.

### **Methodology**

Elaborating on these argumentative perspectives this research analytical paper has focused on identifying the linkage between existentialist ideas and the themes of the popular music and on examining how and to which extent the concepts and thematic notions of popular music address the existential viewpoints. Within the analyzing process the songs of Queen (Bohemian Rhapsody), Metallica (Master of puppets, Nothing Else Matters, The Day That Never Comes), Simon and Garfunkel (The sound of silence), Pink Floyd (Time) and Grateful Dead (Truckin) have been examined based on the prominent notions of existentialism.

Specifically in analyzing and elaborating the perspectives which are discussed within the research paper the theoretical perspectives of Jean Paul Sartre (Being and Nothingness), Simone de Beauvoir (The Second Sex) have been given a thorough concentration.

### **Discussion**

Existentialism structured its recognized initial foundation after the Second World War formulating a questioning approach towards the essence, validity and the reality of the existence of the man thus endeavouring to address the societal context and the social lives through a scrutiny which extends beyond the conventional boundaries of the social complex.

Existentialists have embarked on a quest to perceive and develop their concepts disclosing the buried reality of the existence of man.

‘What is it to exist? Does existence have a purpose? Is there an objective difference between right and wrong? Are we free? Are we responsible for our actions? What is the right sort of religious, political or sexual commitment? How should we face death?’ (Priest, 2001).

Popular music which has been evolved through diverse genres extends its scope towards the prevalent societal and individual issues which relate with the oppression and liberation of the social being thus developing a critical discourse on the identity survival and empowering one’s own self.

‘Anahid Kassabian separated popular music into four categories; “popular as populist,” or having overtones of liberation and expression; “popular as folk,” or stating that the music is written by the people, for themselves; “popular as counterculture,” or empowering citizens to act against the oppression they face; and “popular as mass,” or the music becomes the tool for oppression’. (Eisentraut, 2012).

In elucidating the categorization that Anahid Kassabian has described in relation to

popular music it can be observed that through the characteristics of popular music it has been utilized as an influential weapon either for social revolution and enlightenment or the obliteration of the individuals and social components which can be categorized as the social threats or discriminated untouchables. Thus staying within the genre of Music yet without constricting it 'self' as a medium which provides only the entertainment, 'Popular Music' functions with an objective of addressing the existential reality which permeates the social texture.

### **Conclusion**

20th and 21st centuries where diverse socio political transformations evolved have produced dynamic changes within the social structure manipulating the existing values, changing the established socio cultural patterns and attributing new meanings thus making the individuals realize the varied facets of life with a new light of an altered yet distinctive mind structure. Popular Music with its objective of addressing and reflecting the societal issues has approached the ideological texture of 'Existentialism' divulging the hidden realities of the existential identities and focusing on the individual liberation, expression and oppression, self-empowerment and annihilation.

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# Effective communication in construction industry

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## **Author keywords**

Effective communication, main communication ways, main problems in effective communication, experiment of communication, result of experiment.

## **Introduction**

Construction industry plays a major role in this modern world. The development and the progress of a nation depend on the proper planning of the construction industry. The direct and indirect stake holders are the engineers, architects, quantity surveyors, contractors and the suppliers that who work as a team within the construction period. The construction industry depends on the contribution of all these stake holders. Effective communication is essential in order to coordinate among them for the smooth functioning of the industry. Effective communication is the way of exchange ideas and information properly. Improper communication or the misunderstanding due to the language barrier may become a major obstacle in the progress of the industry. Therefore, effective communication is vital in the construction industry. Construction industry use major ways to communicate effectively. There verbally, orally, understand from reading.

In this research we can understand major problems of effective communication in construction industry. First one is the lack of listening and understanding. Second one is the language barrier. Some people can't talk, some people are disabling and some people can't do body language. Third one is lack of knowledge. It means some people don't know the orally major language of English or how to prepare document or how to use the language properly in presentation or meeting or any other event. Forth one is the less care about the effective communication. Final one is the presentation skills.

This research provides further details about suggestions for reduce the ineffective communication in construction industry with future value. These all details are based on the experiment of the society.

## **Research**

Ten employees were identified from three different companies in order to analyze the problems that they face when communicating with their colleagues and superiors. We understood that at times wrong messages have been sent due to ineffective communication. A two week training programme about effective communication was organized. The importance of effective communication was highlighted. The workshop was based on role play. The emphasis was to convey a message in a polite and effective manner. It was observed that after the training program 30% of the employees managed to follow the method of communicating in an effective manner.

Another ten undergraduate students related to construction industry were selected for

the research. The same training program under the same conditions were given. The training programme included presentation skills, grammar, group activity, role play and other related activity to effective communication. The same qualified lecturers were allocated for both groups. The results of both the groups were analyzed. It was noted that there were 70% improvement in the second group. The second undergraduate group used effective communicating method after training.

After comparison we understood that it is easier to train the undergraduate students. If there is any dispute it could be easily rectified. Whereas it is not that easier to train those who are in the industry. Therefore it indicates that we can improve the effective communication in undergraduate level successfully than those in the industry level. However, there should be a proper base before undergraduate studies.

Finally this research highlights the importance of effective communication in the construction industry. More and more training programs should be organized. Employees should be given incentives such special allowance, promotions and other facilities in order to motivate the employees to follow the new programme. Effective communication in construction industry could be further improved by proper program and proper planning.

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School of  
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## Wi-Fi assisted Indoor Positioning System

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### **Abstract**

Indoor Positioning System has been studied in many angles. With the drastic increase of use of mobile devices used by general public, such as mobile phones, tabs and laptops, the use of Wi-Fi for data transmission is also on the rise, making most of the buildings are facilitated with Wi-Fi., This paper proposes an Indoor Positioning System using Wi-Fi for Windows-based Laptop.

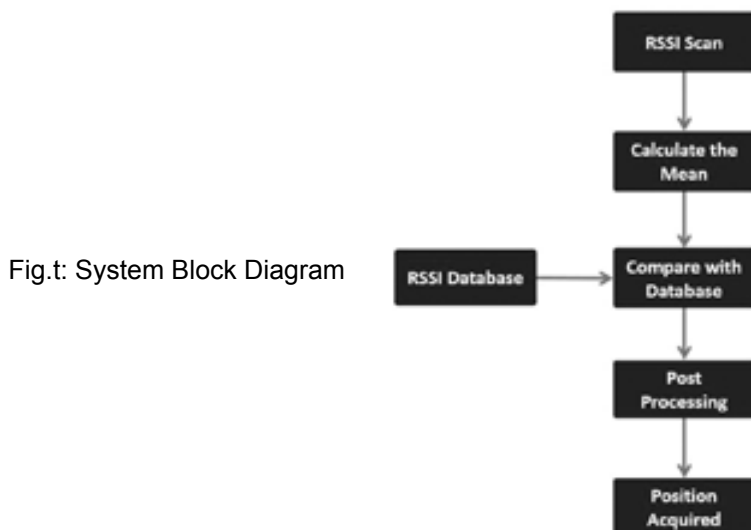
### **Author keywords**

Wi-Fi assisted Indoor Positioning System, Indoor Wi-Fi Positioning System, Wi-Fi Positioning System, Indoor Positing System (IPS).

### **Introduction**

Wi-Fi assisted Indoor Positioning System (WIPS) is widely being studied in many fields. WIPS usually uses Wi-Fi signals from already installed private and public Wi-Fi Access Points (AP) in order to provide the location based service (LBS). WIPS complements the measurement error of global positioning system (GPS) inside the builds.

In this paper, we propose a personal indoor WIPS system on the mobile device using RSS (Received Signal Strength) of signals from dense Wi-Fi access points dedicated for localization.



**Locate the user space**

- The Client application will scan for all available Wi-Fi APs repeatedly in a specific interval and read their Received Signal Strength Indication (RSSI), and send to the server to compute the location.
- Server then computes the location of the client taking into consideration of the RSSI values of the Wi-Fi transmitters, and sends back the computed location to the client.
- Retrieve the name of the room or area to which the compute location coordinates may refer too.

**Visualize Location**

- The client could request for a graphical representation of his/her location onto a map.
- A portion of the map (building) having the client's current location as the center will be served by the server.

**Algorithm**

There are many algorithms for computing the location of a Blind Mobile Client (BMC) via Path loss signal propagation (Equation.1), where the strength of the signal received from the Wi-Fi AP will reduce exponential as the BMC moves further away from the Wi-Fi AP.

$$RSSI_d = -(10 n \log_{10} d + A)$$

Equation 1. Path Loss Equation

- n : Signal propagation exponent
- d : distance of the BMC from the Wi-Fi AP
- RSSI<sub>d</sub> : RSSI read the BMC at the distance d
- A : Received signal strength at one meter

For all of the algorithms the distance of the BMC from its neighboring Wi-Fi APs has to be calculated before proceeding and this is achieved by use of this signal propagation equation. But to estimate the distance first values of n and A of each Wi-Fi APs has to be evaluated and later used for distance estimation. This offline phase is done by recording the sample values of the RSSI at known distance and later for each Wi-Fi AP's sample; collection of linear equation is performed to find each Wi-Fi AP's n and A values.

Once the offline phase has been successfully completed, distance of the BMC from a Wi-Fi AP can be simply estimated by substituting the read RSSI value of the AP and its already known values n and A.

**Position Algorithm**

Received Signal Strength (RSS) from each APs is measured thrice with a time interval, and communicated to the server. Server compares the RSSI values which were received from the client with the RSSI database, and sends back the computed location to the client. Computed location refers with map on the client application. This process loops until the client application closed.

Calculated mean value of RSSI is to be compared with the value of database and a proper location on the map will be found as shown in Fig.2



Fig. 2: Map view on the mobile device (Location Browser)

**System Architecture**

A screenshot of a client application window titled "WIPS Project - Shaheen - BCU". The window displays a table with four columns: SSID, Encryption, Signal Quality, and RSSI. The table lists several Wi-Fi networks. To the right of the table are three buttons: "Update", "Close", and "Show Map".

SSID	Encryption	Signal Quality	RSSI
AP1	CCMP	98%	-15 dBm
AP1	CCMP	74%	-43 dBm
My Secured	CCMP	76%	-42 dBm
USPG	CCMP	72%	-44 dBm
Dialog 4G	CCMP	26%	-87 dBm
AP2	CCMP	100%	-50 dBm
AP02	None	28%	-86 dBm
AP3	CCMP	100%	-50 dBm
DB 4G	CCMP	46%	-77 dBm
AP05	None	72%	-44 dBm
	CCMP	38%	-81 dBm
	CCMP	40%	-80 dBm

Fig. 3: RSSI table on the client application

**Client**

This is a complete application, which would be installed on the user’s device and through which the user could communicate with the server.

**Server**

Server is the back-end structure of the whole system, used for storing data and performing location computation for every request made from the client application

**Location Browser**

Allows the user to graphical visualize his/her current position with the premises. The scanned information of the Wi-Fi APs is attached with a request to the server for location computation within every timed-interval.

### Experimental Environment

An area of 6m by 12m is used for the experiment. The area is clustered by 8 cells and each of them is named 1 to 8 as shown in Fig. 4. Four Wi-Fi APs are installed for the experiment.

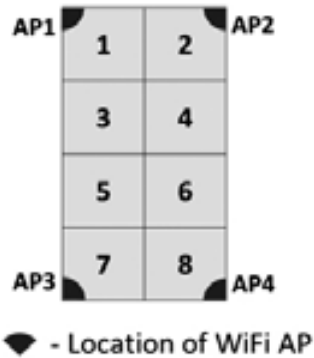


Fig. 4: Floor plan and installed Wi-Fi AP

System requires a large area to work with efficiently. Changing the location of AP will extremely affect the system. Replacing of a different type of APs also could cause a calculation error. Precision will increase along with number of APs

### Database Construct

RSS is measured at each point from the cell 1 to 8 and saved at the database. AP's SSID is AP1, AP2, AP3, and AP4 (see Fig. 4). The measured RSSs are stored at the database with the cell ID and SSID.

Cell ID	SSID			
	AP1	AP2	AP3	AP4
1	-41dBm	-48dBm	-63dBm	-64dBm
2	-49dBm	-47dBm	-66dBm	-65dBm
3	-47dBm	-50dBm	-63dBm	-57dBm
⋮	⋮	⋮	⋮	⋮
8	-68dBm	-64dBm	-66dBm	-41dBm

Table 1: Example of RSS Data base

### **Conclusion**

We developed a Wi-Fi assisted Indoor Positioning System for mobile devices. Positioning using Wi-Fi signals is easy to implement and requires lower cost than other localization systems. We installed APs dedicated for localization at specific locations to improve positioning accuracy. We proposed a new algorithm to filter error signals and find the location of the mobile device. It acquires a proper scan time and threshold thereby yielding a low error rate. We expect the Wi-Fi assisted Indoor Positioning System for mobile devices to be used at various places.

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School of  
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## **Evaluation of Feeding Habit of *Gambusia affinis* (*G. affinis*) using a Molecular Based Technique**

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### **Abstract**

Conventional vector controlling approaches such as the application of chemicals have caused severe environmental and health issues (development of insecticide resistant vectors), challenging the eradication of mosquito borne diseases from the world. Hence, use of ecofriendly biological controlling agents has become one of the prime focus of the relevant vector controlling entities throughout the world. *Gambusia affinis*, which is also known by the name of “Mosquito fish” is found in almost all aquatic ecosystems in Sri Lanka. *G. affinis* is often used as a live mosquito controlling agent, due to its high preference for feeding upon mosquitoes during their larval and pupal stages. Therefore, the current study was carried out to investigate predatory behavior of *G. affinis* on common insect species by using a molecular-based techniques.

Fish samples were collected from the Ihalagama Lake in Ragama, Sri Lanka and stomach of the collected specimens were dissected longitudinally and gut contents were collected. DNA was extracted from fish gut contents and Polymerase Chain Reaction (PCR) was performed with common insect specific primers to identify insect DNA in fish gut content.

Results showed that 7 out of 8 *G. affinis*, which is 87.5%, positive results showing the presence of common insect DNA in their gut contents. It can be concluded that the fish species of *G. affinis* in Ihalagama Lake, Ragama feed upon common insects that are abundant in the lake. Therefore, investigation of the predating potential of similar fish species for the control of mosquito vectors via biological controlling strategies, could be recommended to ensure effective regulation of mosquito borne diseases.

### **Author keywords**

Polymerase Chain Reaction, DNA Extraction, *Gambusia affinis*, Molecular Techniques, Mosquito Fish, Health Issues, Agarose Gel Electrophoresis, Feeding Habit, Thermal Profile, Sample Collection.

### **Introduction**

Sri Lanka is a tropical island which is situated in Indian Ocean. As it is a tropical island, Sri Lanka has a rich biodiversity which includes many freshwater fauna. Some aquatic plants have leaves that float on the surface or protrude above the water and are called emergent plants. Cattails, bulrushes, arrowhead plants, and water lilies are examples. It has found that few living species are common in all aquatic ecological systems. Moreover, on the general ecology of fish, most native fish can be found in wet zone including lowlands and highlands.



As there are different layers of the lake, there are many living organisms found other than aquatic plants. Adult and larval insects are particularly common in freshwater ecosystems along with fish, crayfish, clams, and many birds and mammals. Some fish species feeds on small insect/insects, larvae in water. Some of the fish species can be used as biological controlling agents against common insects including mosquitoes. Therefore, study on insectivorous efficacy of some commonly found fish species is important.

In the current study, a feeding habit of freshwater fish species *Gambusia affinis* was studied using a molecular-based technique. Here, this fish species feed on different food sources and the gut content of fish species may have DNA from common insects including all the types of mosquitoes. Gut content of this fish species was extracted and tested by a qualitative PCR and then the amplified products were detected using the Agarose Gel Electrophoresis. *G. affinis* can control mosquito vectors as they feed upon mosquito larvae and pupa. It has being investigated that *G. affinis* species will be breed separately in large amounts and they are being released to the breeding places of mosquitoes to lower the population of mosquitoes.

### **Objectives**

To study insectivorous feeding habit of *G. affinis* using a molecular-based method and to detect common insect DNA in gut content of *G. affinis*.

### **Methodology**

Fresh fish samples were collected using a fishing net and samples were taken to the laboratory in an ice box. After catching the fish, the fish samples were not subjected to any chemicals such as Formalin hence it degrades the DNA. Furthermore, the gut content extraction was done within 24 hours to ensure no digestive enzymes have worked in degradation of DNA in fish gut. DNA extraction was followed by the guidelines provided by the manufacture, QIAGEN DNA extraction kit. DNA extraction was carried out for a known positive sample to optimize the PCR machine.

PCR technique was carried out for the samples to amplify the DNA products. Agarose Gel was prepared according to the guidelines by manufacture and then amplified product of each sample was mixed with gel loading dye. Then, gel electrophoresis was carried out at 100 Volts for 45 minutes where the prepared agarose gel was stained with Ethidium Bromide (EtBr) and examined UV.

### **Observation and Results**

Results were observed through APLPHALMAGER MINI UV trans-illuminator and the gel image obtained. For the current study a total of eight fish were collected and among them seven fish species (87.5%) were positive with common insect DNA in their gut.

### **Discussion**

It was observed that bands were not in same intensities due to the differences in the concentrations of DNA. Some bands appeared in the lanes were very bright which ensure the DNA concentration of the sample is very high. This is probably due to high consumption of common insect by the fish species. The lanes with no band, which could be due to the complete degradation of DNA in gut content or the fish species is not feed

upon by the common insect.

### **Conclusion**

The research was ended up with 87.5% positive results which it concludes that fish species (*Gambusia affinis*) in Ihalagama Lake, Ragama feed with common insects such as larvae, flies, mosquitoes and other small insects.

## **Evaluation of genetic data for STR locus VGL 3235 and its uses in canine parentage testing of Sri Lankan domestic dogs**

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### **Introduction**

Successful completion of Tasha's genome in the year 2004, set the most important platform for canine DNA typing. Unlike the development and uses of STR based genotyping for different human populations over the world, STR data on canine world is not available in the country. Compilation of complete canine database has been on the progress, though dawdling. The discovery of mini-satellite DNA in 1985 by Jeffrey's and co-workers and the development of DNA profiling in the late 1980's that apparent evolutionary changes were brought about in the field of forensic case work. (Gill, Sparkes and Tully, 2001). DNA profiling has been mainly used in the research of human genetics which has advanced tremendously in the above areas. While human genetics has reached its peak today, canine or non-human DNA forensic analysis still remains veiled with neither little nor no development. (Wictum *et al.*, 2012). The use of Short Tandem Repeats (STR) for DNA profiling, due to their characteristics of being greatly polymorphic, easy and direct analysis has make profiling a gold standard method for any forensic casework. Single Nucleotide Polymorphism (SNP's) show a similar discrepancy to STR's. They possess a DNA variation and can be used for genetic analysis as well. However, to gain the same amount of variation that STR markers produce, a higher level of SNP markers are needed. This demonstrates a low polymorphism in SNP's compared to STR markers, thus less preferable for genetic studies. (Butler and Becker, 2001). The use of STR marker for DNA profiling also led to an in depth study of DNA, that is DNA sequencing. After the sequencing of the first bacterio-phage genome, sequencing became the centre of modern science.

In this study 50 dog blood samples belonging to different breeds were investigated to obtain a genetic database. Data obtained from the capillary electrophoresis was used for the development of an allelic ladder for canine STR locus VGL 3235 and determination of allelic frequencies for the STR locus VGL3235 from genotypic data. Furthermore, DNA

sequencing was performed. The test was standardized by restricting the sample from one particular geographical region (western province). In addition to this, determination of forensically important parameters such as PIC, PE, TPI, Hob was performed.

### **Experimental**

50 dog blood samples were collected and provided by School of Genetech on blotted filter papers. They were left to dry and placed in envelopes for storage. 1.5ml micro-centrifuge tubes were labeled with sample ID and date. Using a clean sterilized puncher, 2 holes were punched into each of its corresponding tube and kept for DNA extraction. 1ml distilled water was added to the labeled tubes containing blood samples and left for 30 minutes at room temperature. The blood samples were then agitated every ten minutes using a sterile pipette tip. Using a pipette tip, the sample containing filter paper was pushed to the bottom of the tube. The sample was then centrifuged at 12,000 rpm for 2 minutes. The supernatant was discarded leaving 100 micro liters above the pellet (washing step). The washing step was then repeated, to a maximum of 3 times, until the supernatant obtained was clear. 200micro liters of 5% chelex-100 (prepared using 5g of chelex dissolved in 95ml of distilled water) was then added. A pipette tip was used to push the filter paper to the bottom so that it is covered in chelex. The samples were then incubated at 56°C for 20 minutes in a dry bath and vortexed for 7 seconds. The tube was then transferred to a 100°C dry bath and left for exactly 8 minutes. After the incubation, samples were left to cool at room temperature for approximately 3-4 minutes. Once cool, the samples were vortexed for 7 seconds and centrifuged at 12000 rpm for 2 minutes.

