

2018 IST-Africa Week Conference (IST-Africa 2018)

**Gaborone, Botswana
9 – 11 May 2018**



**IEEE Catalog Number: CFP1830K-POD
ISBN: 978-1-5386-7165-8**

**Copyright © 2018, IST-Africa Institute / International Information Management Corporation (IIMC)
All Rights Reserved**

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP1830K-POD
ISBN (Print-On-Demand):	978-1-5386-7165-8
ISBN (Online):	978-1-905824-60-1
ISSN:	2576-859X

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

FIGHTING UNEMPLOYMENT THROUGH JAVA INTERNSHIPS: CREATING A PATH TO SOFTWARE DEVELOPMENT THROUGH TEST AUTOMATION	1
<i>Laurie Butgereit</i>	
TOWARDS INFORMATION SECURITY SAVVY STUDENTS IN INSTITUTIONS OF HIGHER LEARNING IN AFRICA: A CASE OF A UNIVERSITY IN KENYA	9
<i>Joshua Rumo Ndiege ; Gabriel Okello</i>	
A CRITICAL REVIEW OF ELEARNING RESEARCH TRENDS IN TANZANIA	17
<i>Joel S. Mtebe ; Christina Raphael</i>	
LESSONS LEARNED IN AN EXPERIMENT COMPARING PDF FORMAT AND EPUB FORMAT IN AN ARABIC LANGUAGE SECONDARY LEVEL GRADE 2 BIOLOGY CLASSROOM IN KHARTOUM	29
<i>Muna Abu Gosseisa ; Laurie Butgereit</i>	
ASSESSMENT OF RADIO-FREQUENCY RADIATION EXPOSURE LEVELS: A CASE OF SELECTED MOBILE BASE STATIONS IN DAR ES SALAAM, TANZANIA	36
<i>Zaituni Kaijage ; Mussa Kissaka</i>	
ACCESS CONTROL MODEL FOR E-HEALTH IN A CLOUD-BASED ENVIRONMENT FOR HIV PATIENTS IN SOUTH AFRICA	44
<i>Nureni Ayofe Azeez ; Charles Van der Vyver</i>	
A MOBILE TELEHEALTH APPLICATION FOR RURAL NAMIBIA	56
<i>Aliyu Rabiou Dansharif ; Nomusa Dlodlo ; Nikodemus Angula</i>	
SHARED WIRELESS ACCESS POINT SECURITY IN A HYBRID STAR TOPOLOGY USING PRIMARY HOST AUTHENTICATION: A CASE STUDY OF NAITES WI-FI	65
<i>Moses Adah Agana ; Ruth Wario ; Onyeye Idoko</i>	
A PROPOSED ARCHITECTURE FOR DISTRIBUTED INTERNET EXCHANGE POINTS IN DEVELOPING COUNTRIES	73
<i>Diarmuid Ó. Briain ; David Denieffe ; Yvonne Kavanagh ; Dorothy Okello</i>	
ASSISTING TOURISM IN UNDERSERVED AREAS WITH TENSORFLOW: A PROOF-OF-CONCEPT MOBILE APP	83
<i>Laurie Butgereit ; Laura Martinus</i>	
INFLUENCE OF THE LEADER AS A DEVELOPER ON E-READINESS ACCESSION IN HIGHER EDUCATION INSTITUTIONS IN KENYA	90
<i>Mwirigi Kiula ; Esther Waiganjo ; John Kihoro</i>	
SIGN LANGUAGE GESTURE RECOGNITION THROUGH COMPUTER VISION	100
<i>Casam Njagi Nyaga ; Ruth Diko Wario</i>	
A MODEL TO MITIGATE SESSION HIJACKING ATTACKS IN WIRELESS NETWORKS	108
<i>Enos Letsoalo ; Sunday Ojo</i>	
FROM SUSTAINABLE TO CONTINUOUSLY ADAPTIVE INFORMATION SYSTEMS	118
<i>Flora Nah Asah ; Patrick Chikumba ; Jens Kaasbøll ; Ayub Many ; Chris Moyo ; Brown Msiska ; Wilfred Senyoni</i>	
AN OPEN-SOURCE TOOL-SET FOR MEANINGFUL MONITORING AND VISUALISATION OF RURAL ICT PROJECTS	128
<i>Kim Gush</i>	
USING PATIENT INFORMATION SYSTEMS FOR PRIMARY HEALTH CARE IN HOSPITALS – IMPLICATIONS FOR DATA STRUCTURES AND USER INTERACTION	136
<i>Zufarzhon Ismanov ; Mari Iversen ; Jens Kaasbøll ; Tiwonge Manda ; Ilia Ni</i>	
A CROSS-CULTURAL COMPARISON OF DESIGN FEATURE PREFERENCES REQUIRED FOR A STROKE TELE-REHABILITATION SYSTEM	146
<i>Charmayne Hughes ; Tatiana Mariscal ; Michael Sera ; Jonathan Ontiveros ; Aaron Encarnacion ; Alejandra Padilla ; Amy Hintze ; Tony Peng ; Lok Yi Lo ; Sam Warner ; Zeus A. Cruz ; Brian Ling ; Sven Weidner ; Kedir Sany ; Moges Baye</i>	
MPOWERED SYSTEM FOR COMPREHENSIVE HEALTH CARE PROVIDER FOCUSED INTIMATE PARTNER VIOLENCE CARE	154
<i>Tatiana Mariscal ; Michael Sera ; Jonathan Ontiveros ; Tony Peng ; Lok Yi Lo ; Alejandra Padilla ; Amy Hintze ; Sam Warner ; Zeus A. Cruz ; Brian Ling ; Sven Weidner ; Emerald Mann ; Charmayne Hughes</i>	
THE RACE TOWARDS QUANTUM SECURITY	162
<i>Yaseera Ismail ; Francesco Petruccione</i>	