5µl of extracted DNA was then added to labeled PCR tubes along with 25 µl of master mix prepared according to standard procedures. All the 50 tubes were subjected to a PCR under the conditions; Activation step - 1 min at 95°C, 30s at 95°C, 30s at 62°C, 1 min at 72°C, final extension of 30mins at 72°C; for 31 cycles. The PCR products of all the samples were run using 5µl of DNA mixed with 3µl of gel loading dye. These samples were then loaded on 40 well gel that was covered with 0.5X TBE buffer and 20 µl of ethidium bromide. A 50 base pair ladder was used for reference.

PCR products generated were sent to genotyping service at MacroGen Inc. DS-33 (Applied Biosystems) matrix standard was used in the fragment analysis and LIZ500 as internal size standard. The fragment analysis was carried out in ABI 3730XL at MacroGen Korea. The samples were injected for 15S at 1,600V and separated at 15,000V for 45 min with a run temperature of 630°C. The raw data generated were analysed in Genemapper ID 4.1 (Applied Biosystems, USA) software after constructing relevant Bins and Panels for the novel system. The least amounts of samples (six samples) representing all the possible alleles of canine STR locus VGL 3235 was identified and DNA extracted from these samples in a mix was amplified by PCR using the same set of primers and fragment analysis performed for the construction of allelic ladder. To obtain the DNA sequence two samples consisting of alleles with a larger range (homozygotic samples) were chosen. The respective PCR products were then put into labeled tubes and processed.

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## ***In vitro* sunscreen potential of Sri Lankan medicinal plant *Limonia acidissima***

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### **Abstract**

This study was directed to evaluate the sunscreen potential of Sri Lankan medicinal plant - *Limonia acidissima* (Wood-apple) using in vitro UV spectroscopic techniques and Mansur equation with 0.4 mg ml<sup>-1</sup> methanolic extraction of the plant leaves. A methanol soluble fraction of Dermatone® (0.4 mg ml<sup>-1</sup>) was used as the reference agent. The results revealed low absorbance levels of methanolic extract of the plant leaves (0.4 to 0.9) at 290-320 nm (UVB) range and SPF value was determined as 8.1 while Dermatone® had a SPF value of 24.34. It can be concluded that *Limonia acidissima* has a mild - moderate sun protection activity which is possibly mediated via the existing phytochemicals (phenols, flavonoids, alkaloids, phytosterols and tannins).

### **Author keywords**

Sunscreen, SPF, *Limonia acidissima*.

### **Introduction**

Sunlight is a part of the electromagnetic spectrum which produced by sun. Ultraviolet (UV) region of sunlight, especially UVA and UVB have the ability to produce various free radicals in human skin cells with over exposure (Polefka, Meyer, Agin, 2011). These involves with many complications of skin including premature wrinkling, sagging, inflammation, hyperpigmentation, erythema, immunosuppression, irritation and photocarcinomas (Ratnasooriya *et al.*, 2016). During the past few decades, rate of skin cancer has been massively increased (Matsumura and Ananthaswamy, 2004). These adverse

effects due to UV radiation (UVR) can be minimized by using photo-protective agents such as sunblocks or sunscreens (Shehzad, Khan and Hussain, 2014).

There are two types of sunscreens; organic and inorganic. Organic/ chemical sunscreens are normally an aromatic compound consist with a carbonyl group. These structures protect the skin by absorbing low wavelengths of UVR (Rai and Sirinivas, 2007) and moving from ground state to excited state of high energy (Kaimal and Abraham, 2011). Physical/ inorganic UV blockers have the ability to scatter and reflect the UVR. Most commercially available sunscreens contain physical filters such as Titanium dioxide, Zinc oxide and chemical filters such as para-aminobenzoic acid (PABA) (Rai and Sirinivas, 2007). However majority of these products increase the risk of skin cancers than preventing them. Some compounds interact with vitamin D production and cause contact sensitivity and hives, while others cause irritants, allergies and skin whitening. And they are also relatively expensive (Ratnasooriya *et al.*, 2016). Therefore, development of herbal, non-comodogenic, broad spectrum, safe, hypoallergenic and cosmetically elegant sunscreens with a higher SPF (SPF 15+) are in demand to minimize the harmful effects of UV rays. In this regard, this study was directed to evaluate the sunscreen potential of Sri Lankan medicinal plant *Limonia acidissima* (Wood-apple) (Family- Phyllanthaceae).

The effectiveness of a sunscreen is measured by the Sun Protection Factor (SPF). The higher the SPF, the more protection the sunscreen offers against UVB radiation (Kockler *et al.*, 2012). Sunscreens with SPF 15, 30 and 60 absorb 93.3%, 96.7% and 98.3% of erythemogenic UVR respectively (Reinau *et al.*, 2015). Minimal erythema dose (MED) is the minimum UVB dose on the skin which will develop redness. Minimal erythema dose on protected skin will be divided by the minimal erythema dose on unprotected skin to find out the SPF value in vivo (Kockler *et al.*, 2012). In 1986 J.S. Mansur proposed a quick and inexpensive method of evaluating SPF value in vitro along with a simple mathematical equation (Mansur *et al.*, 1986 in (Ratnasooriya *et al.*, 2016), (Dutra *et al.*, 2004) and (Malsawmtluangi *et al.*, 2013)) which was followed in the current study.

Plants have the ability to protect themselves from harmful UVR through antioxidant properties. Antioxidant activities of plants are mediated via phyto-constituents such as phenolics; flavonoids/ tannins/ alkaloids and vitamin C (Kopjar, Orsolic and Pilizota, 2014), (Czyzowska, 2015), (Chung and Shin, 2007), (Wong *et al.*, 2015). A qualitative analysis of the phyto-constituents was done in order to relate the sun protective activity to the present phytochemicals.

### **Experimental**

Leaves were thoroughly washed by running tap water. Drained leaves were air dried and then oven dried at 40°C to prevent the damage that can occur due to the solar radiation and heat, until a constant weight was obtained. The dried leaves were cut into small and 20.00 g were macerated for 10 days in 200 ml of methanol. The resulting dark green color solution was filtered and evaporated to the dryness. The solid product was re-dissolved in methanol to prepare 0.4 mg mL<sup>-1</sup> concentration in quintuplets (x5). Same concentration was made (x5) for the Dermatone® (reference drug). Absorbance of UV radiation by the extract of *Limonia acidissima* and Dermatone® were measured by a UV spectrophotometer at 290, 295, 300, 305, 310, 315 and 320 nm (UV-B) after an equilibration time of 1 hour using 1 cm quarts cells at room temperature. Methanol was

used as the blank. SPF values were determined using to the Mansur equation.

Another methanolic extract of leaves were prepared and chlorophyll was removed in order to observe the color changes occur in phytochemical testing.

The results revealed low absorbance levels of methanolic extract of the plant leaves (0.4 to 0.9) at 290-320 nm (UVB) range and SPF value was determined as 8.1. Dermatone® originally has a high SPF value of 36 as mentioned in the packaging and it was revaluated in the study of Ratnasooriya *et al.*, 2016 (SPF = 34.23) with a concentration of 2 mg mL<sup>-1</sup>. As a lower concentration was used in this study, Dermatone® showed SPF value of 24.34. Therefore it can be concluded that *Limonia acidissima* has a mild - moderate sun protection activity.

Phytochemical analysis revealed the presence of phenols, flavonoids, alkaloids, phytosterols and tannins. Mild – moderate sun protective activity of *Limonia acidissima* might be possibly mediated via the existing phytochemicals (phenols, flavonoids, alkaloids, phytosterols and tannins) and antioxidant properties.

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# Investigation of Metal ion Levels in Sri Lankan Ayurveda Pill Yougaraja Guggulu

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## **Abstract**

Many ayurvedic medicines contain heavy metals, including lead, mercury, arsenic, and etc. There have been numerous reports of clinically significant heavy metal poisoning related to their use. Therefore the main objective of this study was to analyse the ayurveda pill "yougaraja guggulu" of a common brand used in Sri Lanka for the quantitative analysis of the metal ions lead (pb), zinc (Zn) and cadmium (cd). The results revealed that the lead content in the samples (3.30 mg/g) is higher than the WHO permissible level (10 µg/g) while it is below for Zn and Cd. Study discovered that the amount of metal ions released by the drug is depending on pH, time and the temperature.

## **Author keywords**

Ayurvedic pill, Yougaraja Guggulu, Flame Atomic Absorption Spectrophotometer (FAAS), World Health Organization (WHO).

## **Introduction**

According to the survey cited by Chan (2003), about three-quarters of the world's population relies on non-conventional medicine in their healthcare, mainly of herbal origin. Though the origin of the herbal medicines has its roots in Asia, the use of herbal medicines is increasing with the time in both western countries also. As is the case with any medicine, patient expects a predicable effect and desirable outcome without unwanted effects. But the reality is that the use of any effective medicine, conventional or traditional, carries hidden risks along with its benefits. In the case of using herbal medicines, it is understood that unexpected and undesirable effects arise from damages caused by various toxic constituents of beneficial herbs themselves, from unintended misidentify herbs and from adulterants, dirt and other substances present as contaminants, such as herbicides, pesticides, microbes and heavy metals (Bateman *et al.*, 1998).

Though small amount of heavy metals are needed for certain tissues of our body, excess heavy metals concentration causes for toxic effect and many health problems such as damage or reduce mental and central nervous function, damage to blood, lungs, kidneys, liver and other vital organs, cancers, allergies etc. There is no mechanism to metabolite heavy metals in human body. For some heavy metals the toxic level can be just above the concentration naturally found in nature. Therefore it is important be conscious about the levels of heavy metals in the body. There is a hypothesis saying that if a patient consumed ayurveda drugs frequently for a long period of time it can create health effect mentioned above. The reason for arriving at the above hypothesis is that even though heavy metals are health hazardous, there are some ayurveda medicines which contain



heavy metals such as mercury, lead, arsenic etc (Bateman *et al.*, 1998). Ayurveda states that though these ayurveda drug contain heavy metals, they are not released to the human body as free ion which disturb the metabolism as they form a complex at pH 1 and 37 °C (Rishi, 1981).

So this study was carried out to analyse the ayurveda pill “yougaraja guggulu” of a common brand used in Sri Lanka for the quantitative analysis of the metal ions lead (pb), zinc (Zn) and cadmium (cd). Yograj guggul is a very famous ayurvedic medicine in tablet form. This tablet has guggulu (commiphora mukul) as its base. It is widely used in the ayurvedic treatment of rheumatoid arthritis, Gout, worm infestation, infected wounds, splenomegaly, abdominal tumors, bloating. It increases digestion power, complexion, strength and immunity. It is mainly helpful in vata (air) imbalance diseases affecting bone, joints and bone marrow. The dosage is 1 – 2 tablets 2 – 3 times a day, before or after food or as directed by an ayurvedic doctor; and a weight of a pill is around 0.5 g. The spiking was carry out ensure the accuracy of the results (Committee, 1976).

### **Methodology**

All the samples were prepared by opened vessel wet digestion method. Trials were carried out using different ratios of different acids to find out the most suitable digestion solution. yougaraja pills were grinded to fine powder before start the digestion. Total heavy metal in the samples were obtained by digesting about 1 g portion of each prepared sample in pyrex c Kjeldahl flask with 15 ml of HNO<sub>3</sub> and 2 ml of HCl, until all the sample gets dissolved. The heating process was carried out for about five hours per one sample, in the fume cupboard. A small amount of a white precipitate could be observed in the flask after the digestion. Thereafter the sample containing Kjeldahl flask was kept in a water bath until the precipitate gets dissolved. Then it was filtered and was diluted up to 50.0 ml by using a grade A, volumetric flask. The sample was stored in a plastic container. Tern samples were prepared for the drug. A blank was prepared by following the same method without the drug sample. Samples were diluted with deionized water whenever they exceeded the maximum detectable level.

Around 1 g of the prepared fine powder was taken in to round bottom flask and about 5 ml of the pH 1 buffer was added. Then it was kept closed in the water bath for two hours. Then the samples were filtered using a butchner funnel and the solution obtained was diluted up to 50.0 ml using volumetric flasks. The filtrate was washed with deionized water for two times and was allowed to dry. Then it was digested following the procedure written above. The procedure was repeated using pH 4, 7, & 10 buffers. The samples were prepared to analyse the effect of time and the temperature as well following the above procedure using the pH 1 buffer. All the prepared samples were analyzed using FAAS (GNC, model 932 plus, Australia) and the results were compared with the maximum limit recommended by WHO.

The results revealed that the lead content in the samples ( $3.30 \pm 0.0034$  mg/g) is higher than the permissible level ( $10 \mu\text{g/g}$ ) while it is below for Zn ( $96.68 \pm 1.99$  mg/g) and Cd ( $0.41 \pm 0.04$  mg/g). Results showed that the amount of each metal ion released to the pH 1 buffer at 37 °C is about 7%. Furthermore study discovered that the amount of metal ions released by the drug is decreasing with pH and increasing with time and temperature. This proved the claim that the amount of metals released as ions to the

body is limited under the body conditions.

In conclusion the use of heavy metals in Ayurveda drug is safe, but need to carry out more investigations. The amount of metals added to the herbal pills available in the market is higher than the amount given in the prescription. Therefore it is needed to have a continuous monitoring.

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## ***In vitro* investigation of anti-inflammatory activity and evaluation of phytochemical profile of *Osbeckia octandra***

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### **Abstract**

Non-steroidal anti-inflammatory drugs (NSAIDs) are most commonly used to treat inflammation. Yet these drugs cause side effects to the patient. Therefore, there is an increasing demand for the development of novel therapeutic drugs for inflammation with minimum side effects. Roots of *Osbeckia octandra* plant also known as "Heen Bovitiya" which is used to treat inflammation in Sri Lankan traditional medicine was selected to investigate *in-vitro* anti-inflammatory properties. Quantitative analysis was conducted using egg albumin denaturation assay where heat denaturation of protein was quantified using absorption readings of UV spectroscopy while the action of drug is quantified using inhibition of protein denaturation. Here diclofenac sodium was used as the positive control reference drug. Percentage inhibition of protein denaturation was determined (n=4) using absorption spectroscopic readings of 12.5mg/ml, 6.25mg/ml, 3.125mg/ml, 1.5625mg/ml, 0.78125mg/ml concentrations of Aqueous root extract (ARE) of the plant and 2500 µg/ml, 1250 µg/ml, 625 µg/ml, 312 µg/ml, 156.25 µg/ml, 78.125 µg/ml concentrations of reference drug. Then detailed phytochemical analysis of flavonoids, phenols, tannins, alkaloids, saponins, amino acids and phytosterols were conducted in order to determine which classes of phytochemicals were responsible for the anti-inflammatory properties.

The dose-response analysis revealed a marked anti-denaturation response in *Osbeckia octandra* with IC<sub>50</sub> value ~ 6.655mg/ml which was not dose dependent ( $r^2 = 0.3864$   $p > 0.05$ ). In phytochemical analysis, *Osbeckia octandra* ARE contained flavonoids, phenols and amino acids. The investigation reveals that *Osbeckia octandra* possesses potent *in vitro* anti-inflammatory activities which possibly due to the activity of flavonoids. This investigation scientifically justifies the claims made in Sri Lankan traditional medicine about their anti-inflammatory activity, which indicated their potential to be developed as a novel anti-inflammatory agent which can be used in western medicine.

### **Author keywords**

Anti-inflammation, Sri Lankan traditional medicine, *Osbeckia octandra*, type III hypersensitivity, phytochemical investigation, egg albumin denaturation assay.

### Author keywords

Anti-inflammation, Sri Lankan traditional medicine, *Osbeckia octandra*, type III hypersensitivity, phytochemical investigation, egg albumin denaturation assay.

### Introduction

"Inflammation (Latin, inflammatio, to set on fire) is an important nonspecific defense reaction to tissue injury, such as that caused by a pathogen or wound" (Willey, Sherwood and Woolverton, 2009). The basic signs of inflammation are redness warmth, pain, and swelling. Inflammation is of two types chronic inflammation, which is a long term dysregulated form of inflammation whereas acute inflammation is a short term regulated form of inflammation (Murakami and Hirano, 2012). Drugs that inhibit the cyclooxygenase enzyme (COX) which cease the synthesis of prostaglandin production are the most commonly used drugs to treat inflammation and these are called non-steroidal anti-inflammatory drugs (NSAIDs) and coxibs (Rang et al., 2012). Even though NSAIDs are considered to be potent drugs, it's associated with a number of adverse effects. These include adverse effects on gastrointestinal system, cardiovascular, renal function, liver function and platelet function leading to reduced blood clotting (Ong *et al.*, 2007). According to Bessone (2010) use of NSAID is the cause for about 10% of total drug-induced hepatotoxicity in the world. According to Al-Shidhani *et al.*, (2015) 7% of patients reported side effects NSAID use and 6% patients has GI abnormality. Due to the systemic side effects of NSAID treatment that include life threatening reactions, a risk benefit relationship for an individual patient must be considered before using the drug (Kim, Flach and Jampol, 2010). Therefore it is evident that due to the risk of these life threatening side effects, a new treatment methodology should be employed which could ensure the well-being of the patient by reducing the risk of side effect while increasing the benefits of following the treatment .

Sri lankan traditional medicine also known as Desheeya Chikitsa has treated inflammation overcoming the above side effects. *Osbeckia octandra* was selected from an ointment known as Waatha Widuranga thailaya (වාත විදුරාකිත තෙල්ලය) used to treat inflammation in Sri Lankan traditional medicine (Somasiri, 1963). *Osbeckia octandra* also known as "Heen bovitiya" is a member of Melastomaceae family. This plant is adapted to grow in dry, wet and montane zones, growing in open places often distributed in the grounds like grass (Sugathadasa *et al.*, 2016; Dassanayake and Fosberg, 1981). In Sri lankan traditional medicine, *Osbeckia octandra* is well known for its hepatoprotective activity and its leaves are used to treat jaundice and viral hepatitis (Thabrew *et al.*, 1995). Plant materials contain certain compounds of interest known as phytochemicals which possess therapeutic properties which are used in medicine (Annadurai *et al.*, 2012). Phytochemicals are biologically useful compounds which are present in plants, generally in close association with pigments (Berkey *et al.*, 2011). Some of these phytochemicals have the ability to modulate anti-inflammatory properties by employing the following mechanisms, modulating proinflammatory enzymes such as cyclooxygenase (COX); modulation of proinflammatory gene expression; scavenging antioxidative molecules; modulation of inflammation related cellular activity (Bellik *et al.*, 2013).

Quantification of these anti-inflammatory properties could be done using egg albumin denaturation assay. The rationale behind implementing this assay is that the denaturation of albumin protein leads to formation of antigens which initiate type III hypersensitive

reaction leading to inflammation (Agrawal and Paridhavi, 2007). Therefore in this research egg albumin denaturation test is used, which investigate inhibition of heat denaturation of albumin protein using anti-inflammatory molecules.

### **Experimental**

In order to investigate a viable plant for the experiment, Sri Lankan traditional medical books were referred and indigenous medical professionals were consulted. After which, based on the natural availability of the root samples, *Osbeckia octandra* plant was selected. The taxonomic authentication was conducted at the herbarium of department of plant sciences at the University of Colombo. The root portion of the plant was removed and washed under running tap water to remove the adhering soil particles. Then the root samples were air dried for a week and the weight was measured. Then 487.71g of *Osbeckia octandra* were stored in air tight containers at Laboratory of British College of applied studies.

The air dried roots were cut into small pieces and the 60g of root sample was boiled in 1920ml of distilled water for 5 hours and 40 minutes till the volume of the solvent was reduced to 240ml and an aqueous root extract (ARE) was prepared. Thus the prepared ARE was transported to the Industrial institute of Sri Lanka for freeze drying. The yield produced after freeze drying was 1g of *Osbeckia octandra*. Then ARE was prepared again following the same procedure which was to be used in the phytochemical analysis.

Quantitative assessment of anti-inflammatory properties was done by egg albumin denaturation assay where 5 ml solution was made by 2.8 ml of freshly prepared phosphate buffered saline of pH - 6.3, 2 ml of specific concentration of ARE and 0.2 ml of egg albumin extracted from hens egg. Specific concentrations of 12.5 mg/ml, 6.25 mg/ml, 3.125 mg/ml, 1.5625 mg/ml, 0.78125 mg/ml, 0.39062 mg/ml were prepared using *Osbeckia octandra* sample. Four series of solutions (n=4) were prepared using these specific concentrations. 2 ml of distilled water was used as negative control while specific concentrations of 2500 µg/ml, 1250 µg/ml, 625 µg/ml, 312 µg/ml, 156.25 µg/ml, 78.125 µg/ml of Diclofenac sodium was used as the positive control. Four series of solutions for the reference drug diclofenac sodium (n=4) was prepared using the above specific concentrations. Then the mixtures were heated in water bath at 37°C for 15 minutes and the temperature was gradually increased up to 70°C at which the samples were retained for 5 minutes. After which the samples were allowed to cool down to room temperature and absorption was measured at 660 nm. Solution was prepared using the vehicle which was considered as reagent blank while 2 sample blanks were prepared for each concentration.

Percentage inhibition was calculated using recorded absorption readings and statistical analysis was done in order to prepare a Dose vs Response curve using Graphpad prism 5 software. Phytochemical analysis was conducted in order to determine which phytochemicals are producing anti-inflammatory activity in the sample.

The quantitative analysis revealed *Osbeckia octandra* possess *in vitro* anti-inflammatory properties with an IC<sub>50</sub> value approximately equal to 6.655mg/ml. Phytochemical analysis found that *Osbeckia octandra* contained phytochemicals such as flavonoids, phenols, tannins and amino acids. Flavonoids can produce a modulatory effect on a

variety of metabolic and signaling enzymes. In the context of inflammation, flavonoids have the ability to inhibit cyclooxygenase enzyme necessary to produce prostaglandin which is a mediator of inflammation. Certain flavonoids have the ability to prevent platelet aggregation thus reducing the effects of inflammation (Dillard and German, 2000). Therefore flavonoids could be assumed to be the phytochemical which display anti-inflammatory properties in the sample. *Osbeckia octandra* has displayed potent *in vitro* anti-inflammatory properties scientifically justifying the claim of Sri lankan traditional medicine related to the use of the roots of the above plant as anti-inflammatory medication and has the potential to be developed as a novel medication anti-inflammatory agents which could be used in western medicine.

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## Testing the Anti-Inflammatory activity of a Sri Lankan traditional medicine tonic using albumin denaturation assay

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### Abstract

Inflammation is initiated as a healing process by the tissue in response to an infection or injury. Non-steroidal Anti-inflammatory drugs (NSAID) are presently used for the treatment of inflammatory conditions. In Aurvedic Medicine, many of natural plant compounds used to inhibit inflammatory pathways for centuries with low side effects. The denaturation of proteins is one of the well documented causes for inflammation. The objective of this study was to evaluate the anti-inflammatory activity of a Sri Lankan Traditional Medicine (SLTM) tonic using egg albumin denaturation inhibition as an indirect measurement of inflammation reduction. Aloe vera, Centellaasiatica and Strychnospotatorium were taken to prepare the SLTM tonic. The tonic at different concentrations was incubated in controlled experimental conditions and the absorbance was measured to assess level of albumin denaturation. One NSAID (Ibuprofen) and one steroid (Prednisolone) were used as the reference drugs. Part of the tonic was treated with diethyl ether to remove chlorophyll to investigate the role of chlorophyll in inhibition of albumin denaturation. The percentage inhibition of protein denaturation was calculated by using the formula of  $(V_t / V_c - 1) \times 100\%$  where,  $V_t$  = absorbance of test sample and  $V_c$  = absorbance of control. Both ibuprofen and tonic (with chlorophyll) displayed 43.88% of inhibition at 200 mg/ml to 25mg/ml. Similarly prednisone solution and tonic (without chlorophyll) displayed inhibition level of 25.89% and 25.17%. Present study identified that SLTM tonic has high anti-inflammatory activity and chlorophyll contributes for the inhibition of protein denaturation.

### Author keywords

Anti-inflammation, Albumin denaturation, SLTM, tonic.

### Introduction

Inflammation is a primary physiologic defence system response to local injury. The role of inflammation is to hold, isolate injury, to destroy invading microorganisms, inactivate toxins and to reach healing and repair (Rahman *et al.*, 2015). In contrast it may be



potentially harmful, produce life threatening hypersensitivity reactions and progressive organ damage and ended up in chronic inflammation (Tatti *et al.*, 2012). Non-steroidal Anti-inflammatory drugs (NSAID) are presently used for the treatment of inflammatory conditions (Kanagasanthosh *et al.*, 2015). Although these anti-inflammatory drugs contribute for reducing pain and other outcome of inflammatory responses, are also associated with some serious side effects, particularly in elderly. On prolonged usage of NSAIDs may initiate gastric bleeding, ulceration, bone marrow disturbance, kidney and liver dysfunction (Marliyah and Ananthi, 2015). The traditional medicine has less or no side effects and also available in affordable cost. The herbs that have been used to prepare this particular SLTM tonic can be obtained in the village gardens and able to prepared with a support of an experienced person. Protein Denaturation is a process where proteins fail to hold their tertiary structure and secondary structure by external stress or compound such as strong acid or base, a concentrated inorganic salt, an organic solvent or heat. Most biological proteins lose their biological function while denatured. In Aurvedic Medicine, many of natural plant compounds used to inhibit inflammatory pathways for centuries with low side effects (Maroon *et al.*, 2010). However, few numbers of studies have been conducted to evaluate those anti-inflammatory activities. This study was designed to evaluate the anti-inflammatory activity of a Sri Lankan Traditional Medicine (SLTM) tonic using egg albumin denaturation inhibition as an indirect measurement of inflammation reduction.

### **Experimental**

*Aloe vera*, *Centella asiatica* (Asiatic pennywort) and *Strychnos potatorum* (Cleaning nut) were taken to prepare the SLTM tonic. Then all three ingredients, each of 20 g were mix and prepared this tonic. This was dried in partial sun light in order to dry slowly. Concentration gradient of these tonic from 200 µg/ml to 25 µg/ml were prepared using egg albumin and phosphate buffer saline. Similar volume of double-distilled water was served as control. Then each different concentration was incubated in controlled experimental conditions and the absorbance was measured using a Colorimeter. Finally the inhibition rate of albumin denaturation was calculated. NSAID (Ibuprofen) and one steroid (Prednisolone) were used as the reference drugs. The percentage inhibition of protein denaturation at each concentration was calculated by using the formula of  $(V_t / V_c - 1) \times 100\%$  where,  $V_t$  = absorbance of test sample and  $V_c$  = absorbance of control. Furthermore to evaluate chlorophyll role in inhibition of albumin denaturation as an indirect way of anti- inflammation, part of SLTM tonic was treated with diethyl ether to remove chlorophyll and similarly above mentioned procedure was carried out. Anti-inflammatory activity of prepared SLTM tonic was evaluated against the inhibition of egg albumin denaturation assay. The higher concentration SLTM tonic showed maximum inhibition effect against albumin denaturation than reference drugs. Both ibuprofen and tonic (with chlorophyll) displayed 43.88% of inhibition at 200 mg/ml to 25mg/ml. Similarly prednisone solution and tonic (without chlorophyll) displayed inhibition level of 25.89% and 25.17%. The effect of ibuprofen is high when compared with prednisone. However, the effect of prednisone was found to be less when compared with both chlorophyll absent and present SLTM tonic.

### **Conclusion**

The results observed in the present study identified that the SLTM tonic has exhibited a concentration dependent inhibition of egg albumin denaturation against the than the

tested steroidal and non-steroidal drugs. It is found that the tested SLTM medication has been a very effective and useful one. Chlorophyll contributes in inhibition of albumin denaturation effectively. This can be concluded with a good message that the Sri Lankan Traditional Medicine tonic has proven the anti-inflammatory effect against the egg albumin denaturation method.

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# An Alternative Therapy for Bone Defects: Differentiating Umbilical Cord Derived Mesenchymal Stem Cells to Osteogenic Cells

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## **Abstract**

Mesenchymal Stem Cells (MSCs) are plastic-adherent, fibroblast – like cells with specific surface phenotype, having ability to differentiate into osteoblasts, chondroblasts and adipocytes in-vitro. Two protocols were compared to assess the cell viability between the two enzymatic digestion methods. Umbilical cord (UC) was used as it is a readily available source of MSCs without ethical constraints. Lower MSC numbers are obtained from adult tissue with age, with longer cell doubling times, and lower differentiation potential in-vitro unlike more primitive UC-derived MSCs (UC-MSCs).

## **Author keywords**

Mesenchymal Stem Cells (MSCS), Umbilical cord (UC),Osteogenic Cells, Whartons Jelly( WJ).

## **Introduction**

Mesenchymal stem cells (MSCs) are non-hematopoietic, fibroblast like cells which possess self-renewal ability and exhibit adherence to plastic in standard tissue culture conditions. MSCS have a potential for in vitro multipotent differentiation to osteoblasts, adipocytes and chondroblasts and show positive surface expression for (equal or >95% +ve) CD105, CD73 and CD90 and negative (equal <2% -ve) for CD45, CD34, CD14/CD11b, CD79α/CD19 and HLA-DR markers; as defined by the International Society for Cellular Therapy. [1]

MSCs were first isolated by Freidenstein and his colleagues in 1970s from the bone marrow but subsequently MSCS were isolated from other adult connective tissues and later conducted an ex vivo assay for examining the clonogenic potential of multipotent marrow cells. [2]

*In vitro* and *in vivo* studies have also demonstrated that MSCs can differentiate into cells of non-mesodermal origin, such as neurons, skin and gut epithelial cells, and pneumocytes [3].It has been reported that the most important characteristics of MSCs are their potential for differentiation into bone and cartilage cell lineages [4,5,6].MSCs have both immunosuppressive and immunomodulatory properties [7]. The ability of the MSCs to escape immune surveillance has enabled them to be used in cellular therapy. [8]

Human umbilical cord is considered as a rich source of MSCs according to many reported

studies [09] [10]. Umbilical cord MSCs (UCMSC) can be isolated, expanded in culture and induced to form several different types of cells. WJ as an alternative source of MSCs became feasible with the report by Mc Elreavey *et al* [11] of the culture of cells from WJ, which is the primitive connective tissue of the human umbilical cord (UC), first described by Thomas Wharton in 1656. Thereafter, research efforts have attempted to optimize the isolation and differentiation of these cells derived from WJ.

Osteogenic differentiation of MSCs is a complex process in which various environmental factors are involved. Dexamethasone, ascorbic acid and beta glycerol phosphates are the most commonly used chemicals that promote in vitro osteogenic differentiation of MSCs. Among these compounds, dexamethasone plays a pivotal role such that in its absence, no differentiation occurs in human MSC culture. Ascorbic acid, on the other hand, has been found to be an important but not necessary component of osteogenic medium. The addition of ascorbic acid into osteogenic medium results in enrichment of the deposited matrix with collagen [12]. Beta glycerol phosphate, as a phosphate enriched organic compound, plays a role in matrix mineralization [13]. Besides these three routinely used compounds, hormones and growth factors have osteogenic effects on MSCs differentiation. These include 1, 25-di-hydroxyvitaminD3 (vitD3) [14], estrogen [15], leptin and parathyroid hormone, prostaglandin E2, sonic hedgehog, IGF-1, BMP-2, 4, 6, 7, FGF, as well as bio- and lithium chloride[16].

Karyotype analysis can be used to assess stability of chromosomes in MSCs before and after the differentiation process in cultures. Studies have shown that MSCs show a normal diploid karyotype of 46 chromosomes, up to passage 10 to 12. This property is important for safety of hUCMSC cytottherapy [17]. As the karyotype stability of hUCMSCs have been shown to change following long-term culture and in larger number of generations passages, it is important to determine its chromosomal structural changes in future studies.

It has been demonstrated that WJ-derived stem cells possess many potential advantages as transplantable cells for treatment of various diseases such as (e.g., cancer, chronic liver disease, cardiovascular diseases, and cartilage and tendon injury) The differential ability of MSCs raises the hope for treating some types of bone or cartilage injuries which can be treated by general medication practices [18,19] WJ-MCSs are the ideal future for cell therapy: their properties of high proliferation capability, versatility to differentiate between three lineages and lower immunogenicity allow them to have the potential to treat an array of diseases and disorders.

UC-MSCS potentially serves as a suitable source for osteogenic regeneration which is a widely used alternative therapy for bone defects. Differentiating UC-MSCs into osteogenic cells opens up new perspectives for cell-based bone tissue engineering.

### **Experimental**

Following obtaining ethical approval, UCs from healthy mothers undergoing elective Caesarean sections were collected, cleaned with phosphate buffered saline and blood vessels were removed. WJ was subjected to overnight 0.2% collagenase digestion, some with 0.5% enzyme digestion for 2-3 hours and cultured in complete media (DMEM supplemented with 10% FBS, 1% L-glutamine and 1% penstrep) at 37° C in 5% CO2.

Cells were reseeded every 3-4 days with media, and passaged at 70%-80% confluency. At passage 4 (P4), osteogenic basal medium (1mg/ml ascorbic acid, 1nM dexamethasone and 1mM  $\beta$ -glycerophosphates) was added and incubated at 37° C in 5% CO<sub>2</sub>. Culture was fed every 2-3 days and maintained for 21 days. On day 21, media was removed and cells were fixed in 4 % paraformaldehyde and stained with 2% Alizarin red and Von Kossa stains. Cell viability was determined by trypan blue test. Flow cytometry analysis was performed for positive; CD73, CD90, CD105, and negative MSC markers; CD45 and CD 34. Oct4 and G6PD gene expression in MSCs were analysed by RT-PCR. G-banded karyotyping was carried out in MSCs and differentiated cells.

Five UCs were processed. Cultured cells were plastic-adherent showing fibroblastic spindle shape morphology. They were positive for CD90, CD73 and CD105 and negative for CD34 and CD45 markers. They expressed Oct-4 and G6PD. Karyotypes were normal. Alizarin red stain gave bright orange red and Von kossa stain gave black-brown deposits demonstrating presence of extracellular calcium deposits (ECM).

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# E-learning Adaption by Farmers - A case Study in Sri Lanka

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## **Abstract**

There is a rapid growth of e-Learning initiatives in management and business fields and many studies done for validating e-Learning adaption of different users. However, there are few studies done with the users in agriculture fields. Therefore, this study is to investigate farmers adoption of e-learning based on the technology acceptance model (TAM). This study used survey research method and conducted a survey to understand student farmer's attitudes toward e-Learning. The questionnaire was distributed to 100 farmer students. Statistical Package for the Social Sciences was used to analyze data. A regression analysis was used to test hypothesis. E-Learning is helping to focus on how technology could help farmers to improve their performance by getting real time information and technology for their farming. The study clearly showed that farmers can adapt e-learning for their livelihood development. Because they feel that it is usefull and easy to use. Therefore developers of such learning systems for farmers should be considered the usefulness of the system for their profession and user friendliness for ease of use by farmers. It has demonstrated that perceived usefulness has a significant influence on students' attitude and perceived ease of use significantly influenced both attitude and perceived usefulness. Outcomes reveal that this would encourage farmers to identify benefits of e-Learning and explore opportunities to improve their performance. This would motivate greater participation in e-Learning with positive attitudes. To expand the theoretical validity of literature, re examination of TAM with different target groups such as community like farmers will be important.

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# **Understanding Good Carriers (Natami) as a Sustainable Urban Mobility Practice for Climate Change Adaptation through the case of Pettah, Sri Lanka**

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## **Abstract**

Most cities are shaped by compactness, although numerous urban and transport concerns saw city populations swell during the 20th century, which led to extensive urbanization. This continued urbanization intensely increases all urban functions, with transportation being the key force in energy consumption and greenhouse gas emission, which ultimately accelerated the negative consequences of climate change. Thus, to drive emerging development towards a sustainable path most countries promote urban mobility practices, such as declaring green zones and cycling lanes in their cities as key remedies to address the issue.

Most Asian countries have their own mobility practices, where respective governments discourage and replace them with certain motorized transportation modes. Thus, urban mobility practices are faced by the domination of oil as a transport fuel in most Asian countries.

Backed by the same scenarios, the commercial capital, Colombo of Sri Lanka experiences the negative impacts of discouraging traditional mobility practices. Traditional loading and unloading workers (Good Carriers - Natami) are one of the prominent and efficient practices in Sri Lanka. With the interventions of the government these occupations are replaced by fork lifts and other motorized transportation modes. Thus, the research attempts to understand the significance of such practices in cities and the necessity of their existence align to the emerging climate change scenarios.

## **Author keywords**

Climate Change, Porters (Natami), Urban Mobility, Greenhouse Gas.

## **Introduction**

Cities that have adopted urban mobility practices to promote public transport and restrict private vehicle use with demand management and traffic calming measures, undoubtedly provide a healthy environment for the citizens. (Midgley, 2011). According to Baniser, 2011 urban mobility could be a response to possible climate calamities. Thus, majority of the countries promote urban mobility practices through the means of urban planning strategies. Improving cycling and walking are the most prominent strategies adopted by the European countries.

Fuel based transportation is often used across many commercial sectors across the world, Pettah the central business district of Sri Lanka is not an exceptional. India, Bangladesh and most of the Asian countries have some traditional urban mobility practices such as



pedal rickshaws, rickshaws, pedi-cabs, good carriers etc.(Jain, 2013) Being a subset of Asian countries Sri Lanka still reflects the traditional manual good carriers as a special labour force. Good carriers has been supportively engage in loading and unloading activities for decades (Rathnaweera, 2014) although they have no intention that they are one of the best adaptive strategies for the emerging climate change scenarios.

Colombo port of Sri Lanka engages in importing and exporting goods to the country where Pettah aligns its functions according to the importing and exporting wholesale and international trade takes place in Pettah. Being a primate city, having the same spatial form and city structure from the Colonial era Pettah encourages urban mobility rather than vehicles. Thus even some of the central activities in wholesale and retail trade such as loading and unloading is also done by a special manual labor force called 'Natami' –Good Carriers- in Pettah

But with the development and change in the spacial structure such as widening roads, recalls the presence of fork lifts to engage in loading and unloading activities. According to the vendors replacing traditional good carriers with fork lifts with the objective of increasing the efficiency of their work. In a recently (2004) published report entitled 'Mobility 2030: Meeting the Challenges to Sustainability, the World Business Council for Sustainable Development estimated that worldwide transport-related greenhouse gas emissions would increase from slightly over six gigatons of carbon dioxide (CO<sub>2</sub>) equivalent in the year 2000 to over 14 gigatons by the year 2050. (Dhakal, 2003) It also showed that light-duty vehicles were responsible for the majority of emissions, followed by freight trucks and air transport (Walligton, Sullivan & Hurley,2008)

### **Experimental**

In simple definitions 'Mobility means ability to move or to be moved freely and easily'. According to Rathete, 2015 from most of the modes that encourages the urban mobility, non-motorized transportation (NMT) of road carriage ways are over-stretched and needs be designed to ensure the urban mobility since it is effective, affordable and sustainable to meet the mobility needs of all road users. These requirements are already exist in many parts of the cities across Asia.

Existing road configuration of Pettah also supports the non-motorized transportation modes rather than the motorized modes. Natami is a NMT mode. According to Replogle, NMT modes contribute the environment with no pollution and mostly use renewable energy sources. NMT offer low cost private transport, emphasize the labor utilization rather than the capital for mobility and well suited for the short trips irrespective to the income. Thus NMT can identify as an appropriate element in dealing with strategies like poverty alleviation, air pollution, management of traffic problems and motorization in city planning what ultimately addresses the different climate calamities. (Replogle, 1991)

According to Replogle, 1991 freight trucks leads to underpin the environmental quality degradation by emitting different pollutants. In this regard Sri Lankan is not an exception. In order to analyse the possible consequences of the emerging consequences of the fork lifters in Pettah the research carried a comprehensive carbon calculation. The results interpret that with the replacement of the fork lifts it could be expect 2391Kg Co<sub>2</sub> emission per year from one fork lift. Not only that there could be an emission of 59.20

Kg of CO (Carbon Monoxide), 5.92Kg of CH<sub>4</sub>, 189.45Kg of NO<sub>x</sub> (Oxides of Nitrogen (NO and NO<sub>2</sub>) and 266.23Kg of N<sub>2</sub>O (Nitrous oxide) and 14,642.89 Kg of NMVOC (Non Methane Volatile Organic Compounds). With reference to the present situation Pettah there are only 22 fork lifts in operation along Bodhiraja Mawatha, 5th Cross Street, Main Street and Maliban Streets where the aforementioned values will increase by 20 times. Being an island is under the threat of emerging sea level rise scenarios where the country should think twice on supporting greenhouse gases by replacing sustainable NMT modes.

It reflects that though the vendors expect a mode shift due to the trends and the fashions of development, in depth analysis reflect the sustainable nature, efficiency and the efficacy of the traditional non-motorized transportation modes. Pettah being the central business district (CBD) of Sri Lanka has recorded one of the most polluted cities in Sri Lanka. In such a ground entrance of more fork lifts to the city need to be discouraged since it lead to double the emission of more greenhouse gases to the air environment.

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# Circular Economy – The Challenge We Must Face

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## **Abstract**

Circular economy is not just a new fresh hype, but a natural need for all societies. Natural and other resources must be saved and preserved, and at the same time economy will do better, and pollution decrease. There is a multitude of possibilities – some even rather easy – to forward circular economy. This article discusses the need for and basic concepts of circular economy, and introduces three projects currently under way by the researcher in the area.