PRE-PROCESSING AND FEATURE EXTRACTION TECHNIQUE FOR HAND-DRAWN FINITE AUTOMATA RECOGNITION	169
<i>Kehinde Aruleba ; Sigrid Ewert ; Ian Sanders ; Mpho Raborife</i>	
A FRAMEWORK FOR USER AWARENESS AND ACCEPTANCE OF SMART CARD AND FINGERPRINT-BASED ACCESS CONTROL TO MEDICAL INFORMATION SYSTEMS IN SOUTH AFRICA.....	178
<i>Mapula E. Maeko ; Dustin T. Van Der Haar</i>	
LOW-COST IOT SOLUTIONS FOR FISH FARMERS IN AFRICA	186
<i>Charlotte Dupont ; Amos Wussah ; Sadouanouan Malo ; Ousmane Thiare ; Farokh Niass ; Congduc Pham ; Samuel Dupont ; Franck Le Gall ; Philippe Cousin</i>	
A CONCEPTUAL INTEGRATED MODEL FOR MEASURING THE SUCCESS OF ELEARNING IN DEVELOPING COUNTRIES: LITERATURE REVIEW.....	194
<i>Pozisa Manisi ; Mmaki Jantjies ; Lydia Kimani</i>	
DOCUMENT MANAGEMENT SYSTEMS – LEGISLATIVE COMPLIANCE, GOOD GOVERNANCE AND MUNICIPAL PRACTICE.....	203
<i>Silma Koekemoer ; Rossouw Von Solms</i>	
THE USE OF GIT AS VERSION CONTROL IN THE SOUTH AFRICAN SOFTWARE ENGINEERING CLASSROOM.....	213
<i>Frans F. Blauw</i>	
FUZZY LOGIC SENSOR FUSION FOR OBSTACLE AVOIDANCE MOBILE ROBOT	221
<i>Aggrey Shitsukane ; Wilson Cheruiyot ; Calvin Otieno ; Mgala Mvurya</i>	
USING WHATSAPP TO SUPPORT COMMUNICATION IN TEACHING AND LEARNING.....	229
<i>Martin Mabeifam Ujakpa ; Delene Heukelman ; Victoria Kaleinasho Lazarus ; Petsy Neiss ; G. D. Rukanda</i>	
REAL-TIME DRIVER ADVISORY MODEL: INTELLIGENT TRANSPORTATION SYSTEMS.....	235
<i>James Obuhuma ; Henry Okoyo ; Sylvester Mcoyowo</i>	
WHAT IS THE IMPACT OF DIGITAL FINANCIAL SERVICE ON AGRIBUSINESS MARKET RISK?	246
<i>Thabo Gopane</i>	
TIME-COST EFFECTIVE ALGORITHMS FOR CLOUD WORKFLOW SCHEDULING - EXTENSION OF AN EARLIER WORK.....	253
<i>V. Lakshmi Narasimhan ; V. S. Jithin</i>	
AUTOMATIC ATTENDANCE CAPTURING USING HISTOGRAM OF ORIENTED GRADIENTS ON FACIAL IMAGES.....	267
<i>Abejide Ade-Ibijola ; Kehinde Aruleba</i>	
MINIMISING BLACK HOLE ATTACKS TO ENHANCE SECURITY IN WIRELESS MOBILE AD HOC NETWORKS.....	275
<i>Gibson Chengetanai</i>	
AMBIENT LEARNING - KNOWLEDGE AS A SERVICE MODEL: TOWARDS THE ACHIEVEMENT OF SUSTAINABLE DEVELOPMENT GOAL FOUR.....	282
<i>Richard Gicharu Karanja ; Simon Nyaga Mwendia</i>	
PORTING BACIS DECISION SUPPORT SYSTEM FOR ANTENATAL CARE ONTO OPENMRS.....	290
<i>Vincent Horner ; Cheten Mashingaidze</i>	
A REVIEW OF APPLICATIONS OF IMAGE ANALYSIS AND MACHINE LEARNING TECHNIQUES IN AUTOMATED DIAGNOSIS AND CLASSIFICATION OF CERVICAL CANCER FROM PAP-SMEAR IMAGES.....	299
<i>Wasswa William ; Annabella Habinka Basaza-Ejiri ; Johnes Obungoloch ; Andrew Ware</i>	
PERCEIVED IMPACT OF DEVOLVED HEALTH SERVICES ON IMPLEMENTATION OF DHIS2 IN KENYA: A QUALITATIVE STUDY	310
<i>Josephine Karuri ; Peter Waiganjo ; Daniel Orwa</i>	
PREVENTING UTILIZATION OF SHARED NETWORK RESOURCES BY DETECTING IP SPOOFING ATTACKS THROUGH VALIDATION OF SOURCE IP ADDRESS.....	319
<i>Hussein Lema ; Fatuma Simba ; Abdulla Ally</i>	
SOUTH AFRICA’S E-SKILLS POLICY. FROM E-SKILLS TO MEDIA LITERACY?	327
<i>Leo Van Audenhove ; Ilse Marien ; Leona Craffert ; Wouter Grove</i>	
DEVELOPING AN ACCREDITATION SYSTEM TO RECOGNIZE COMPETENCE IN MATHEMATICS EDUCATION STUDENTS IN GERMANY	338
<i>Melanie Platz ; Marlien Herselman</i>	
EVALUATING QUALITY OF SERVICE FOR SHORT MESSAGE SERVICE AS A PLATFORM TO TRANSMIT SEISMIC DATA IN EARTHQUAKE EARLY WARNING SYSTEM	347
<i>Eva Shayo ; Alfred Mwambela ; Shamte Kawambwa</i>	

FACILITATING GROUP LEARNER PARTICIPATION USING INTELLIGENT AGENTS IN COLLABORATIVE M-LEARNING	353
<i>Stephen Njenga ; Robert Oboko ; Elijah Omwenga ; Elizaphan Maina</i>	
A REVIEW OF NEW TRENDS IN CYBER ATTACKS: A ZOOM INTO DISTRIBUTED DATABASE SYSTEMS	361
<i>Attlee M. Gamundani ; Lucas M. Nekare</i>	
EVALUATING MACHINE LEARNING TECHNIQUES FOR IMPROVED ADAPTIVE PEDAGOGY	370
<i>Methembe Dlamini ; Wai Sze Leung</i>	
IT GOVERNANCE STEERING COMMITTEE, IT COMPETENCE AND IT GOVERNANCE PERFORMANCE IN UGANDAN PUBLIC UNIVERSITIES	380
<i>Sonny Nyeko ; Moses Niwe ; Musa Moya ; Geoffrey Kituyi</i>	
A STATISTICAL APPROACH TO ERROR CORRECTION FOR ISIZULU SPELLCHECKERS.....	389
<i>Frida Mjaria ; C. Maria Keet</i>	
TAS: RISK ANALYSIS & CLUSTERED SENSORS	398
<i>Alfredo M. Ronchi</i>	
FACTORS IMPACTING THE DESIGN OF A MOBILE APPLICATION FOR SOIL MANAGEMENT: A CASE STUDY OF THE EASTERN CAPE CROPS	408
<i>Stephan Botha ; Darelle Van Greunen</i>	
IOT STANDARDS FOR AFRICA AND SUSTAINABLE DEVELOPMENT GOALS (SDGS).....	416
<i>Philippe Cousin ; Franck Le Gall ; Congduc Pham ; Nelson Malaguti ; Pierre-Yves Danet ; Sebastien Ziegler</i>	
UNIFIED COOPERATIVE POPULATION IDENTIFICATION ARCHITECTURE TO ENHANCE THE NATIONAL IDENTITY ECOSYSTEM OF DEVELOPING COUNTRIES	424
<i>Stefanus Van Staden ; Paulus Sheetekela</i>	
THE IMPACT OF DEMOGRAPHIC FACTORS TO THE ADOPTION OF SOCIAL COMMERCE IN TANZANIA	432
<i>Edison Wazoel Lubua ; Philip Pretorius</i>	
PERCEPTIONS OF ONLINE BANKING CUSTODIANS ON SYSTEM DEVELOPMENT AND USER BEHAVIOUR: AN EMPIRICAL STUDY.....	444
<i>Mathias Mujinga ; Mariki M. Eloff ; Jan H. Kroeze</i>	
AN INTEGRATED MULTI-FUNCTION INFORMATION SYSTEM MODEL FOR LIVESTOCK STAKEHOLDERS	453
<i>G. Mwanga ; Z. Yonah ; M. G. G. Chagunda</i>	
CHALLENGES BOTSWANA’S MOBILE APPLICATION DEVELOPERS ENCOUNTER: FUNDING, COMMERCIAL AND TECHNICAL SUPPORT	461
<i>Admore Nyamaka ; Adele Botha ; Judy Van Biljon ; Mario Marais</i>	
ANN-MIND: A COMPARATIVE STUDY ON THE TRAINING OF NEURAL NETWORKS WITH INCOMPLETE DATASETS	471
<i>Tshilidzi Mudau ; Duncan Coulter</i>	
INVESTIGATION OF A CO-DESIGN APPROACH FOR A CIVIC ENGAGEMENT MOBILE APPLICATION	479
<i>Cabangile Khumalo ; Shaun Pather</i>	
RDSMS – A SOUTH AFRICAN RESEARCH AND DEVELOPMENT SURVEY MANAGEMENT SYSTEM.....	488
<i>Louis Engelbrecht ; Coral Featherstone ; Pule Matyila ; Kirsten Du Toit ; Thomas Fogwill ; Ronell Alberts</i>	
PROMOTING WOMEN ICT START-UPS TO ACCELERATE WOMEN’S ECONOMIC EMPOWERMENT: A CASE OF STRATHMORE UNIVERSITY-@IBIZAFRICA.....	496
<i>Tracy Weru ; Joseph Sevilla ; Bernard Chiira ; Linda Kwamboka ; Alexander Kennedy ; Sarah Oyungu</i>	
BATTERY AND DATA DRAIN OF OVER-THE-TOP APPLICATIONS ON LOW-END SMARTPHONES	502
<i>Shree Om ; William D. Tucker</i>	
CHALLENGES FACED BY ZAMREN’S AFFILIATES IN THE PROVISION OF E-LEARNING: A CROSS-COUNTRY ANALYSIS	515
<i>Mbuyu Sumbwanyambe ; Jervas Mwiinga</i>	
GOVERNMENT FACILITATED ACCESS TO ICTS: ADOPTION, USE AND IMPACT ON THE WELL-BEING OF INDIGENT SOUTH AFRICANS	523
<i>Rashidi F. Kassongo ; William D. Tucker ; Shaun Pather</i>	
ADAPTIVE ALGORITHM FOR PARAMETERIZATION OF FEATURE EXTRACTION TECHNIQUES IN REMOTE SENSING IMAGE PROCESSING	533
<i>Edmore Chikohora ; Attlee Gamundani ; Teressa Chikohora</i>	