## **Author keywords**

Circular Economy, Sustainable Development, Waste Management.

## **Introduction**

We as humankind are already now overusing the resources earth can offer (Ciriacy-Wantrup and Bishop, 1975, Goenka *et al.*, 2016), and our current level of consumption of natural resources cannot be sustained for a long time. Sustainable development necessitates that we cut down usage of fresh natural resources, and start circulating used resources.

Key components of this new world attached with the keyword “circular economy” (Haas *et al.*, 2016, Stahel, 2016) are energy saving and reuse of materials. High-level goals are stop of global warming (Cook *et al.*, 2016) and end to pollution – actually even cleaning up the pollution harms we have so far done.

Energy consumption in total must be reduced. Especially harmful is usage of energy sources that are not renewable. Oil, gas and coal are in a central position, but even items such as uranium are not increasing any more. Burning wood and other bioenergy might be some kind of solution to local energy needs in some places, but burning of anything - often sadly especially bioenergy - burdens our atmosphere a lot.

In principle we might have enough of metals and minerals in the world, but finding, mining and purifying them is a hard energy-consuming and environment burdening task. Utilizing current available reservoirs more efficiently would be beneficial. Wasting of precious resources such as plastics made out of oil is a major sin.

Pollution takes many forms. Atmosphere, soil and waters are all risked. When they are polluted, the whole living ecosystem runs into trouble, not least human beings. Losing the richness of ecosystems and sacrificing species can have radical consequences that we might not even understand yet.

But circular economy is not just about technology or natural sciences. It is as well about

human and group behavior, about sociology and economics. From the very beginning, we must educate children to the values of circular economy, and formulate our economic systems and incentives so that circular economy can be realized. The global challenge in this is huge, and might take generations to accomplish

Information systems play a key role even in the circular economy. Increased knowledge about circular economy can be spread through global information channels such as the Internet and social media. Thousands of different operational applications can assist in the daily activities of circular economy.

### ***Current research made***

In our research team we have so far had three major projects on circular economy. First is the project Material Value Flows ARVI, where we focus on municipal waste management, especially the business models and logistics. Special topics to work on are billing arrangements and logistics. First, how should billing for waste be organized to motivate people to not produce waste – billing based on weight of generated waste would be an answer, but this necessitates a lot of investment to waste management infrastructure. Another area of work is the optimization of waste collection: waste bins should themselves inform as they are full and order for emptying, saving driven kilometers of the truck collecting waste is a key goal. The second project is on the reuse of ash from burning wood in big heath and electricity generation plants – ash from wood would be a good fertilizer for forest, but logistics and business models are again a problem. Economically ash does not tolerate long transportation distances, and meaningful processing of ash often needs big plants, where ash should come from a big are – this is one of the problems to solve. A third project focuses on the minimizing of medicine waste in hospital context. Medicine waste is always very hazardous to environment, and medicines are often expensive. Here the key finding so far is that the more close to the patient we come, the higher the risk for medicine waste. Patients' unwillingness or incapacity to consume the prescribed medicines is a major source of medicine waste.

### ***Conclusions***

Circular economy is not a single project. It is a way of thinking and living, and is encountered in as many different contexts as life itself. The big problems circular economy is trying to solve are well known worldwide both in science and practical life, yet local awareness and immediacy of the problems varies a lot. This is not to say that all our environmental problems would be encountered already – new problems and solutions are sure to emerge even in the future – some of them we are not aware at all yet. There are no silver bullets to introduce circular economy, but the work begins with different projects – often small – solving practical problems at a local level. With several small steps, developments that make even a global change can be achieved.

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# Estimation of Machinery Vibration Signatures Transferred to Ship's Hull using Spectrum Analysis

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## Abstract

The origin of shipboard hull vibrations is dominantly determined by vessels propulsion system, main machinery, auxiliary systems, pumps, breaking of the waves at the ship hull, etc. Most of the analytical and practical experiments have identified main machinery induced vibration is the biggest factor for ultimate result of hull vibration. The majority of the vibration signal or the effect is compensated using vibration isolators in the form of dampers and engine shoes of various make. This paper is focused on to study the variations displayed on vibration spectrum before and after being damped and their unique influences on the final hull vibration signature expelled from the ship. In order to identify these effects, the vibration data were recorded and analysed using vibration spectra after performing on board measurements of a naval vessel.

## Author keywords

vibration spectrum, hull vibration, damper.

## Introduction

Shipboard vibration phenomena are caused mainly by the following sources of excitation:

- a. the propeller (periodic vibration)
- b. engine and auxiliary machinery (periodic vibration)
- c. effects of the sea (random vibration)

The most influential vibration component involved in hull vibration is the periodic vibration transmitted out of main engines. Their spectrum pattern is unique and easy for identification at respective engine rotational rpms. The study was focused to identify the spectrum pattern which results on the machinery and its transmission to the hull at the drive end i.e. the propulsion end of the ship. The data were compared with similar set of previous trials data in order to identify their trending and identical behaviour.

The excitation from external sources (random vibration) is far more difficult to quantify than the excitation from internal machinery sources. This is because of the complexity of the unsteady hydrodynamics of the ship operating in the non-uniform hull wake. In fact, the non-uniform hull wake is the most complicated part. Hence, those data which was included in final hull spectra is neglected (at the decay end of high frequency band) in order to compare only the variations in the vibration signal of main machinery at the final hull vibration signature.

### **Experimental Setup**

The research team used 02 Nos vibration data analysers (Frequency Range: 0 – 40,000 Hz) integrated with supported software system. The averaging used is 5 times and FFT uses Hanning window method for data filtering. One analyser was having two channels and the sampling frequency for each channel was 102.4 kHz.

### **Measurement Conditions**

Measurement data is obtained, during performance sea trials of the earmarked navy steel ship. The data was recorded at following uniform and favourable measurement conditions:

- a. Free-route test on a straight course: The ship sailed on a straight course with minimum rudder deflection. ( i.e. +/- 2 degrees Port to Stbd rudder angle)
- b. Constant representative engine output; Generally the power output on the propeller shaft(s) shall correspond to contractual normal seagoing condition, or at least 85% of maximum continuous power available on the propeller shaft(s). All other machinery were run under normal operating conditions during the tests.
- c. Sea state 3 or less
- d. Full immersion of the propeller
- e. Water depth not less than five times the draught of the ship

### **Measurement Procedure (As per ISO 6954: 2000)**

Following procedure was adopted.

- a. Measurements were recorded in all three directions at a minimum of two locations on each deck. At other locations, measurements are only required in the vertical direction.
- b. The combined frequency weighting curve according to ISO 2631-2 was applied to all measurements irrespective of their direction.
- c. The frequency range evaluated was 1 Hz to 10000 Hz. (Analysed separately in low, medium and high frequency ranges)
- d. The measurement duration was above 1 min. for all machinery locations. For hull locations measurement duration of at least 2 min is required.
- e. The result of each measurement shall be the overall frequency-weighted r.m.s. value.

Following rules and classifications published by Det Nordske Veritas (DNV) in “Rules for Classification of Ships” July 2004 (Revised in July 2009) also considered during the data recording and conduct of sea trials.

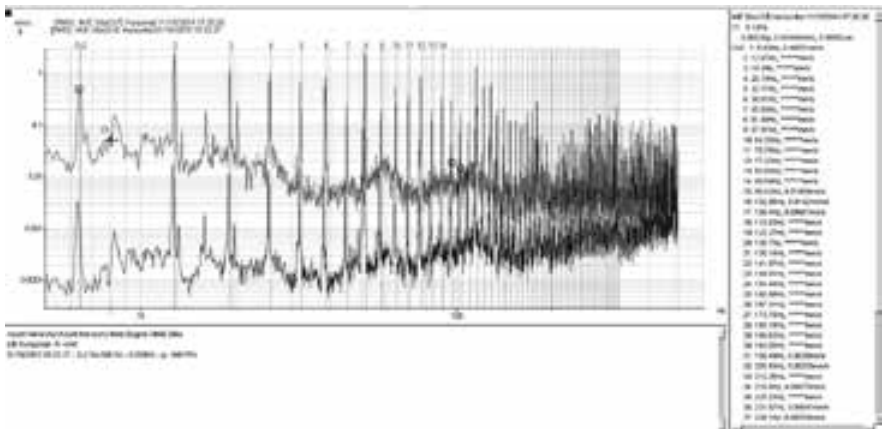
- a. Part 6 Chapter 11 – Hull Monitoring Systems
- b. Part 6 Chapter 15 – Vibration Class

### **Spectrum Readings**

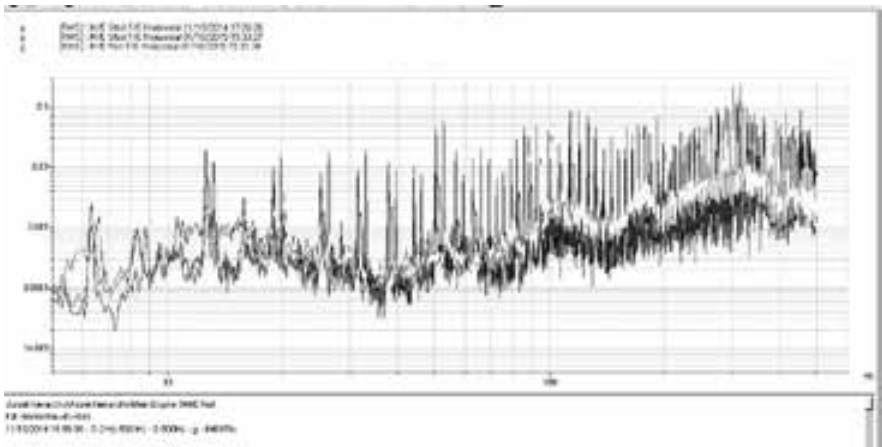
The readings which considered for the study were at main machinery (i.e. main engine, gear box) and the transmission to the hull at after steering position (ASP) which is the most viable hull position to excite. The research team extracted the spectrums generated out of main engines, gear boxes and hull signatures at ASP for comparison at low frequency (0-100 Hz), medium frequency (0-1 kHz) and high frequency (0-10 kHz) band withs.

**Observations**

There have been a clearly demarcated and identifiable spectral harmonic pattern at the low frequency range and medium frequency range, which mainly involved with the vibration signatures main engine (piston firing), Gear Box (Meshing of drive gear in relation with the engine output) and the propeller excitations (water hammer from each blade according to driven rpm of gear box to the shaft). The signals get overlapped, added up or diminished after crossing beyond 1000 Hz and display an unorganized pattern, which can be identified as noise and filtered out.

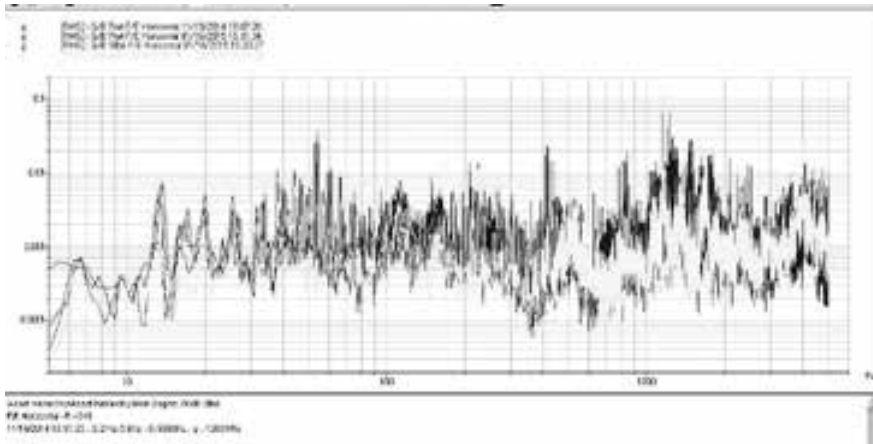


**Fig. 1:** Spectrum pattern at main engine drive end of crank shaft at 400 rpm (Low frequency)

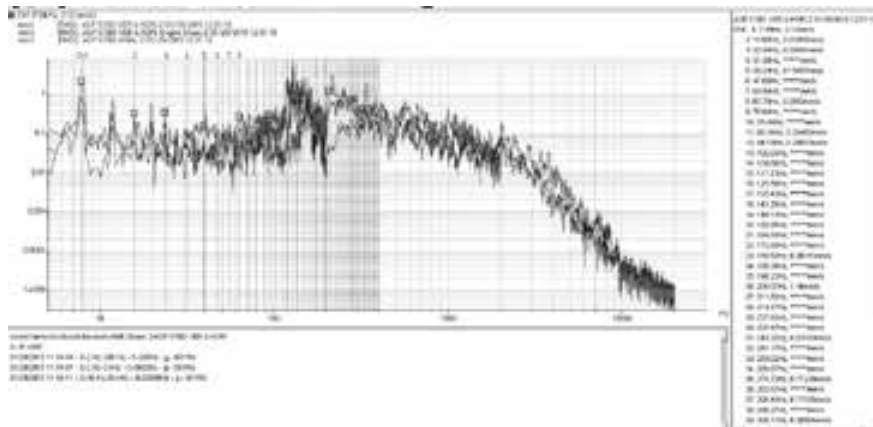


**Fig. 2:** Spectrum pattern at main engine free end of crank shaft at 400 rpm (Low frequency)





**Fig. 3:** Spectrum pattern at gear box free end at 400 rpm (Low and Medium frequency)



**Fig. 4:** Spectrum pattern at after steering position at 400 rpm  
(Low , Medium , High frequency)

### **Conclusion**

The final hull vibration signal expelled out of a steel ship is a combination of engine, other machinery and propeller noise. It is a scaled down (in terms of amplitude) representation of ships individual machinery vibration and a combination of all operating / rotating elements inside the ship at that particular moment of data recording. Maximum to eliminate the ships noise (hull vibration) would be either to keep the machinery noise to the minimum or to introduce a pattern of operating the machinery in an interchanged interval of vibration peaks / rotational rpms and harmonics, after studying their individual natural frequencies and individual spectrums. Not only the vibration dampers could be utilized for the scaling down of the ships noise, but a closely studied machinery operating plan also will positively assist any ship to be operated at a comparatively lesser noise. Ship designers could apply this thumb rule while considering or selecting his machinery to be fitted for the ship.

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# Reusing and recycling urban/industrial ('brownfield') land and the development of the 'UK Midlands Engine'

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## **Abstract**

A major challenge in the UK is the lack of building land. For a finite period, we can continue to build on our limited green land. Alternatively, we can 'recycle land' and use old industrial/urban land for new developments. However, we are faced with problems, as much of this 'brownfield' land is polluted. Land management strategies demand we re-use former occupied land for construction, so we can conserve green-field sites. The Brownfield Research and Innovation Centre' (BRIC) was established by the University of Wolverhampton in 2015 to co-ordinate research into brownfield land regeneration. BRIC will co-ordinate a data information centre, research and develop innovative technologies on the appropriate use of brownfield sites. The long-term strategic plan of the UK Government is for the West Midlands region of the UK to become 'The Midlands Engine,' creating growth and employment within the UK economy. Thus, BRIC will contribute to long-term plans for urban regeneration in the West Midlands. Currently, the focus of BRIC is on 'the Black Country' (the old urban industrial core of the West Midlands north of Birmingham). BRIC is developing a network of stakeholders who will be long-term partners in research and innovation solutions which focus on people, process and technology in brownfield management. Progressively our partnerships will widen to embrace regional, national and international arenas.

## **Author keywords**

Urban regeneration, brownfield land, deconstruction techniques, urban agriculture, C2C.

## **Introduction**

One of the main challenges we face in the UK is the lack of land for building domestic properties to house our growing population on a small island. Of course, for a finite period, we can continue to build on our limited green land. This has been a regular feature of urban expansion. Alternatively, we can 'recycle land' and use old industrial and urban land for new developments (i.e. for residential, commercial and industrial purposes). However, we are faced with problems, as much of this 'brownfield' land is contaminated and polluted. Contaminants include a whole range of heavy metals and toxic hydrocarbons (Webb et al., 2012). Land management strategies demand we re-use former occupied land for construction, thus conserving green-field land for the present and future generations.

Urban regeneration is a central focus of the Springfield Campus development, which is the £100 million regeneration of the old Springfield brewery site. The brewery was built in 1873, but destroyed by fire in 1991. A new University of Wolverhampton (UoW)

campus is emerging from this derelict brownfield land. Indeed, Springfield will be a 'field laboratory' for the regeneration of brownfield land.

An integral component of the Springfield Project is the 'Brownfield Research and Innovation Centre' (BRIC). BRIC was established in 2015 to co-ordinate research into the issue of brownfield land regeneration. BRIC will contribute by co-ordinating a data information and research centre and developing innovative technologies on appropriate use of brownfield land. The strategic aim is to develop a network of stakeholders who will be long-term partners in future research and innovation technologies in brownfield management. BRIC will contribute to the strategic vision for the Department of the Built Environment at UoW to be "the centre of excellence for multi-disciplinary research towards creating an economically, socially and environmentally sustainable built environment." Currently, the focus of BRIC is on the 'Black Country' (the old industrial core of the West Midlands of England), but progressively our partnerships will widen to embrace regional, national and international arenas. Many current international partners of the Built Environment Department have already expressed an interest in being active research partners with BRIC. These include researchers from 12 European countries and beyond (Australia, Brazil, China, Egypt, The Gambia, Ghana, India, Jamaica, Nigeria, South Africa, St. Kitts and Nevis, Thailand, The Ukraine and Vietnam). We hope colleagues in Sri Lanka will join our research network and become 'partners in progress.'

It is envisaged that BRIC will contribute to long-term plans for urban regeneration in the West Midlands. The long-term strategic plan of the UK Government is for the region to become 'The Midlands Engine,' creating growth and employment within the UK economy. The target is to expand the regional economy from its current contribution of £19 billion per year Gross Valued Added (GVA) to the UK economy to a GVA of £36 billion per year by 2030. To achieve this target, the region needs over 45,000 new homes and over one-million square metres of building land. The regeneration of the estimated 800 brownfield sites in the West Midlands, including the 147 in Wolverhampton, is central to these plans. BRIC will play a critical role in this urban regeneration.

BRIC is collaborating with another UoW initiative; the Built Environment and Climate Change Initiative (BECCI). BECCI aims to decrease the carbon footprint of the urban fabric of the West Midlands. This is mainly being achieved by improved energy efficiency in buildings (residential, commercial and industrial). For more information on BECCI, please visit:

**<https://www.wlv.ac.uk/business-services/business-innovation/becci-project/>**

The development of deconstruction techniques, urban agriculture and 'Cradle to Cradle' (C2C) technology are major foci of BRIC. C2C is an innovative approach that promotes and develops closed loop recycling. At the end of a useful life-span, C2C items are disassembled and reassembled for other uses. The aim is that materials are not downgraded, but rather at least retain the same grade with the objective of upgrading materials. UoW participated in the 'C2C BIZZ' Project, which involved 11 partners from six EU countries. In November 2014, the C2C BIZZ team published its main output; that is the 'Guide to Cradle to Cradle Business Sites,' which is freely available at:

**<http://www.c2cbizz.com/>**

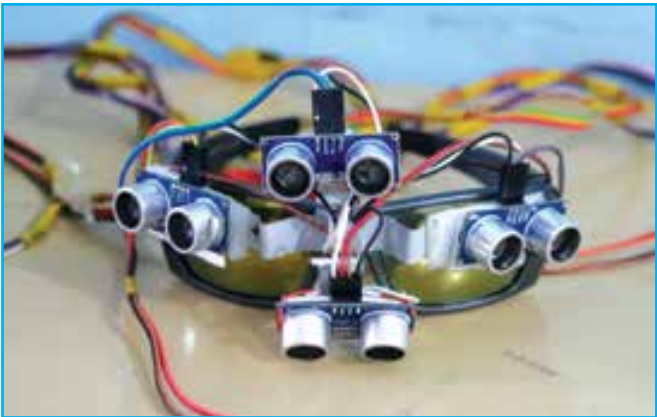
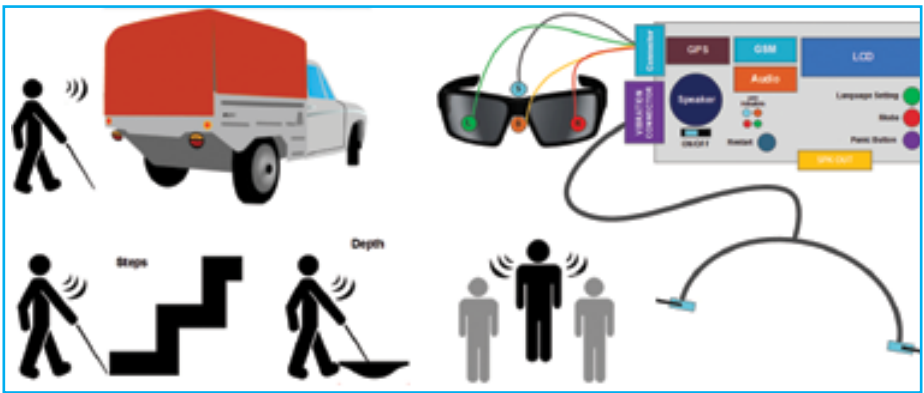
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# Projects of BCAS Research & Development Unit

## Smart - Eye Navigation System for Visually Impaired





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# **A critical evaluation of the issues in implementing customary International Humanitarian Law in respect of the international and non-international armed conflicts**

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## ***Introduction***

The Geneva Conventions and their Additional Protocols use the terminology of armed conflict instead of war. International Humanitarian Law (IHL) also known as the law of armed conflict or the law of war or, and the *jus in bello*, is an oldest concept in public international law. Persons not taking part, or no longer taking part, in hostilities are getting protection from the international Humanitarian Law norms by the conduct of hostilities and it reflects the corpus of IHL. With reference to the gist of international humanitarian law authorities, the existence of International armed conflicts (IACs) could be identified where it is resorted to armed forces between two or more States. Non-international armed conflicts (NIACs) are stand with reference to the armed conflicts between governmental armed forces and State armed groups.

When considering the treaty rules in addition for IAC or NIAC would be applied to a specific and certain situation. Rules of customary international law are applied to determine the qualification of a conflict situation. A rule of customary international law is recognized by the statute of the International Court of Justice (ICJ) as a “general practice accepted as law.” Generally, to amount to a rule of customary international law, there must be two elements such as actual state practice and a belief on the part of the actor that the practice in question is either required, prohibited, or allowed (depending on the rule) as a matter of law. The ICJ has explained “it is of course axiomatic that the material of customary international law is to be looked for primarily in the actual practice and *opinio juris* of states” in the case of *Libyan Arab Jamahiriya v Malta*. Thus, outside of the treaty system, customary international law provides another set of legally binding rules and regulations in to the IHL armed conflicts.

When considering a NIAC generally there are two general inceptions such as conflicts to which Common Article Three applies; and conflicts to which Common Article Three and the Additional Protocol II apply. Common Article Three is the only article in the four Geneva Conventions that applies to a NIAC and it supplies the basic foundation to the NIAC definition. Therefore Common Article Three has been termed as a “convention in miniature” and lays down the most basic rules and principles applicable to NIACs. The article describes its scope of application to those “armed conflicts not of an international character occurring in the territory of one of the High Contracting Parties”.

With reference to the principle of distinction, rules 1 to 6 are related to the distinction between civilians and combatants. It says that, the parties to the conflict must at all times distinguish between civilians and combatants, attacks may only be directed against combatants and attacks must not be directed against civilians. But beside other rules,



rule 3 and 4 are not applicable to the NIACs and the given protection for the medicals and religious personalities is not guaranteed by NIACs. Customary international law rules in relation to the Distinction between Civilian Objects and Military Objectives, Indiscriminate Attacks, Proportionality in Attack and Precautions in Attack are applicable in IACs and NIACs as well. But rule 21 under the Precautions in attack is still arguable as it is not accepted by NIACs, under the military advantage.

Rules 23 and 24 under the Precautions against the Effects of Attacks are contained arguable application in NIACs with reference to the military objectives. Rules 25 to 30 are applied in both contexts under the Specifically Protected Persons and Objects. With reference to the rules 31 to 44, Humanitarian Relief Personnel and Objects, Personnel and Objects Involved in a Peacekeeping Mission, Journalists, Protected Zones, Cultural Property, Works and Installations Containing Dangerous Forces and The Natural Environment, have been elaborated and both IAC and NIAC are hesitated for above rules. But under the Natural Environment rule 45 applications in NIACs is still arguable in relation to the destruction of natural environment, as use of weapon in the military operations.

Specific Methods of Warfare and Denial of Quarter rules are applicable for both IACs and NIACs, but Destruction and Seizure of Property rule 49 is applied only in IACs further, rule 51 (c) of Occupied territory is applied only in IACs. Rules of Starvation and Access to Humanitarian Relief and Deception applicable in both IACs and NIACs but rules 62 and 63 under the Deception with reference to the improper use of the flags or military emblems, insignia or uniforms of the adversary, is still arguable in NIACs. Communication with the Enemy, General Principles on the Use of Weapons, Weapons Primarily Injuring by Non-detectable Fragments are generally applicable rules in IACs and NIACs but rule 82 in relation to the land mines, any party to the conflict using landmines must record their placement as far as possible, cannot be seen under the NIACs contextualization. Incendiary Weapons, Fundamental Guarantees up to rules 105, have been applied in both contexts. Rules 106, 107 and 108 have elaborate the application of Combatants and Prisoner-of-War Status, but applicable only in IACs context. Rules for The Wounded, Sick and Shipwrecked and The Dead are applied in IACs and NIACs but rule 114 is not applicable under the NIACs context.

Rules on Missing Persons are entirely applied on both contexts but rules of Persons Deprived of Their Liberty; specially under the rules 124 and 128 of Persons Deprived of their Liberty are contained rules separately in relation to the IACs and NIACs under the liberty of persons. Same method is followed on Displacement and Displaced Persons under the rule 129. But as rule 130 states "States may not deport or transfer parts of their own civilian population into a territory they occupy" and these objectives are not applied into NIACs.

As explained in rule 145 "Where not prohibited by international law, belligerent reprisals are subject to stringent conditions", as explained in rule 146 "Belligerent reprisals against persons protected by the Geneva Conventions are prohibited" and as elaborated in rule 147 "Reprisals against objects protected under the Geneva Conventions and Hague Convention for the Protection of Cultural Property are prohibited" and these rules are applicable only under the IACs. Responsibility and Reparation, Individual Responsibility

and War Crimes rules are applicable in IACs and even NIACs.

### **Conclusion**

One of major concern is how to organize an internal situation standing in the gray area between peace and war in relation to the IACs and NIACs. The separation line particularly intense internal armed conflict may sometimes be imprecise and not easily identified. Such situations typically involve riots, isolated and sporadic acts of violence resulting in mass arrests, sometimes the use of police, and under this context another gray area involves whether a conflict is internal or international. It should be noted that, history has always shown that, the distinction between internal or international armed conflicts are frequently artificial. For example, combatants from a foreign country may fight along with rebels involved in internal hostilities, where such foreign intervention occurs; it may be difficult to decide whether the hostilities are governed by the internal or international armed conflict rules. These aspects are still silence under the IHL but it is called an “internationalized internal conflict”, which is not accepted under the IHL sources and authorities. As an example, the armed conflicts were in Bosnia and Angola can be considered as such mixed armed conflicts. But the significance of this issue was greatly addressed by the International Criminal Tribunal for the former Yugoslavia, in the case of Dusko Tadic, and the it found and explained that leading principles of international humanitarian law which apply to both classes of conflicts viz, IACs and NIACs.

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## **A critical analysis of the emerging issues in atypical working arrangements in Sri Lanka in respect of the arena of contract of employment**

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### ***Introduction***

Fortunately, with the intervention of the government as well as court, the economically weaker party has been protected from exploitation by the stranger party. When it's come to the tests, in order to identify the existence of employer and employee relationship and employer Individual contractor, the former is based on the contract of service and the later contemplates with contract for service. After the Sri Lankan economic liberalization, employment practices were changed gradually from traditional contractual arrangement into other terms and conditions of the work to nonstandard work arrangement or atypical employment practices.

Atypical employment has become an important area of labour market, actually for all countries, as it has become apparent that atypical workers suffer many disadvantages including weaker legal protection, lower compensation, and less job security. Kalleberg identified atypical work arrangements as nonstandard work arrangements such as part-time work, temporary employment and contract work which have become an important topic in research and writing on work and employment relations. But "atypical employment" is conceptualized differently in different countries and regions so that these nonstandard work arrangements have been hampered by inconsistent definitions, often inadequate measures, and the paucity of comparative research.

"Atypical" employment is any type of employment that is not full time and permanent with a single direct employer. It includes many different forms of work such as part time, self employment, fixed term contracts, temporary work, free lancing, piecework, unpaid domestic labour, and informal day labor. In each country the definitions and consequences of each type of atypical employment vary. For example, fixed term employment is similar to regular full time work, with the exception that it has a specified end date. With reference to the Ogura atypical employees can divide into two major parts such as part time employees and home based employees. Temporary employees, contractual based employees, agency employees, freelancing work and telemarketing employees are the other categories of atypical arrangements. As a basic example a lady who is being engaged in data entry for an United States company can be considered under the atypical employment arrangement. But who is her employer? Which law is applicable for this relationship?

In the case of, *Asirwatham v Premawardena* the employer had the contravened the terms and conditions, as it is being provided by the shop and office act. It was held that the employers have no authority to prevent or avoid statutory obligation. In *Palaniyandi Pillai v Labour office, Nuwara Eliya* the remuneration was not given according to the

Shop and Office Employees Act No.15 of 1954 and the contract of employment became unjust.

In the case of *Cedric T. de Silva v Azeez Textile Mills Ltd*, according to the Ismail J. that the employer had defaulted in the payment of Employees trust Fund in respect of its employee for the period of three years. In *Rathnaweera v Gunathilake and Abeyrathna v Marambe Kumarihami* At the end of the month relevant deduction were made by the employer from employees salary in relation to the employers provident fund. But employer purposely didn't contribute to the fund. It was held that the employers are obliged to follow statutory provisions as it is. So these efforts or issued can be identified as atypical arrangements.

According to the case of *State Distilleries Corporation v Mary Nona* Employers are compel to follow all statutory provisions with reference to the protection of female employees, specially on the given contents by shop and Office Act, Including the working hours. In the case of *Silva v Southern Freighters Ltd*, there was a condition on the contract of employment to avoid gratuity entitlement. But considering 8 years of service of employee gratuity entitlement was accepted by the court. Further, no one can avoid the Constitutional Fundamental Rights of freedom of Association. Therefore dubious conditions cannot be made into the contract of employment to avoid or prevent, forming a union or to be a member of a Union. This concept was accredited by the case of *Ariyapala Gunarathna v The Peoples Bank*.

In *Moosajees Ltd v Rasiah* it was held that a probationer has no right to be confirmed in his post and further, his employer is not bound to give reason as to why he does not confirmed. Therefore to avoid such statutory obligations employers are used to have some labels upon employees. Specially, because of that designation, otherwise label, unfair Labour practices and atypical employment arrangements would be lead. *Y. G. de Silva v The Associated newspaper of Ceylon Ltd*, to avoid statutory responsibilities, employer has taken the employee under a fixed term contract but employee worked in full time basis. The decision was given in favour of employee.

In the case of *de Silva v Associated Newspaper Ltd* and *Appuhamy v Shanmugam*, courts have emphasized the application of control test to differentiate the relationship between parties. As *Sharvananda J.* states in the latter case employee is bound by the lawful orders of the employer. But in the *Free Lanka Trading Company Ltd v De Mel*, Commissioner of the Labour, Judges are refused to accept control test as the sole criteria as it is silent in skilled workers. Therefore, other tests would be rather considered by the courts.

When there is a unilateral variation of contract as discussed in *Ceylon Bank Employers Union v The Hong Kong and Shanghai Banking Corporation* and *Lanka Salu sala Ltd v Wickramanayake*; specially dubious and complicated results may be occurred. Further as discussed it the case of *State Distilleries Corporation v Rupasinghe*, Contra proferentum rule has been used by the courts to construe interpret ambiguous contractual terms, against the party who has included these terms in to the contract. These rules provide a powerful basement to courts to stand against the dominant power of the employer.

### **Conclusion**

Under the Sri Lankan context there are no such statutory provisions available for the protection of atypical employments and to identify the employer employee relationship properly. Therefore the appellate courts have been involved to solve these types of issues which arose in the labour industry and before the courts. Key issues that need to be addressed in the field of atypical workers include their lower wages and poor working conditions such as fewer facilities and not being covered by welfare programs provided for typical employees. Further, many employers not provide legal framework and clear working conditions for the atypical employees. Employees are more favourable on lenient working conditions as they are willing to keep a balance between work and family, and most of the employments are possible to occupy where being at home, hence, it forces them to involve in atypical employments rather than the typical arrangements. To avoid all malpractices and to keep a harmony between employer and employee a new test should be introduced, as per the identification of employment contracts are difficult, and as other tests are being obsolete. Further, it is far better if Sri Lanka can adopt some regulations, which are being followed by above jurisdictions, to make the necessary balance and to avoid the dominant power of the employer in atypical employment arrangements, as it is being an important job category in today context.

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# Dimensions of Modern Slavery: A Perspective on Rapid Growth of Trafficking in Persons

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The principal international instrument dealing with trafficking in persons is the 'United Nations Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children' supplementing the 'United Nations Convention Against Transnational Organized Crime'<sup>1</sup>, also known as the Palermo Protocol, which came into effect in the year 2000.<sup>2</sup> Article 3(a) of the UN Protocol has comprehensively defined 'Trafficking in Persons' as 'recruitment, transportation, transfer, harbouring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation. Exploitation includes, at a minimum, the exploitation of the prostitution of others or other forms of sexual exploitation, forced labour or services, slavery or practices similar to slavery, servitude or the removal of organs'.

This instrument has come under severe criticism for its lack of effectiveness. Kalen Fredette has argued that Trafficking in Persons Protocol has been criticized for its lack of explicit guidance on sanctions, and its failure to specify 'minimum sentences which reflect the gravity of the crime'.<sup>3</sup>

The UN Protocol is not the only instrument designed to combat human trafficking. The European Union has adopted the 'European Union's Convention against Trafficking in Human Beings'.<sup>4</sup> Apart from the above two conventions, there are a number of international instruments that indirectly combat trafficking in persons.<sup>5</sup>

Human trafficking has gained significance due to its impact on human dignity. 'The Council of Europe's Convention on Action against Trafficking in Human Beings and United Nations General Assembly have repeatedly affirmed that trafficking violates and

1 Hereinafter, 'the UN Protocol'

2 Convention against Transnational Organised Crime, opened for signature on 15 December 2000, 2225 UNTS 209 (entered into force on 29 September 2003)

3 Kalen Fredette, 'Revisiting the UN Protocol on Human Trafficking: Striking Balances for More Effective Legislation' (2009) 17(1) Cardozo Journal of International & Comparative Law 101, 121.

4 Council of Europe Convention on Action Against Trafficking in Human Beings, Opened for Signature 16 May 2005, CETS No: 197 (Entered into force 1 February 2008)

5 Articles 11 and 35 of the Convention on the Rights of the Child (1989), Article 6 of the Convention on the Elimination of all Forms of Discrimination against Women (1979), the Optional Protocol to the Convention on the Rights of the Child on the sale of Children, Child prostitution and Child Pornography (2000), the ILO Convention on Worst Forms of Child Labour (1999), the Supplementary Convention on the Abolition of Slavery, the Slave Trade and Institutions and Practices Similar to Slavery (1956) and the Convention on the Civil Aspects of International Child Abduction (1980)

impairs fundamental human rights<sup>16</sup> and 'that these offences frequently involve serious violations of human rights, such as the right to liberty, personal integrity, equality, and freedom from slavery and involuntary servitude,'<sup>17</sup> as graphically illustrated by case law. For instance, in *R v Mclvor & Tanuchit*<sup>8</sup> and *R v Dobie*<sup>9</sup> the trafficked victims were forced to perform sex work during the period of menstruation and in *R v Mclvor & Tanuchit* a sponge was inserted in the victim's vagina in order to engage in sexual intercourse continuously.

A clear distinction is drawn between victims of human trafficking and smuggled persons. Smuggled persons who consent to be smuggled into other countries are regarded as willing participants in committing the crime. However, victims of trafficking cannot be said to have such willing participants who have given true and informed consent.

Nevertheless the smuggled victims may culminate in victims of trafficking due to deceptions practiced by their facilitators. In *R v Dobie*<sup>10</sup> the victims were smuggled in for the purpose of prostitution. The victims were aware and willing participants. Their travel and related expenses were arranged by the accused. Once the victims arrived at their destination, the accused subjected them to continuous and constant work for minimal payment. This converted the smuggled persons into victims of trafficking. In *R v Johan Sieders & Somsri Yotchomchin*,<sup>11</sup> the accused had smuggled four Thai women to work as sex-workers. The women owed \$45,000 to the smugglers for the expenditure incurred in arranging their travel. Once the women reached the destination, they were subject to the control of the accused who compelled them to engage in sex industry as they directed. They were not free to leave the custody of the smugglers until the debt was set-off

The Article (b) of the UN Protocol has made the 'consent' of a victim of trafficking in persons irrelevant where methods such as threat, use of force or other forms of coercion, abduction, fraud, deception abuse of power and vulnerability of victims have been used for the purpose of exploitation of the victims. Further, the inclusion of 'giving or receiving of payments or benefits to achieve the consent of a person having control over the victim' in Article 3(a) of the UN Protocol has given in depth importance to the necessity of analyzing the issue of 'consenting victims'.

A category of victims who consent to be trafficked due to financial benefit is another dimension of combating human trafficking. Identification of consenting victims and distinguishing them from non-consenting victims is important for the law enforcement authorities to apprehend the traffickers. Undoubtedly the non-consenting victims will

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6 'Human Rights and Human Trafficking', United Nations Human Rights Office of the High Commission, Fact Sheet No 36, New York and Geneva 2014, p.5

7 Miriam Cullen and Bernadette McSherry, 'Without Sex: Slavery, Trafficking in Persons and the Exploitation of Labour in Australia' (2009) 34(1) *Alternative Law Journal* 4, 10

8 [2010] NSWDC 310

9 (2010) 34(6) *Criminal Law Journal* 400

10 *R v Dobie* (2010) 34(6) *Criminal Law Journal* 400

11 [2006] NSWDC 184

cooperate and provide information regarding the Traffickers. Consenting victims to Trafficking may be reluctant witnesses for economic reasons as they may still be deriving financial or other benefits although they are being exploited. Nevertheless, the so-called consenting victims of trafficking, whose consent cannot be regarded as true consent, are a valuable source of information on human traffickers and human smugglers.

A broad approach has to be taken to tackle the issue of trafficking in persons by offering protection to victims. Trafficking takes place within a country and across the borders mainly due to the network of human smugglers and human traffickers. It is by infiltrating and dismantling the network of facilitators that trafficking can be brought under control. For that, human smugglers and human traffickers have to be identified. To identify traffickers, it is crucial to collect information from their victims, who can only be protected if the information is readily forthcoming. However, 'In most countries, if trafficked persons are apprehended, they are arrested, tried and imprisoned for a diverse range of 'crimes' committed under duress, such as working illegally, traveling with false documents or expired visas. Trafficked persons are not criminals—they are victims of crimes and should encourage legislation that supports and protects trafficked persons'.<sup>12</sup>

Prosecution and punishment of traffickers is obviously an important deterrence. However, that alone will not be sufficient to control human trafficking. The investigating agencies and law enforcement authorities must be strengthened and exposed to new mechanisms of apprehending the wrongdoers. 'Excessive sentences must not be used as a substitute for improvement in law enforcement and prosecution'.<sup>13</sup> Enhancing the capacity of investigators and prosecutors can lead to the identification of victims of trafficking, their removal from exploitative environments, and to the disruption and arrest of traffickers. As Andrew Von Hirsch and others have emphasized it must be recognized that simply increasing sentences in an attempt to 'send a message' in pursuit of deterrent goals, whether for trafficking offences or other crimes, is unlikely to result in tangible benefits.<sup>14</sup>

Protection of victims of trafficking is the flipside of dismantling of trafficking networks. Victim protection is often neglected specially in relation to consenting victims of trafficking. Is this stance satisfactory and does it adversely impact the attempts to dismantle trafficking networks? It has been found that in contrast with strong attempts to combat and prevent trafficking both in Canada and abroad, only a few countries have put in place specific measures to assist trafficked persons themselves. The particular issue of victim's rights is often sidelined within the larger struggle against organized crime. Next to the immediate scourge of the traffickers themselves, victim protection is often seen as a secondary concern.<sup>15</sup>

In conclusion, it is to be noted that, victim protection is an important dimension of combating the rapid growth of human trafficking.