CONDITION MONITORING AND REPORTING FRAMEWORK FOR WIRELESS SENSOR NETWORK-BASED AUTOMATIC WEATHER STATIONS	543
<i>Mary Nsabagwa ; Isaac Mugume ; Robert Kasumba ; Joshua Muhumuza ; Steven Byarugaba ; Eugene Tumwesigye ; Julianne Sansa Otim</i>	
GRADE MONITORING SYSTEM: A PROTOTYPE FOR THULAMELA SECONDARY SCHOOLS	551
<i>Pardon Takalani Ramazhamba ; Thulani Mashiane ; Zama Dlamini</i>	
KNOWLEDGE SOCIETY FOR AFRICA: ICT DEVELOPMENT IN THE EDUCATION SECTOR IN NAMIBIA	565
<i>Aletta Mweneni Hautemo ; Gabriel Neepo Uunona</i>	
ENHANCING PRIVACY IN SOCIAL NETWORKS SYSTEMS USING HOMOMORPHIC CRYPTOGRAPHIC TECHNIQUES IN UBIQUITOUS COMPUTING ENVIRONMENT	574
<i>Maduhu Mshangi ; Kosmas Kapis ; Joseph Cosmas</i>	
THE ROLE OF ICT IN ELECTORAL PROCESSES: CASE OF KENYA	583
<i>Elyjoy Micheni ; Julius Murumba</i>	
AN ANALYSIS OF COAP AS TRANSPORT IN AN INTERNET OF THINGS ENVIRONMENT	594
<i>Louis Coetzee ; Dawid Oosthuizen ; Buhle Mkhize</i>	
AN EVALUATION OF HEALTH INFORMATION SYSTEMS (HIS) FOR NAMIBIA	601
<i>Suama Hamunyela ; Nobert Jere</i>	
ASSESSING THE PRESENCE OF INNOVATION ELEMENTS IN COMPETITIONS AND AWARDS EVENTS IN TANZANIA	609
<i>Angelina Misso ; Christine Mwase ; Moses Ismail ; Eva Shayo ; Diana Rwegasira ; Mussa Kissaka</i>	
BLOCKCHAIN TECHNOLOGY: IS THIS THE SOLUTION TO EMR INTEROPERABILITY AND SECURITY ISSUES IN DEVELOPING COUNTRIES?	618
<i>Gabriel Kamau ; Caroline Boore ; Elizaphan Maina ; Stephen Njenga</i>	
FACTORS MOTIVATING THE ADOPTION OF SELF-HEALTHCARE MONITORING MOBILE APPLICATIONS BY THE SOUTH AFRICAN YOUTH	626
<i>Patrick Ndayizigamiye ; Tom Cyprian Soni ; Ntabeni Jere</i>	
EMERGING OUTCOMES OF OPEN DATA IN TANZANIA: A CASE OF THE TANZANIA DATA LAB	633
<i>Moses Ismail ; Godfrey Justo ; Mussa Kissaka ; Zaituni Kaijage</i>	