12 'Trafficking in Persons Report July 2015', Department of State, United States of America, p.10

13 Kalen Fredette, 'Revisiting the UN Protocol on Human Trafficking: Striking Balances for More Effective Legislation' (2009) 17(1) *Cardozo Journal of International & Comparative Law* p.121

14 Andrew von Hirsch, Anthony E Bottoms, Elizabeth Burney and Per-olot Wikstrom, 'Deterrent Sentencing as a Crime Prevention Strategy' in Andrew von Hirsch, Andrew Ashworth and Julian Roberts (eds), *Principled Sentencing: Readings on Theory and Policy* (Hart Publishing, 3rd ed, 2009) 57

15 Laura Barnett, *Trafficking in Persons*, Parliamentary Information and Research Service, 31st July 2006 revised on 26 June 2007, p.10

## **Socialism beyond Totalitarianism: A Critical Assessment of the term 'Socialist' used in the First and the Second Republican Constitutions of Sri Lanka**

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It is certain that the term "Socialist" did not bring into the text of Sri Lankan Constitution as a part of its description with an intention to achieve a revolutionary totalitarian system. But with an idea to see the existence of its humanity and social friendly nature along with other constitutional descriptions such as Democratic and Republican notions. However throughout there is a doubt among the intellectuals whether the Sri Lankan Constitution tallies with its description. This is not only with regard to the term of "Socialist" but even with regard to the term of "Democracy" as well. Therefore it is indeed necessary to ascertain how the term "Socialist" Could be used in Sri Lanka, in relation to its legal and Constitutional criteria.

The 1972 Constitution of Sri Lanka is known as Socialist, Democratic, Republican and 1978 Constitution known as Democratic, Socialist, Republican in nature. The word "Socialist" was reflected in the 1972 Constitution to an extent but in the 1978 Constitution is just a false claim. The writer's attempt is to research and study ,why the Socialist features or ideology is important to a country like Sri Lanka.

Quite a number of countries, after gaining independence, have failed economically and collapsed socially. They lacked one essential quality that is self-discipline , either in their leaders, or more often both in their leaders and their people.<sup>1</sup>

If democracy is to survive, we must understand the principles of individualism, and hold them as our standard in any public question, in every issue we face. We must learn to reject as total evil the conception that the common good is served by the abolition of individual rights. General happiness cannot be created out of general suffering and self –immolation. The only happy society is one of happy individuals. The power of society must always be limited by the basic, inalienable rights of the individuals.<sup>2</sup> On this basis , even though with certain failures no one has come closer to the definite and concrete relations of society than Karl Marx in *Daz Kapital*,<sup>3</sup> through his Communist political and economic ideology and later in practice it diluted in to Socialism.

The members in a society have subjective social views depending on their experience. The class conflict is just a small part of it. According to the modern perspective of view, reasons for social unrest cannot be identified by isolated factors but through combined

1 The Wits and Wisdom of Lee Kuan Yew –(published by Edition Didier Millet Pte Ltd.)

2 Composed to Commemorate 2500 years of the Land ,the Race and the Faith- The Revolt in the Temple - ( Sinha Publications, Colombo 03)

3 Gill Hands -Understanding Marx (published by Hodder Education 338 Euston Road , London NW 1 3BH)

facts such as political and legal. Social conflicts are inherited part in any society. The responsibility of any viable legal system is to minimize such conflicts to its maximum level. A legal system cannot serve this purpose unless they understood the social need of the day. In the said context it is important to study why the text of Sri Lankan Constitution should be used in order to give life to the term “Socialism” in modern perspective of view to identify the social needs of the country through political discipline.

Socialism generally refers to an economic system and it is based on the principle that the goods and services produced in an economy should be owned publically and controlled and planned by a centralized organization. It sees capitalism as an essential part of an ideal State and in fact one of the ideas of socialism is that everyone within the society will benefit from capitalism as much as possible as long as the capitalism is controlled somehow by a centralized planning system.

It is evident from several studies of the rural society and its economy in Sri Lanka that the government and para government agencies who supposed to grant assistance to the needy people to improve their income and living status have been practically monopolised by a relatively ‘better off minority’. More importantly, the rural poor as a whole suffer from the serious disability of ignorance of law.<sup>4</sup>

Former Prime minister of Singapore stated that ‘I believe that whether we go communist or non-communist in the future depends on whether we can build up a clean ,healthy political movement with clean and healthy leaders ,men who believe in democracy and social justice and who enter politics because they want to serve and not because they want to loot.’<sup>5</sup>

Many consider that the collapse of Communism as proof that Marx is not relevant to the world today. After the Soviet Union collapsed and the Berlin Wall came down, Communist China became more open to Western influence and its economy is now more open to free enterprise<sup>6</sup>. People see the failure of communism as the failure of Marx, yet the Communism that Marx envisaged has never existed. However what the history of the twentieth century shows us is the power of Marx’s idea to capture the imaginations of the poor and oppressed throughout the world. There is no doubt that his belief or others interpretations of them, changed the history of the world.<sup>7</sup> Even though China is more open to the western world through the concept of open economy, the Chinese socialist economic strategies follow strict economic and political discipline.

Within this background Sri Lanka is a political system that would essentially gain many social and political benefits through a well-planned economic structure ,with socialism features in it. And more importantly the idea of Socialism will naturally bring about political discipline as it requires political leadership to monitor the system and socialism features requires a standed transparency in relation to State economic and political policies thereby the burden of political accountability is unavoidable, to the public at large.

4 The Legal Needs of The Rural Poor In Sri Lanka- ( law and Society Trust publication)

5 Supra no. 1 pg.105

6 Supra no.3 pg.90

7 Ibid.

# **The Importance of 19th Amendment to the Sri Lankan Constitution**

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## **Abstract**

This dissertation analyses the importance of 19th amendment to the Sri Lankan constitution and upholds the same has changed the landscape of Sri Lankan politics and thus installed democracy in this island nation.

## **Author keywords**

19th Amendment, Constitution, Democracy, Presidential, 18th Amendment, States, Parliament, Rule of law, Judiciary, 17th Amendment, Government, Sri Lanka.

## **Introduction**

The purpose of this research under the title of 19th amendment to the Sri Lankan constitution is to analyse substantiate, propagate and proclaim how the annexure of this piece of legislation created and introduced a landmark change in the governance of Sri Lanka and subsequently contributed for the furtherance of constitutional reformation time to come for the betterment of its citizens.

God created man and man has constituted constitution to govern himself. This planet of earth encompasses 195 sovereign states according to United Nations Organizations and every state possess its own yardstick called constitution to govern. The magnitude of constitution differs to country to country depending on the size of the population and ethnicity. The Indian constitution is the largest and the constitution of Monaco is the shortest. The features of constitution are manifold. The constitution of a country is the supreme law. A well enacted constitution strengthens the hands of judiciary and determines the rule of law and thus install democracy in its authenticity. The constitution of a country should embody and enforce fair, just and universal rules of social conduct to enable citizens to live at peace with one another in positive and productive collaboration. Constitution sets the condition on which the power can be used. Constitution limits absolute power and establishes boundaries between the state and the individual forbidding the state to trespass into certain areas reserved for private action. All these unique features of constitution were intentionally or unintentionally absence in the chapters of Sri Lankan constitution. The 19th amendment is a light at the end of the tunnel, truly it is the harbinger of a good beginning.

## **Analysis**

Following the independence of Sri Lanka in 1948, the country adopted the so called constitution called Solbury Constitution from the colonial power the Great Britain, which established a bicameral parliamentary democracy. With some changes such as the abolition of senate the constitution continued till 1972 when the Republican constitution

was adopted through a constituent assembly with an elected parliament and an appointed president. In 1977, with the landslide electoral victory of United National Party its leader Mr. J. R. Jayawardena interpreted this as a mandate to fulfill a long desired personal ambition of enacting a new constitution with an executive presidency and an elected parliament. There was no referendum as Prime Minister he was deemed to be the first Executive President for a term of six years. The combination of elements from the French constitution led to this constitution being called 'Gaullist Constitution' with none of the checks and balance which the US model of an executive presidency contained. The vital separation of powers among the legislature, the executive and judiciary was not maintained or included. Jayawardena was both head of state and head of government was again elected in 1982 for another term. (At this juncture it is appropriate to indicate the late doctor N.M. Perera's prophetic warnings of the 1978 constitution and its undermining of democratic institutions.)

Jayawardena was succeeded by president Premadasa who was assassinated by the LTTE and in the ensuing election Chandrika Bandaranayake Kumarathunga was elected president. She and her successor Mahinda Rajapakse were elected on a pledge to abolish the executive presidency which was by then widely perceived to be a totalitarian government. In the case of the former, she lacked the two-thirds majority needed for a change of constitution with the latter even with a two third majority constructed through cross overs, on the 9th September 2010 his constitutional change was the infamous draconian 18th amendment which repealed the 17th amendment and the independent commissions it set up and consequently abolished the two term limit of the presidential office.

Since 2010, the cry for the abolition of the authoritarian Executive presidential system of parliamentary government gathered momentum. The final adaptation of the 19th amendment although not fully satisfying that demand, has to a large extent rectified the democracy deficit in the executive presidential system. Civil society was specially forceful and influential in its advocacy of the abolition of the executive presidential system and the Ven. Maduluwawe Sobitha Thero at the head of the National Movement for social justice was at the vanguard. He identified the executive presidency as the root of much of Sri Lanka political, economic and social malaise succeeded in attracting and soliciting a range of support from politicians, intellectuals, trade unionists, religious leaders, lawyers, retired public servants, civil society activist and many others who wanted a fundamental constitutional change.

The search for a common candidate to espouse the cause of abolition of the executive presidency ended with the emergence of Mr. Maithripala Sirisena. His dramatic campaign against enormous odds and his success paved the way for the adaptation of 19th amendment which featured in his election manifesto. It was anticipated that with a two-thirds majority only and no referendum possible in the circumstances, a total abolition of the executive presidency could not take place. The expectation was derailed due to situation prevailed that time but relevant amendments prevailed to install democracy. Certain required requirements were stipulated by the Supreme Court when it was referred to its determination and were adapted accordingly. As the amendment was discussed at various stages it was subjected to changed right up to the committee stage in parliament. The composition of constitutional council was the subject of much



debate until a compromise was arrived at. A striking feature was the patience displayed by the president himself and his determined commitment to achieving the objective of the change voluntarily and willingly sacrificing the powers which he acquired through his election. Indeed, his voluntary abbreviation of his own term of the office from six to five years and his decision not to run for a second term set an exemplary example to inaugurate a political culture of humility before the people.

The following are the best of changes included in the 19th amendment.

1. The effective repeal of 18th amendment. The term limit of two years on holding the office of president has been restored.
2. The term of the president and of the parliament is reduced to five years.
3. While the duties of the president are outlined and includes the promotion of national reconciliation and integrations, it is clear that the president is responsible to parliament and cannot dissolve parliament at his own discretion during the first four and half years.
4. The president cannot remove the Prime Minister at his discretion.
5. The re-establishment of the independent commissions and they include election commission, the public service commission, National Police commission, the Audit service commission, the Human Rights Commission, the Commission to investigate Allegations of Bribery and Corruption, the Finance Commission, the Delimitation Commission and the National Procurement Commission, insulating these vital arms of the government from politicization for the purpose of good governance.
6. The establishment of a constitutional council to approve persons for appointment to the office of persons and members of the above commissions.
7. The inclusion of a citizen's right to information upholds the democratic principal of transparency and accountability.
8. The limitation of the size of cabinet to 30 except for the transitional government of the National Unity in the next parliament which may go up to 45 ministers.
9. The unsatisfactory phenomenon of hasty legislation through urgent bills is rectified by the requirement of 14 days' notice for the public to consider a bill by way of a gazette before it goes to parliament.
10. The establishment of a national procurement commission and an audit commission helps prevent corruption restoring public confidence in the handling of public finance and ensuring a rule based investment climate.

### **Conclusion**

1978 constitution after 19th amendment remains presidential as the prime minister's role has been enhanced marginally and even this will depend on the president's willingness to corporate with the PM. The new limits placed on presidential power however effect constitutional regime change and if well implemented would ensure that the landmark presidential election of January 2015 was not a mere change of the government for the continuation of business as usual. Under the Rajapakshe regime power was concentrated in a ruling elite and while it was populist in its methods of political mobilization through the invocations of a majoritarian nationalist ideology, this did not mean access to political power for citizens at large while retaining the presidential character of the constitution and the state the 19th amendment has established a more even structured balance between three organs of government and a thorough going institutional framework for good governance.



The nineteenth amendment presents an incremental step in the right direction in democratizing the Sri Lankan state. It would have been desirable to cut back presidentialism further but the amendment achieved what is politically possible in the present. It is strong in establishing a credible framework for depolitisations but its full potential can only be realized through meaningful implementation. All in all, the 19th amendment is the masterpiece of constitutional reformations that has ever been made.

## **The Rationale Behind the Chaotic World in which we habituate**

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### **Abstract**

The gruesome bloodsheds created by the barbarous acts of humans metamorphosing the world to hades filled with torture and agony seems to be a critical quandary in the modern times. The majority of population seems to glamour the slaughtering of innocent people and adores the violence and carnages and in certain circumstances, law fails to provide justice despite conventions such as ECHR, UN and Universal Human Rights Treaties exist. Thereby, the motive of this dissertation lies to reveal and establish the cause of pandemonium and why norms enacted fail to provide relief.

### **Author Keywords**

Bloodshed, chaotic, violent rejections, global conflicts, hatred, United Nations,

### **Introduction**

The world in which we habituate seems to be implanted by chaos created through hatred which eventually leads to obliteration of humanity. One of the foremost reasons is the constant diverse opinions on religion between various ethnics that leads to persistent quarrels and conflicts among the communities. The constant conflicts taking place in Middle East and Europe lead to a global instability portraying that the order of the society is beginning to shatter<sup>1</sup> in a tremendous speed as mentioned by Berman and other foreign experts in an article published.

<sup>1</sup> Colleen, C. (2014). Why is there so much turmoil right now? Understanding the outbreak of conflicts. Available: <http://abcnews.go.com/International/turmoil-now-understanding-outbreak-conflicts/story?id=24617406> . Last accessed 23rd Oct 2016.

One of the primitive explanations put forward by Michael O'Hanlen, senior fellow at Brookings Institute is the "*violent rejectionsim*" which is the underlying cause of much of these global conflicts steering especially in the Arab region as the tendency lies to response through violence and brutality and was well observed in historical times as well <sup>2</sup> such as the 1917 Balfour declaration and the 1922 Churchill White paper and many more conflicts subsequently. In a Human rights watch report "*Erased in a moment : Suicide Bombing Attacks Against Israeli Civilians*" states that society honor those who die as a part of struggle and what is observed wrong here is to equate individuals who are victims of attacks or who have carried out attacks that are permissible under international humanitarian law with individuals who die while committing war crimes or crimes against humanity <sup>3</sup> and this leads to the society glamouring death and also triggering many individuals to become suicide bombers as they contemplate it as an honor and a noble conduct, yet it only leads to a more gruesome mayhem.

Apart from this ongoing conflict, the Kashmir conflict as well is a major concern that had initiated in 1947 leading to the Kargil war in 1999 and 1965, subsequently taking the lives of many even to the present day and statistics depict in 2016, almost 68 civilians along with 2 security officials were killed through a violence that continue for almost 50 days<sup>4</sup>. This lucidly renders the obliteration of moral values of human kind where they are hovered by selfishness and hatred leading the world to further be in turmoil and moreover, the laws and the justice system which has created many bodies such as the UN yet has failed to enact human rights in a world which can be metamorphosed to a battle zone where the right to life is not protected, rather is a chance dependent on your luck.

Considering US, for instance, although there lie vibrant constitutional protections for basic rights<sup>5</sup>, it is well observed that most minority groups are severely abused and are precluded from justice rather constantly exposed to violations of human rights especially to refugees, prisoners, the poor and specifically to ethnic minorities. Thereby, this creates an immense skepticism as to whether these laws enacted are adequate and sufficient or are they active in protecting the human rights and the human life, and if so why the world is rendered as chaotic or why it is morphed to a purgatory.

### ***Experimental***

Analyzing certain terrorist groups that have been quenched is an indication that laws have taken certain measures to protect the national security such as, for an instance, in the NATO issue of Afghanistan<sup>6</sup>, the United Nations mandated International security

2 Hertz, E. (2016). Over 100 years of Chronic Arab rejectionsim. Available: <http://www.mythsandfacts.org/Conflict/6/Rejectionism.htm> . Last accessed 23rd Oct 2016.

3 Hertz, E. (2016). Over 100 years of Chronic Arab rejectionsim. Available: <http://www.mythsandfacts.org/Conflict/6/Rejectionism.htm> . Last accessed 23rd Oct 2016.

4 bbc news. (2016). Kashmir profile - Timeline. Available: <http://www.bbc.com/news/world-south-asia-16069078>. Last accessed 24th Oct. 2016.

5 Human Rights Watch. (2015). World Report 2015 :United States. Available: <https://www.hrw.org/world-report/2015/country-chapters/united-states> . Last accessed 26th Oct 2016.

6 North Atlantic treaty organization . (2016). nato and Afghanistan. Available: [http://www.nato.int/cps/en/natolive/topics\\_8189.htm](http://www.nato.int/cps/en/natolive/topics_8189.htm). Last accessed 25th Oct 2016.

assistance forces helped build the Afghan national security forces and helped eradicate terrorism in 2014. Furthermore, the boko haram war<sup>7</sup> as well posed a colossal threat to Nigeria and particularly endangered many lives of young women. This terrorist labelled group, which although was not ended and are still active, who initiated from the 1960's during the civil wars, has been portrayed as a barbarous group who adored raping and killing young women and even to the cannibalistic extent of drinking their blood. However, their activities of gruesomely killing have been suppressed although have not being completely doused.<sup>8</sup>

The UN aided the arduous and strenuous times of the Nigeria by protecting and assisting almost 192,000 refugees<sup>9</sup> during the Boko Haram insurgency, yet it has been operose to law making bodies to entirely extinguish these inhuman groups as aiding civilians during such conflicts is not sufficient for the reason that the killings and destroying oh human life would not end unless sufficient, adequate measures are taken simultaneously to diminish the activities of such terror groups whilst ameliorating the refugees and civilian to enrich their lives by providing the very basic elements required to live. Therefore, taking minute measures and voicing out the need to protect humans and their rights is not satisfactory in a world hovered with clouds of hatred, turmoil mayhem but rather must be edict which is the responsibility of the government to provide us a world saturated with tranquility.

7 Matfees, S. (2016). Boko haram is enslaving women making them join their war. Available: <http://www.newsweek.com/2016/02/19/nigeria-boko-haram-buhari-chibok-girls-424091.html> . Last accessed 25th Oct 2016.

8 IRIA news. (2015). war against boko haram will end soon. Available: <http://ir-ia.com/news/war-against-boko-haram-will-soon-end-nigerian-army-chief/>. Last accessed 20th Oct. 2016.

9 Oakford,S. (2015). UN desperately needs funds to manage a boko karam refugee crisis. Available: <https://news.vice.com/article/the-un-desperately-needs-funds-to-help-manage-a-boko-haram-refugee-crisis>. Last accessed 26th Oct 2016.

# **The war on terror: the move towards greater surveillance of individuals in United Kingdom with special reference to Sri Lanka**

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## **Abstract**

The 'war on terror' undermines human rights because of mass surveillance carried out in the world. War on terror is a war waged against international terrorist organizations by individual nation states and states as a group without paying much attention to the International Humanitarian Law. In the course of countering terrorism, states use surveillance and other investigation methods to prevent massive attacks. When counter terrorism policies are introduced and mass surveillance is carried out, a democratic nation state is vulnerable of becoming a police state, where there is no democratic means to safe guard human rights. Terrorism Act 2000 and other anti-terrorism legislations in United Kingdom (UK), and Prevention of Terrorism Act and Emergency Laws in Sri Lanka are vulnerable of damaging democracy in these respective countries by massive surveillance. Thus, most of these counter terrorism legislations are incompatible with the European Convention on Human Rights (ECHR); particularly inconsistent with Article 5 and 8. The aim of the research is to draw up key issues relating to counter-terrorism legislation in UK and Sri Lanka. And also to bring up the point that UK and Sri Lanka are moving towards greater surveillance on its citizens in the process of waging the war on terror. Thus, this tendency of greater surveillance can lead a democratic nation state in to a police state where human rights no longer operate.

## **Author keywords**

War on terror, surveillance, human rights, democracy, counter-terrorism, anti-terrorism legislation, nation state, police state.

## **Introduction**

Today people all over the world live in a surveillance society where every action is been monitored by the state because the world is fighting a war against terrorism. The famous phrase 'war on terror' was introduced to the world by the Bush administration in order to show that countering terrorism is not just a simple task but a difficult goal to achieve with protecting human rights. Once counter terrorism legislation is enacted, there is a huge possibility of human rights violations because surveillance is an important element in anti-terrorism policies.

Terrorism is broadly defined and categorized in to several sub categories by identifying the important characteristics of terrorism. And a brief history of counter terrorism legislation is discussed concentrating on UK and Sri Lanka. Centering on Terrorism Act 2000 and 2006, and other similar anti-terrorism legislations, Britain counter terrorism policies are been discussed. Sri Lankan anti-terrorism legislations are discussed using

## Prevention of Terrorism Act (PTA) and Emergency Law.

Surveillance is introduced as a counter terrorism measure and shows how it is been used in UK and Sri Lanka. For instance, electronic surveillance is used widely in UK but in Sri Lanka close observation is done by military personals. Then problems related to surveillance with European Convention on Human Rights Article 5 and 8 are analyzed with achievements of this counter terrorism measure.