SEMANTIC INTEROPERABILITY MIDDLEWARE ARCHITECTURE FOR HETEROGENEOUS ENVIRONMENTAL DATA SOURCES	641
<i>Adeyinka K. Akanbi ; Muthoni Masinde</i>	
ELECTRONIC VOTING SYSTEM FOR UNIVERSITY STUDENT ELECTIONS: THE CASE OF KABARAK UNIVERSITY, KENYA	651
<i>Moses Thiga ; Vincent Chebon ; Shem Kiptoo ; Emmanuel Okumu ; Daniel Onyango</i>	
SDN-ENABLED INFRASTRUCTURE SHARING IN EMERGING MARKETS: CAPEX/OPEX SAVINGS OVERVIEW AND QUANTIFICATION	662
<i>Lusani Mamushiane ; Albert A. Lysko ; Sabelo Dlamini</i>	
WHAT THEORY OF CHANGE CAN CONTRIBUTE TO CAPABILITY APPROACH: TOWARDS EVALUATING ICT-ENABLED INTERVENTIONS	672
<i>Mathew Egessa ; Samuel Liyala ; Solomon Ogara</i>	
UNDERSTANDING THE EFFECTS OF DECENTRALIZATION ON HEALTH INFORMATION SYSTEMS IN DEVELOPING COUNTRIES: A CASE OF DEVOLUTION IN KENYA	683
<i>Ayub Manyo ; Sundeep Sahay ; Jørn Braa ; Belina Shisia</i>	
A METAPHOR-DRIVEN INTERACTIVE MULTIMEDIA SIMULATION FOR TEACHING AND LEARNING OF PROGRAMMING CONCEPTS	694
<i>Tebatso Moape ; S. Ojo ; Etienne Van Wyk</i>	
ANALYSING THE RELATIONSHIP BETWEEN THE USE OF ICTS AND FOOD INSECURITY IN SMALLHOLDER FARMER HOUSEHOLDS	706
<i>Joseph Ntabeni Jere ; Patrick Ndayizigamiye</i>	
A FRAMEWORK TO MITIGATE WATER BILLING INFORMATION SYSTEMS INTEGRATION CHALLENGES AT MUNICIPALITIES	712
<i>Avuyile Naki ; Duane Boucher ; Ogochukwu Nzewi</i>	
MEASURING CYBERSECURITY WELLNESS INDEX OF CRITICAL ORGANISATIONS	723
<i>Husin Jazri ; Omar Zakaria ; Edmore Chikohora</i>	
INTEGRATED SYSTEM FOR HEALTH SERVICES MANAGEMENT	731
<i>M. Padoca Calado ; Ana Ramos ; Dikiefu Fabiano</i>	
ONLINE VOTING SYSTEM WITH RELIABLE VOTER AUTHENTICATION PROTOCOLS	736
<i>Julius Mutebi ; Emily Bagarukayo ; Ivan Ssempebwa ; Michael Kalanda</i>	