Next it reveals around the impact of surveillance and investigation on ordinary people. So it discusses about stop and search, arrest and detention, and electronic surveillance concentrating on ECHR Article 5 and 8. Thus, Terrorism Act 2000 and government legislations in UK, and PTA and Emergency Law in Sri Lanka are taken in to account to discuss about terrorist investigations.

Further in dealing with mass surveillance and police state, massive scale surveillance will convert a democratic state to a police state where human rights are no longer recognized. This issue is been tackled with bringing in to account the importance of human rights over national security. Thus, the importance of citizens over state is also discussed. Moreover, ECHR Article 5 and other rights such as freedom of expression are brought in to attention as violations in UK and Sri Lanka.

The research brings in to attention that war on terror ultimately damage democracy. Thus, protecting human rights and curbing terrorism can reduce the harm caused by the war on terror in democratic nations. But in UK and Sri Lanka priority is given to the war on terror. And this has damaged the democratic means in both countries to a larger extent. Moreover, the International Humanitarian Law is also neglected in waging the war against terrorism, and this has led to more human right violation issues

### **Methodology**

This is a qualitative research where the researcher depends on secondary data. All the relevant data has been critically analyzed. The reviewed data introduces the problem of the research which is that; does surveillance curb human rights and is the ultimate outcome a police state? In order to find an answer the researcher used convenient sampling, which helped to identify Sri Lanka and United Kingdom as potential countries with mass scale surveillances. Further, the researcher has access to these two countries' secondary data, hence, was the reason for the researcher to identify the said countries using convenient sampling.

### **Conclusion**

The fear on the war on terror has made UK and Sri Lanka to use mass surveillance methods to observe suspects as well as ordinary people. Day to day life styles and behaviours of citizens are been monitored by a suspicious eye; surveillance cameras or CCTV cameras. This might have positive aspects as mentioned in some chapters but the negative side or the harmfulness of these surveillance methods are very high because monitoring individuals without their knowledge in a violation of several rights under the European Convention on Human Rights (ECHR). In particular, Article 5 and 8 of the ECHR are often violated by these counter terrorism measures.

As discussed above, continuance damage in human rights will convert a democratic nation state in to police state. This is the ultimate challenge all nation states face in the ongoing war against terrorism. UK and Sri Lanka are already facing this challenge in different levels.

Therefore, to avoid the birth of police state government anti-terrorism legislations should be adhered to the ECHR. But designing counter terrorism policies to be compatible with ECHR is a difficult task because a huge part of counter terrorism policy is based on preventive measures. So in the course of preventing massive terrorist attacks surveillance on citizens has become an important means. Hence, when surveillance is used Article 8 and 5 of the ECHR in particular will be violated and related to these two Articles other Articles also will be violated depending on the situation. In general civil liberties will be violated.

Thus, the problem of state overriding the importance of citizenship in the name of national security is visible in UK and Sri Lanka because of anti-terrorism legislations. In the research it was argued that the state is willing to sacrifice its citizens' freedom for national security. So in the war against terrorist activities UK and Sri Lanka indirectly suppress human privacy and freedom, to control terrorist activities within the country. These governments suppress using surveillance since it is the easiest of all counter terrorist measures for a government to carry out because they just have to monitor every single movement of its citizens.

Therefore, it's evident that surveillance is not a human friendly way of dealing with terrorist activities. So the governments need to wage this so called war on terror by minimizing human right violations otherwise it will be inevitable to avoid a nation state becoming a police state in the future.

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# Impact of global environmental law making panels: An evaluation on the effect of international environmental norms over the state sovereignty

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## **Background**

Environmental related issues have been identified as global issues since last few decades through the manpowered technology and before 1950, actually prior to 1900 few multilateral and bilateral agreements were available concerning environmental issues. During the 1950s and 1960s international community was concerned with nuclear damages and marine pollution. The modern era of international environmental law was started through the Stockholm Declaration, in 1972. Since 1972 important and progressive steps were taken in relation to the environmental protection and, in 1992 the Rio Declaration was introduced. The Johannesburg Summit was organized in 2002 with reference to the sustainable development and recently Cop 21 has played a major role in environmental protection and climate change including global warming. The global warming came in to consideration as a result of the ozone depletion and as a part of the climate change. Basically before millions of years ago these types of global issues were identified, indicated and the brutal results were expressed by the religions and philosophers without proper technologies but also from their wisdom.

## **Research Problem**

'Is State Sovereignty over natural resources being greatly affected by the international environmental norms?'

## **Research Objectives**

The objectives of this paper are, to evaluate the extent to which the international environmental norms respond to enhance the environmental protection with the reflection of state sovereignty, and to comment on the monism and dualism approach of the Public international Law, and to identify the conformity and reaffirmation of the right of the countries to control the exploitation and use of natural resources, and to comment on the application of soft laws and hard laws, and to identify global law making panels and the way they are acquiring legal authority, and to find out the modern trends in global environmental decision making, and to provide recommendations for the protection of environment and to prevent global environmental issues such as climate change, ozone depletion and global warming.

## **Methodology**

Qualitative research method has been adopted to carry out this research work. Relevant international instruments such as Declarations, Conventions, Covenant and Treatises have been analyzed and further, other international environmental sources such as customs, case law, Scholarly Articles, Research papers and Journal Articles have been

used to find out extract idea on international norms. Furthermore, Domestic instruments, customs and case law have been discussed whenever it is necessary. The scope of this paper is to identify real application of international environmental norms beyond the state sovereignty.

### ***Key findings***

To identify the gist of the research paper, key findings are divided in to sub topics.

#### ***6.1 The state sovereignty and responsibility over the natural resources***

The state sovereignty over the naturel resources within its territory has been reaffirmed and confirms by many international instruments including soft law and hard law. Significance features were stipulated by Principle 21 of Stockholm Declaration of 1972 with reference to the state sovereignty and state responsibility over natural resources. Further, it states in addition to the state sovereignty over natural resources, to exploit or use, pursuant to their own environmental laws and policies, state responsibility is prior, to ensure that activities within their territory not cause damages to environment of other states. Although same formulation was expressed by Principle 2 of the Rio Declaration of 1992 and it states the right over the development and environmental protection.

In the Gut Dam arbitration state sovereignty and rights of counties to use their natural resources was acceded but as per the learned judges emphasized that there is a faithful duty not cause damages to environment of other countries with reference to the above principles. Further, judges upheld the right of development through the natural resources in their own jurisdiction. Classically and traditionally states are liable and be responsible for damages caused where it could be explained that this resulted by its own illegal activity.

Under the modern trend it is well depicted that the environmental issues couldn't be resolved states by acting individually. Therefore the balance between development and environmental protection, the state sovereignty and the responsibility, are become bolded challenges under the recent context. The convention of the law of the sea and the in the preamble resolutions, the right to control and exploitation of natural resources is admitted properly. In the cases of *W. S. Kirkpatrick and Co. v. Environmental Tectonics Corp.* (1990) and *Walter Fuller Aircraft Sales, Inc. v. Republic of Philippines* (1992), the permanent sovereignty over natural resources was confirmed.

#### ***6.2 Global warming and other environmental issues***

The problem of global warming and the issue of increasing temperature of the world have focused more attention. Consumption of fossil fuels and deforestation has made a huge impact on global warming. Depletion of the ozone layer is one of a major impact which increases global warming. Nuclear experiments, use of nuclear weapons and nuclear activities, ultra hazardous activities, atmospheric pollution and marine pollution have become significance for the climate change including global warming.

#### ***6.3 Global law making panels***

Generally United Nations Organization and the Cop 21 are considered as parts of this category. Furthermore, World Bank, International Money Fund, European Union are considered as global law making panels. Specially Intergovernmental Panel on Climate

Change and Intergovernmental Platform on Biodiversity and Ecosystem are recently identified under this category. Furthermore, in 1974 the global recommendations were issued by the Organization for Economic Co-operation and Development and subsequently it received the global recognition. Moreover, Australia and Canada have introduced law making panels on environmental protection and these panels are consulted by the international community on the environment law making process. These panels concern on current global environmental issues and problems and create sufficient parameters and criteria on environmental protection and gradually it includes into a legal framework. These organizational instruments, otherwise law making panels deliver some global criteria and stimulatingly if could rather include into legal framework. It should be noted that the global law making panels are gained power to trespass the national jurisdiction to influence domestic law making authorities. In the case of *Environmental Justice Centre v Central Environmental Authority and Others* (2015), the well-known Port City case, the state sovereignty over the natural resources to expand the land was not accredited under the rights which are confirmed by Principle 21 and Principle 2. The rationale behind this was the criteria which are implemented by the global law making panels, specially Cop 21.

### ***Conclusion and Recommendations***

Here it is crystal clear that then the state sovereignty global environmental issues need to be given more priority. In that view, automatically state sovereignty allows international environment norms invasion since the right to life being a part of sovereignty. Even through State sovereignty creates by the people of the country and vice versa they have a right on their life. Further, under the dualism, international environment laws and international environmental norms are applicable in a domestic legal frame work to fill all loop halls when it is necessary. Under the jurisprudential view it is essential to implement laws with reference to the social necessities hence, Hegel believes social engineering theory as a method of enhancing law as per the requirements of the society. Therefore, to prevent and reduce global environmental issues, to enhance the environmental protection, it is more acceptable that the attempt of global law making panels which have invaded the state sovereignty through international environmental norms.

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### **Other**

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Hinduism in Bhagavad Gita 3:12

Singalovada Soothraya

The Bible Genesis 8:22, Luke 17:29-30 on global warming; The Bible Genesis 8:22, Luke 17:29-30 on global warming

# **Independence of the Judiciary: A Critical Study**

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## **Author keywords**

Independence of the judiciary; democracy; rule of law; 2nd Republican Constitution.

## **Introduction**

Justice is an important element for a democratic country and there is no democracy without justice. As such, the judiciary, as the organ administering justice needs to be independent. A truly independent judiciary must be impartial and should not have conflicting interests for it is only then that the decisions given by such judges will be respected by the society.

Although enough has been written about the independence of the judiciary, the debate about independence of the judiciary continue to attract academic discourses. One can come to an inference that if the existing constitutional measures were sufficient, independence of the judiciary would not have given rise to such controversial issues both in the political as well as legal arena.

The main issue that this research attempts to determine therefore is as to why independence of the judiciary has become such a controversial issue in Sri Lanka despite several Constitutional provisions and a discourse for judicial independence. In this research more emphasis was placed on the Second Republican Constitution. As such adequacy and/or inadequacy of the existing laws governing the independence of the judiciary and the practical challenges encountered by the judiciary in discharging its duties were considered in detail. This research also addressed the adverse effects of not having an independent judiciary by referring to certain circumstances that undermined the independence of the judiciary and finally seek to recommend measures that need to be adopted to secure an independent judiciary.

## **Methodology**

The study of this research was analytical and qualitative in nature. In order to achieve the research objective, analysis of the existing literature was used where existing legislation and decided authorities in relation to independence of the judiciary were analysed in detail. As such all relevant academic literature in relation to judicial independence was analysed to ascertain as to what extent independence of the judiciary has been protected under the relevant laws and how the courts interpret the same.

## **Conclusion**

In view of the several incidents that posed a threat to the independence of the judiciary, it is recommended that urgent Constitutional and legal reforms be implemented to secure an independent judiciary. One of the foremost findings of this research was that the existing Constitutional provisions are inadequate and that wide powers are vested in the

executive branch of the government, allowing the executive and even the legislature to encroach upon the powers and functions of the judiciary. It was also found out that lack of broader interpretations to the statutory provisions further eradicate of the independence of the judiciary. In the circumstances, amendments to the existing provisions of the Constitution are recommended.

It is submitted that immediate measures need to be taken to protect the judiciary from influence, inducements, pressures, threats or interferences so that the judges along with the other organs of government could create that social order that conforms to the prevalent democracies. They must create an environment where the rule of law and judicial independence thrive, so that decisions can be given according to the law. Analysis of case laws shows that the judges are rather reluctant to give broader interpretations to the Constitutional provisions. It is generally accepted that judicial interpretations must extend beyond mere literal interpretation of the statutes in order to give more vibrant decisions.

In reference to the existing Constitutional measures as provided under the Second Republican Constitution, its adequacy and/or limitations to safeguard an independent judiciary, more particularly in reference to the appointment of judges, their tenure, financial allocation, removal of judges and the Judicial Service Commission were considered in detail and it was found out that the existing Constitutional provisions are insufficient to safeguard an independent judiciary. It is submitted therefore that more comprehensive Constitutional provisions need to be enacted in respect of appointment of judges to the superior courts as well as the inferior courts. The appointment process for the judiciary must be sufficiently independent to ensure judicial appointments are not made for improper motives. The nomination of judges should be based on their competence and not their political affiliations as such an independent commission for purposes of selecting the judges would be desirable.

Furthermore, the provisions of Article 4(c) that cause much confusion need to be amended. Article 107(3) that vests power in the select committee to determine if a judge is guilty of misbehavior or incapacity as a ground for removal is clearly an exercise of judicial power by parliament which is inconsistent with Article 4(c). Article 107(3) should rather prescribe a procedure that enables the guilt of a judge to be determined by a body competent to exercise judicial power and thereafter the judicial finding to be confirmed or otherwise by Parliament upon vote in terms of Article 107. As such removal of judges must be more transparent.

As there is a tendency for the more powerful executive to diminish the effectiveness of the existing Constitutional safeguards, the above referred provisions of the Constitution need to be amended with clear demarcations on the powers and functions of the executive and the legislature.

New Constitutional reforms must also provide for judicial review which will allow the courts to invalidate legislative and executive Acts. Furthermore all regulations and orders issued by the executive relating to emergencies must be subject to judicial review.

The 18th Amendment to the Constitution passed in 2010 further enhanced the powers

of the executive. It is recommended that the 17th Amendment to the Constitution is restored where the Constitutional Council can be established but is suggested that the composition of the Constitutional Council be limited to the retired members of the Supreme Court or the Court of Appeal and other eminent scholars in the legal fraternity. Furthermore, persons selected for judicial office must be individuals of integrity and ability with appropriate training or qualifications in law.

The impeachment process and the factors that contribute to the erosion of the judiciary in general were also considered and it is recommended that Article 35 of the Constitution be abolished as this provision vests immense power on the executive as it is not possible to secure an independent judiciary if anyone is above the law. Rules as to standard of proof, duration of notices, notice of charges and right to call witnesses need to be formulated, all disciplinary hearings against judges must be subject of judicial review of ordinary courts, Standing Order 78A need to be repealed and proper disciplinary procedure for judges need to be formulated as well.

The new Constitutional provisions must guarantee judicial independence and it is the duty of all governmental and other institutions to respect and observe the independence of the judiciary of this country.

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# **Rights of Street Children and their protection: A study (critical study) of applicable laws in preventing misused for begging activities in Sri Lanka**

Anjalee Sandamini Weerasinghe

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## **Abstract**

Generally, street children are identified as a group of vulnerable and marginalized children whose lives are spent either living or working on the streets. There are two groups of street children, namely “children on the street”, who lack an adult parent or guardian and do all the daily activities on the street and “children of the street”, who have some connection with guardians or habitations and earn their living on the street. While the reasons for these children to live on or of the street are multifactorial, their lifestyles are entirely shaped by the mixed communities of urban streets.

The rate at which street children are used for unlawful activities by adults has increased rapidly. On the other hand there is no law specifically to prevent the children from being misused for begging by the adults in the streets. This research is to identify the sufficiency of the present legal regime of Sri Lanka in countering the problem of misusing children for begging activities by adults in the streets.

Furthermore, the research will follow a qualitative method; a semi structured interview with the victims and a cross sectional study of a structured interview with the state departments and relevant authorities in relation to protection of street children.

A number of laws and organizations are in place to protect children and their rights. However, it is questionable whether the specific problem of misusing children for begging by adults in the streets is addressed.

## **Author keywords**

Street children, Child rights, Children for begging, Applicable laws.

## **Introduction**

In Sri Lanka one of the most important social problem which is prevailing is street children. The surviving of children sustaining on streets have become out of control of the authorities as it is widely spreading all across the nations. The reason for this situation to be uprising is because they try to remain unnoticed. Ultimately, this have resulted the children to beg forcefully where the remote is within the racketeers, who organize forced child begging.

Due to different definitions adopted by different statutes for various objectives, identifying a proper definition on the age of a child is challenging. The proposed research will

follow to coherent the definition of the child according to the UNCCR (United Nations Conventions on Child Rights) Article 1, “every human being below the age of 18 years”. Together complies with the National child protection authority Act No 50 of 1998, which defines the child to be under 18 years of age. The existing legal framework is confined to the provisions of the Children and Young Persons Ordinance No 12 of 1945, while the practical difficulties are faced by the police and the child Protection authority in implementing the law.

Moreover, even though the existing legal framework of the government is under the control of the authorities to enforce law through the Children and Young Persons Ordinance, it has forgotten to make a clear cut prohibition on the use of children for begging by adults and to implement severe punishment to those who force child begging. Therefore, identifying the current protection plan towards preventing the violence is important, which would ultimately give a deterrent effect on the society.

Street children have been forced on to the streets mainly due to their parents’ inability to address their needs which the root cause is poverty. Children on streets, (accompanied by an adult) face different uncomfortable situations specifically the violation or imminent violations of child rights such as right of being free from violence and right to education. This violence occurs because the children are forced to beg where they may undergo sexual harassments further the protection is undermined in the hands of a stranger if the adult accompanied is not the parent. Even with the parent it becomes unrespectable.

The laws prevailing to stop the children being used for begging is identified by Children and Young Persons Ordinance No 12 of 1945 under Part v, Section 77(1) which prevent vagrant who habitually wanders from place to place takes with him a child who has attained the age of five and shall be guilty unless proved that the child is completely exempted from school or such taking did not interrupt the child’s elementary education. Section 77(2), it allows any police officer to apprehend such vagrants without a warrant and to take the child to a place of safety in accordance with the ordinance.

Sri Lanka ratified the UNCRC in 1991, since then it was successful to become an active members. One of the main concerns of UNCRC is to protect children from abuse and exploitation. Article 19, adopts the protection from all forms of violence, neglect, abuse and maltreatment and not to be exploited by their parents or other guardians. Therefore, the prohibition is set, but the enforcement is within the hands of the government. The results were shown form concluding observations of the Committee on the Rights of the Child, Sri Lanka, 2010 where the committee appreciated the positive developments related to the implementation of the Convention specially the adoption of The Penal Code (Amendment) Act No. 16 of 2006 which, inter alia, makes it a penal offence to engage and recruit a child for use in armed conflict and in child labor, child trafficking and child pornography.

Further, the Committee welcomes the ratification by the State Party of the Optional Protocol to the Convention on the Rights of the Child on the sale of children. These have been the positive outcomes of legal implementations yet the committee urged Sri Lanka in its oncluding observations that the principle of the best interests of the child as defined in art.3 of the Convention and recalled in other provisions of the Convention

has not been consistently applied in legislative, administrative and judicial proceedings, as well as in policies and programs relating to children. This situation is to be addressed by the government. These set up of laws lacks the practical effectiveness where it is questioned further by continuously increasing complains on children being used for begging on streets. However a complete prohibition over using the children for begging has been unsuccessful with the current laws.

### ***Experimental***

A qualitative method of data collection was followed in this study; an informal interview was carried out in the areas of Colombo, face to face interview with the victims (between the ages of 5 to 14). The structured interview which was constructed with Child Protection Authority and commissioner of Provincial Commissioners of probation and Child Care Services (Western Province) revealed information on how the authorities addresses the prevailing situation.

The general question posed to the vulnerable group of children was to find out what make them sustain on streets? None of the children were able to answer the question instead the answers were given by the adult whom they were accompanied by. The common answer is that they are being either there father or mother or the guardian taking the child with them to the streets because they are unable to have any alternative method. Whether they are the child's real parents was never revealed. This shows that it is necessary to stop further expansion of this business. Executive authorities such as the police handle the practical situation of arresting such child exploitation for this begging business while the administrative work is handled through legal intervention with a special unit in police, yet this service is mostly available for children who are abused already. Nevertheless a barrier to this situation arises, in the time to the reach the child at risk, it is enough for the vagrant to move to another place without getting caught. Such loopholes put the child into a more vulnerable stage. This occurs mainly due to the secret organization of these racketeers. Child development and women's affairs ministry declared that the authorities had been advised to enforce the law with a stringent punishment for those racketeers. The ministry emphasized that there were around 20,000 child beggars in the country, and they have got in hold of the information that certain organized racketeers were behind forced child begging who take advantage of localized festivities such as the Kandy Perahera and the Poson season in Anuradhapura and transport child beggars. Consequently, if the prevailing authoritative implementations are not in action, it is a need to create a fluent legal reform.