AN EXPERT SYSTEM FOR MALARIA DIAGNOSIS USING THE FUZZY COGNITIVE MAP ENGINE	745
<i>Faith-Michael E. Uzoka ; Boluwaji Ade Akinnuwesi ; Taiwo Amoo ; Fikru Debele ; Gbenga Fashoto ; Chinyere Nwafor-Okoli</i>	
IMPLEMENTING FINANCIAL MANAGEMENT INFORMATION SYSTEMS IN LOCAL GOVERNMENTS: A MODEL OF SUCCESS FACTORS	758
<i>Doreen Sakwa ; Gilbert Maiga</i>	
CDE FOR ICT INNOVATION THROUGH THE IOT BASED IGRID PROJECT IN TANZANIA	770
<i>Diana Rwegasira ; Aron Kondoro ; Amleset Kelati ; Imed Ben Dhaou ; Nerey Myungi ; Hannu Tenhunen</i>	
MAJOR SECURITY INCIDENTS SINCE 2014: AN AFRICAN PERSPECTIVE	779
<i>Renier Van Heerden ; Sune Von Solms ; Johannes Vorster</i>	
COMMUNITY CLIMATE SERVICES FOR SMALL-SCALE FARMERS IN TANZANIA	790
<i>Jaakko Helminen ; Ville Myllynpää ; Mikko Apiola ; Moammar Dayoub ; Tomi Westerlund ; Erkki Sutinen</i>	
HOW TO TRAIN A DATA SCIENTIST FOR THE GLOBAL SOUTH?	799
<i>Eeva Nygren ; Martti Sutinen ; Tomi Westerlund ; Erkki Sutinen</i>	
DEVELOPING A CYBER-INFRASTRUCTURE FOR ENHANCING REGIONAL COLLABORATION ON EDUCATION, RESEARCH, SCIENCE, TECHNOLOGY AND INNOVATION	809
<i>Tshiamo Motshegwa ; Colin Wright ; Happy Sithole ; Chungu Ngolwe ; Anneline Morgan</i>	
VISUALISATION OF BIG DATA IN AGRICULTURE AND RURAL DEVELOPMENT	818
<i>Karel Jedlička ; Karel Charvát</i>	
TOWARDS THE BUILDING OF A ROBUST NATIONAL DATABASE INFRASTRUCTURE (NSDI) DEVELOPING COUNTRY NEEDS: BOTSWANA CASE STUDY	826
<i>Joyce Gosata Maphanyane ; Boipuso Nkwae ; Tshiamiso S. Oitsile ; Thebeethata Serame ; Jakoba Kgopolelo</i>	
RECONSTRUCTION OF HISTORICAL LANDSCAPES: AN ALTERNATIVE APPROACH TO MONITOR LAND COVER CHANGE	845
<i>Joyce Gosata Maphanyane</i>	
Author Index	