According to this situation, it is questionable whether the section has only been restricted to simply a provision because section 77 (1) as aforesaid punish the vagrant from preventing the child receiving education and lacks to address otherwise therefore this is not a complete prohibition. Thus, the prevention mechanism must not completely confine to the ordinance but a combination of the assistance of all government authorities, police and with the attention of the public to work efficiently to bring down the core founders of this begging business. Poverty, lack of proper employment for the parent and also the children who said to have no protection in their houses cannot be the result of selecting the streets as for the shelter. Therefore, the proposed reform may come alive by recommending institutional care. With the

assistance of department of probation and Child Care, National Child Protection Authority, and the ministry of child development and Women's Affairs together with local authorities such as municipal council, this situation should be handled. The needed assistance over child is achievable by attending them for institutional care. The non-governmental organizations such as Child Action Lanka in Kelaniya, Nuwara Eliya and Kandy render proper care for street children and under privileged children to learn, grow and educate. Moreover, Article 3 (3) of UNCRC must be used to strengthen the standards of these institutions.

In conclusion, the enforcement mechanism should be more effective in identifying these organized groups, who use children, and on the other hand against parents that uses the children for begging should also not be justified under any circumstance and severe punishment must be afforded. The inability of the children to talk for their rights have created the need for opening up a specific legal reform which could out stand among the prevailing laws. Even though this is a long term goal, the short term goals will be to protect children from violence from their parents and the organized groups who pushes them to the streets. Therefore, the proposed reform is to be enforced as a complete prohibition from using children for begging at any costs.

# **Children Raised in Prisons with their Incarcerated Mothers in Sri Lanka.**

## **A Human Rights Perspective**

Randima Nishalika Herath

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### **Abstract**

The international and regional human rights instruments have broadly recognized a child's need for care, protection and to be nurtured with the parents. The United Nations Child Rights Convention (CRC) sets out civil, economic, Political, social and cultural rights of children. For example in the Universal Declaration of Human Rights, the United Nations has proclaimed that childhood is entitled to special care and assistance, Convinced that the family, as the fundamental group of society and the natural environment for the growth and well-being of all its members and particularly children, should be afforded the necessary protection and assistance so that it can fully assume its responsibilities within the community, Recognizing that the child, for the full and harmonious development of his or her personality, should grow up in a family environment, in an atmosphere of happiness, love and understanding, Considering that the child should be fully prepared to live an individual life in society, and brought up in the spirit of the ideals proclaimed in the Charter of the United Nations, and in particular in the spirit of peace, dignity, tolerance, freedom, equality and solidarity.

Thus, it requires the states to undertake the legislative, administrative and all other necessary measures to fulfill and protect the rights of children. What is reflected through the passages of this research is that what if the mother is incarcerated? And what law holds for a child of such a parent? Moreover, the adequacy of the present legal regime of Sri Lanka regarding the wellbeing of such children is analyzed with reference to some other countries. In the perspective of a child living in prison, it is undesirable to be brought up in a prison and not with the ones who can guide the children to be good citizens, but with the ones who themselves endeavor to wash away their sins. This is a veiled reality, an issue which is not commonly spoken and a matter which should not be allowed to fade away. The increasing rate of imprisonment of women means that more and more children around the world are likely to be affected by parental incarceration; thus it has become a global phenomenon. We want a society where babies do not have to experience the world behind bars; therefore it is necessary to address the collective rights of the kids as well as the mothers in this respect.

### **Author keywords**

1. Prison    2. Children    3. Child rights.

### **Introduction**

When paying attention to the situation of women in prisons in Sri Lanka, it rapidly becomes clear to us that imprisonment of women has an enormous impact upon children. In many

countries including Sri Lanka, the vast majority of imprisoned women are mothers, and main protectors of minor children. These children can be categorized into two as; those who are separated from their mother when she is imprisoned, and those who go into prison with their mother. Here, I have paid attention on the children who go into prisons with their mothers in Sri Lanka, the facilities and the protection available for them while living inside the prisons.

Even though there may be agreement on the special care and attention that a pregnant woman must receive while she is in prison, the situation of the mother imprisoned with a newborn or young child raises more complicated issues and international standards are not clear on this point and it varies from country to country. It is therefore, necessary to repeat some of the basic principles, notably from the United Nations Convention on the Rights of the Child (CRC), which has become a universal legal instrument and which binds 193 State Parties, and which promotes:

- The idea that a child must not be separated from his or her parents except under very particular circumstances.
- The obligation to protect a child in danger.
- The principle that a child has a right to both parents.
- The absolute necessity to respect the child's interests.

When considering the situation in Sri Lanka, The legal framework of Sri Lanka as stipulated in the Prison Subsidiary Legislature states that “no child shall be taken into custody with his or her mother who is sentenced unless the child is breastfed or the superintendent makes such an order” and that means an infant is not entitled to be taken in with his or her mother if an alternative accommodation is found or unless he or she is in a fit condition. This fact is a main point on which I paid more attention. Hence I collected information from the Welikada and Wariyapola prisons in Sri Lanka regarding the situation of children residing in prisons with their mothers. Infants and children below 5 years of remanded or convicted mothers are admitted to prisons on court orders. In reality, many of the small children residing in prisons, most often do not have any other choice. In the absence of better solutions for the protection and care of the children, parents prefer that the children remain with them in custody. It is the prison authority which decide whether they can be allowed to stay or not. No matter by whom the decision is made; if a child is allowed to accompany an imprisoned mother, the prison becomes their home. In Sri Lanka, only some of the prisons have provided special arrangements to accommodate mothers with small children. This situation differs from country to country. If prison resources are scarce and the conditions of detention are harsh, children suffer limitations and general prison rules often apply to them also.

In my research I have discussed about the international standards relating to the children raised in prisons with the incarcerated mothers.

Convention on the Rights of the Child, with regard to pregnant women and their babies R (87)3 on the European Prison Rules stipulates under the section on medical services (Article 28):

“1. Arrangements shall be made wherever practicable for children to be born in a hospital

outside the institution. However, unless special arrangements are made, there shall in penal institutions be the necessary staff and accommodation for the confinement and post-natal care of pregnant women. If a child is born in prison, this fact shall not be mentioned in the birth certificate.

2. Where infants are allowed to remain in the institution with their mothers, special provisions shall be made for a nursery staffed by qualified persons, where the infants shall be placed when they are not in the care of their mothers.”

Thus when considering this section with that of Sri Lanka, It is clear that Sri Lankan Prisons work accordingly.

According to the Council of Europe, A section on Infants in the European Prison rules states that, Infants may stay in prison with a parent only when it is in the best interest of the infants concerned. They shall not be treated as prisoners, Where such infants are allowed to stay in prison with a parent, special provision shall be made for a nursery, staffed by qualified persons and special accommodation shall be provide to protect the welfare of such infants, But in contrast, Sri Lanka does not have any facility which provide a special accommodation for the children and incarcerated mothers.

When analyzing the situation in some foreign countries, for example; in Sweden, babies are rarely accepted in prison, but they can be accommodated for up to a year and the average stay is three months. In Germany, there are six closed prisons which allow children up to three years old, and two open prisons which allow children up to the age of six. In Frankfurt-Preungesheim (in Germany), there is an open unit and is located outside the prison walls, they have a special policy to keep the mother child unit away from the normal prison environment. Each mother has her own apartment comprising a bedroom, living room, a kitchen and a bathroom. In The Netherlands, children may stay until their fourth birthday in the half open prison. In Iceland, only babies who are breast feeding or who have special needs may stay in prison with the mothers. Portugal and Switzerland allow children up to three years, Finland up to two years, to stay in prison. Denmark allows male and female prisoners to have their children with them if they are to be released by the time the child is three, but in practice few children are ever held in prison. In England and Wales, three closed prisons have places for 34 babies, and one open prison has places for 20 babies. Children may stay until they are 18 months old in the open prison and in one closed prison, otherwise the limit is nine months. When comparing with other countries, Sri Lanka does not provide a separate living for the children and imprisoned mothers and also in Sri Lanka there is no specific age limit for a child to be kept in the prison. It varies from age of 3 to 4. Once when the child reaches the age of 3 or 4, child will be directed to the father or else to a trustworthy guardian. If it is found that the child's future is at a risk, then he/she will be directed to the care of an orphanage.

### ***Experimental***

In the process of collecting data for my research, I visited two prisons in Sri Lanka, Welikada and wariyapola and I was understood that since Walikada Prison covers a large land area; thus when comparing with the other prisons, number of children residing with parents is high and the information relating to facilities given to children in different

prisons were collected. Among the collected information, I found that in Sri Lanka there is no special provision containing the rights of children residing in prisons with their mothers. At the same time it was revealed that an age limit is not specifically provided for a child to be brought up in a prison with the mother. In my research, since the main concern is the children residing in prisons with mothers, the process of ascertaining the connection between the child and the mother, as well as the father's access to the child is important. Thus I collected information from the Sri Lankan Prison department.

Generally Prisons are not places which provide appropriate environment for babies and young children, it often causes long term developmental retardation. Yet, if the children are separated forcibly from mothers they will suffer long term mental damage. Thus, in my research I have discussed about the process of handing over the child. Moreover, I collected information about the education, food, medical facilities available to such children.

After getting a complete understanding about the situation of children residing in prisons with their incarcerated mothers my suggestions are as follows

I suggest that it is very important to have a specific age limit to stay inside the prison. Like, they should be allowed to stay with the mother till they complete the nursery period, new provisions should be included in the Prison Ordinance regarding the children residing in prisons with mothers, If those children have brothers and sisters, steps should be taken in order to strengthen the relationship between them.



## List of Referees

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3. Prof Philip N. Dearden, Associate Dean, Research and Business Engagement, Faculty of Social Sciences (FOSS) and the Head of Centre for International Development and Training, University of Wolverhampton, UK.
4. Prof Reima Suomi, Professor of Information Systems Science, Turku School of Economics, University of Turku, Finland.
5. Prof M.A. Fullen, Professor of Soil Technology, Faculty of Science and Engineering, University of Wolverhampton, UK.
6. Dr Bandara Wanninayake, BSc Marketing (USJ), Diploma in Marketing (UK), Diploma in Accounting, MBA (Uni Colombo), PhD (TBU, CZ), Head/Senior Lecturer-Department of Marketing Management, Faculty of Commerce and Management Studies, University of Kelaniya.
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## Contd...

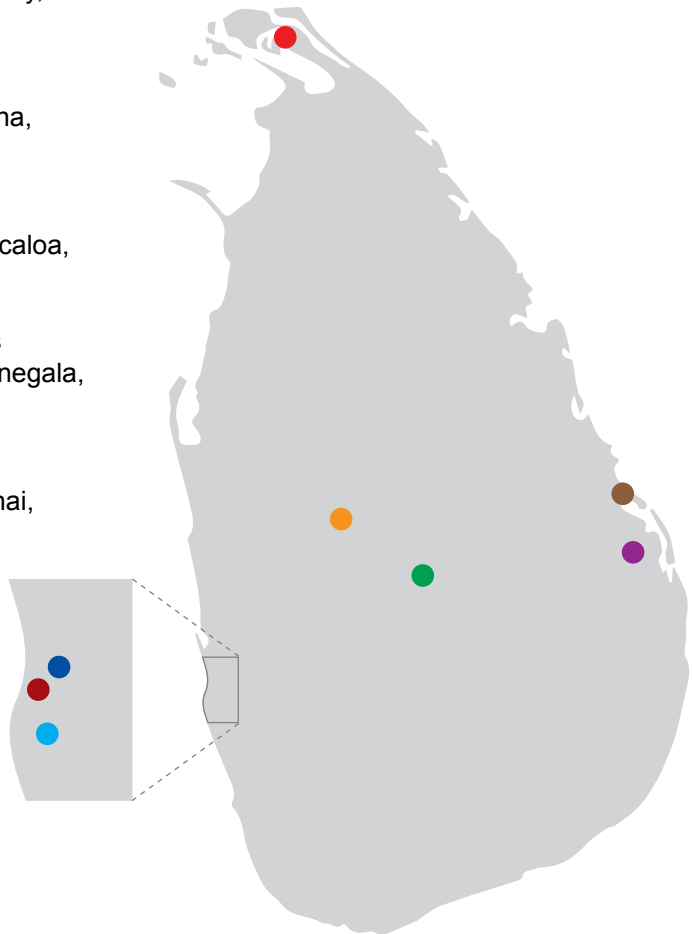
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13. Mr M. A. M. Hakeem, LLB (University of Colombo), LLM (Malaya), Attorney at Law. Senior Lecturer, University of Colombo.
14. Mr Harsha Wijayawardhana, BSc University of Miami, USA, Head of the Department / Consultant, University of Colombo School of Computing (UCSC).
15. Mr A. Sarveswaran, LLB (University of Colombo), MA in International Peace Studies (UPEACE - UN Affiliated University) (Costa Rica), MPhil in Labour Law (University of Colombo), Attorney-at-Law of the Supreme Court of Sri Lanka. Senior Lecturer, Faculty of Law, University of Colombo.
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19. Mr Ranjith Rubasinghe, BSc (Eng) (Uni Peradeniya), MBA (University of Colombo), PG Diploma in Engineering (Telecommunication & Electronics) (Uni Moratuwa). Chief Executive Officer, Mobitel (Pvt) Ltd, Chief Executive Officer at Sri Lanka Technological Campus.
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# Programme

Time	Hall 1
8:30 - 9:30	<b>REGISTRATION</b>
9:30 - 10:00	<b>Keynote 1 - Application of Information Systems in Health</b> <i>Prof. Reima Suomi, Professor in Information Sciences, School of Economics, University of Finland</i>
10:00 - 10:15	A critical evaluation of the issues in implementing customary International Humanitarian Law in respect of the international and non-international armed conflicts <i>W.W.A.S.P. Fernando</i>
10:15 - 10:30	A critical analysis of the emerging issues in atypical working arrangements in Sri Lanka in respect of the arena of contract of employment <i>W.W.A.S.P. Fernando</i>
10:30 - 11:00	<b>TEA BREAK</b>
11:00 - 11:15	Dimensions of Modern Slavery : A Perspective on Rapid Growth of Trafficking in Persons <i>Hansa Abeyrathne</i>
11:15 -11:30	Socialism beyond Totalitarianism : A Critical Assessment of the term 'Socialist' used in the First and the Second Republican Constitutions of Sri Lanka <i>Thiruni Marambe</i>
11:30 -11:45	The Importance Of 19th Amendment To The Sri Lankan Constitution <i>K. Ratnam</i>
11:45 - 12:00	The rationale behind the chaotic world in which we habituate <i>L.J. Prasadhi De Silva</i>
12:00 - 12:15	The war on terror: the move towards greater surveillance of individuals in United Kingdom with special reference to Sri Lanka <i>Kanishka Namal Jayasinghe</i>
12:15 - 12:30	Impact of global environmental law making panels: An evaluation on the effect of international environmental norms over the state sovereignty <i>W.W.A.S.P. Fernando</i>

Hall 2	Hall 3
Evaluation of Feeding Habit of <i>Gambusia affinis</i> (G. affinis) using a Molecular Based Technique <i>Jayawickrama, A. D. and Hapugoda, M.</i>	Should new rules of measurement (NRM2) be used by the building construction industry of Sri Lanka? <i>H.G.P. Indira</i>
Evaluation of genetic data for STR locus VGL 3235 and its uses in canine parentage testing of Sri Lankan domestic dogs - <i>Fairoze. F., F</i>	WiFi Positioning System <i>Shafeen A. Wahid, Kawther M. Musthafa</i>
In vitro sunscreen potential of Sri Lankan medicinal plant <i>Limonia acidissima</i> <i>L.P.R.L.S. Perera, W.D. Ratnasooriya, &amp; R.N. Pathirana</i>	An analysis of the Sri Lankan tourism industry compared to its Asian competitors <i>G. Ahmed, A. Shimaz</i>
Investigation of Metal Ions Levels in Sri Lankan Ayurveda Pill Yougaraja Guggulu <i>Fernando W.S.M</i>	Impact of organizational culture on employee retention: A Special Reference to IT Industry <i>Ashra Alikhan, Aishath Shimaz</i>
Invitro investigation of anti-inflammatory activity and evaluation of phytochemical profile of <i>Osbeckia octandra</i> <i>S.N Heendeniya, W.D Ratnasooriya, R.N Pathirana</i>	Investigating Employers' Attitudes towards recruiting employable differently –abled candidates : Special Reference to the private sector companies in Sri Lanka <i>J.S. Sebastianpillai</i>
Testing the Anti-Inflammatory activity of a Sri Lankan traditional medicine tonic using albumin denaturation assay <i>J.F. Zakiya, G.L.S. Galgamuwa, N. Kumarasinghe, A.R.N. Silva &amp; U. Siriwardene</i>	Investigating the reason for customers selecting Traditional as opposed to Modern Retailing in Sri Lanka <i>A.A.M. Usman, A. Shimaz., T.F.M. Aashiq</i>
An Alternative Therapy for Bone Defects: Differentiating Umbilical Cord Derived Mesenchymal Stem Cells to Osteogenic Cells <i>F.Z Mansoor, H.W.W. Goonesekera, V.H.W. Dissanayake</i>	Upgrading Organizational Performance through Employee Motivation <i>J.C.P. De Zoysa, K.A.S.J. Arachchige</i>
Evaluating the performance of Artificial Neural Network (ANN) classifiers to identify the communicable diseases in Kandy District <i>R. Vijayakumar</i>	The Relationship between Followership Styles and Job Performance <i>A. Dilshani AKDN, B. Herat UL</i>

# Programme

Time	Hall 1
12:30 - 1:30	<b>LUNCH BREAK</b>
1:30 - 2:00	<b>Keynote 2 - It's not what you know, it's what you can prove</b> <i>Keith Blizzard, BSc(Hons) DipArb FRICS FCIOB FCIArb CARb FFB MEWI HonFQSi Partner</i>
2:00 - 2:15	Independence of the Judiciary; As the Courts see it <i>K.C. Hapuarachchi</i>
2:15 - 2:30	Rights of Street Children and their protection: A study (critical study) of applicable laws in preventing misused for begging activities in Sri Lanka <i>Anjalee Sandamini Weesinghe</i>
2:30 - 2:45	Children Raised in Prisons with their Incarcerated Mothers in Sri Lanka: A Human Rights Perspective <i>Randima Nishalika Herath</i>
2:45 - 3:00	E-learning Adaption of Farmers - Case Study in Sri Lanka <i>N.P. Vidanapathirana, S.L. Nawarathna, &amp; S.A.P. Nelka</i>
3:00 - 3:15	Understanding Good Carriers (Natami) as a Sustainable Urban Mobility Practice for Climate Change Adaptation through the case of Pettah, Sri Lanka <i>Nayomi H.H.K.R., Mahanama P.K.S</i>
3:15 - 3:30	Circular Economy – The Challenge We Must Face <i>R.Suomi</i>
3:30 - 3:45	<b>TEA BREAK</b>
3:45 - 4:00	Estimation of Machinery Vibration Signatures Transferred to Ship's Hull using Spectrum Analysis <i>D.M.P.M. Dasanayaka, P.A.B.A.R. Perera</i>
4:00 - 4:15	Reusing and recycling urban/industrial ('brownfield') land and the development of the 'UK Midlands Engine' <i>M.A. Fullen, P. Hampton, and S. Suresh</i>
4:15	<b>CLOSING</b>

Hall 2	Hall 3
The Impact of Social Media use on Academic Performance at XYZ Higher Education Institute <i>K.A.S.J. Arachchige</i>	To Study the Impact of Managerial Skills on Subordinates' Job Satisfaction (Case Study on Garment Industry - Sri Lanka) <i>A. Dilshani AKDN, B. Herat UL</i>
Improving Traveling and Lifestyle Efficiency by applying Machine Learning <i>P.K. Dhilshan</i>	Customer Satisfaction on Internet Banking Services in Sri Lanka <i>R.A Rathnasiri</i>
Sensory Device for People with Visual Impairment – 'SMART EYE' <i>Tuan Anis Saboordeen</i>	Identifying and Analyzing Corporate Governance Structures of Financial Institutions in Sri Lanka <i>J.C.P. De Zoysa, A. Theshan Alwis</i>
Application of GoogleMaps for Sri Lanka's logistics industry <i>Varuna Gunasekara</i>	Positive Psychological Capacities and Performance of academic staff, study in Engineering Diploma institutes in Sri Lanka <i>H.G.P. INDIRA</i>
An analytical approach to the selected songs of popular music based on the concepts of Existentialism <i>A.D.N.P Amarasooriya</i>	Identify and Analyse the Impact of Trademark Portfolio Management on Customer Equity in B2B Context: A Case Study of XYZ Tea Exporting Company <i>J.C.P. De Zoysa, K.A.P.M.S. Jayachandra</i>
Effective communication in construction industry <i>Ashen Nayanageeth Dharmadasa</i>	

## Notes





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ISSN 2465-6542



9 772465 654005

ISBN 9789557971018



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