GRADUATE RESEARCH OUTPUT

2016

Doctoral and Masters Research Theses Abstracts 2016

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UNIVERSITY OF SCIENCE
AND TECHNOLOGY

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December 2016
Key Tittle: Graduate Research Output 2016
Masinde Muliro University of Science and Technology

Key Title: Research Output
Abbreviation key title: GRO MMUST
Volume. 1. No. 1 December, 2016

Graduate Research Output 2016

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The Graduate Research Output is a compilation of Doctoral and Masters abstracts for graduate theses at Masinde Muliro University of Science and Technology. The publication organizes abstracts representing the graduates scholarly works in English and Kiswahili.

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MESSAGE FROM THE VICE CHANCELLOR

With pleasure I congratulate the 2016 graduates who have completed their research successfully. I recognize the hard work of the students at Masters and PhD levels that has finally seen the light of day. Indeed, the tenacity of both the students and their supervisors is highly appreciated. Hongera.

The University is soliciting for partnerships and collaboration to facilitate research for social development for our students. We believe that research should have an impact for society and contribute to sustainable development in our communities. We will, as a University, continually explore ways to make our training efficient, effective and more relevant to the needs of Kenya and indeed mankind. We believe this will be achieved through meaningful research.

Let me wish all the researchers the best in everything that they set out to do.Once again, Congratulations.

God bless MMUST,

God bless our Scholars,

God bless our Country, Kenya.

Prof. Eng. F.A.O Otieno, PhD, FAAS
Vice Chancellor,
Masinde Muliro University of Science and Technology.

TABLE OF CONTENTS

ITEM	Page
External Actor Influence on Somalia Peace Building Process ONGOMA Otieno Calleb with Supervisors Prof. Potian G. Okoth, Ph.D. Prof. Frank Matanga, Ph.D.	36
Management of Gender-Based Violence Affecting Students in Kenyan University WAFULA Adikinyi Judith with Supervisors Dr. Janet Kassilly, Ph.D and Prof. Judith Achoka, Ph.D.	36
State and Civil Society Interventions in Post-Conflict Reconstruction: A Comparative Study of Kibera and Mathare Slums Nairobi, Kenya WAMALWA Nyongesa Dennis with Supervisors Prof. Frank Matanga, Ph.D Prof. Kennedy Onkware, Ph.D	37
Security-Based Diplomacy Influencing Transnational Terrorism Management between Kenya and Somalia CHUMBA Christopher with Supervisors Prof. Potian G. Okoth, Ph.D. and Dr. Edmond Were, Ph.D.	37
Peace building Diplomacy Influencing Management of Territorial Boarder Natural Resource-Use Conflict Between Kenya and Ethiopia KIMOKOTI Namaemba Sussy With Supervisors Prof. Pontian G. Okoth, Ph.D. and Prof. Edmond Were, Ph.D.	38
Territorial Boundaries and Conflict Management With Specific Reference To Elemi Triangle, Eastern Africa Joseph Eroo Mele with Supervisors Prof. Pontian Godfrey Okoth, Ph.D and Prof. Frank Khachina Matanga	39
Military Professionalism Influencing Anglo-Kenyan Diplomatic Relations Since 1963 ELIJAH Onyango Standslause Odhiambo with Supervisors Prof. Pontian G. Okoth, Ph.D. and Dr. Edmond Maloba Were, Ph.D.	39
Applying Track Three Diplomacy to The Management of Cross-Boarder Security Relations Between Kenya and Somalia STELLA Wasike with Supervisors Prof. Pontian Godfrey Okoth, Ph.D and Dr. Edmond Were, PhD	40
Modelling Land use Change and Sediment Yield for Disaster Preparedness in River Nzoia Basin, Kenya AKALI Ngaywa Moses with Supervisors Prof. Silvey B.B. Oteng'I, Ph.D. and Dr. Edward N. Masibayi, Ph.D.	41
Evaluation of Selected Human, Physical and Environmental Risk Factors for Road Accidents in Uasin Gishu and Bungoma Counties –Kenya WAPUKHA Makhumi Jason with Supervisors Prof. Jacob W. Wakhungu, Ph.D. and Prof. (Eng) Richard O. Onchiri, Ph.D.	42
Hydrologic Modeling for Management of Yala River Flood Flows, Western Kenya WANYONYI Sabuni Enock with Supervisors Prof. Jacob W. Wakhungu, Ph.D. and Dr. Kiluva Mwikali, Ph.D.	44
Factors Leading to Structural Failure of the Hot Mix Asphalt Pavement Along Timboroa to Malaba Class 'A' Road in Kenya SAMUEL Gathuka Waweru with Supervisors Prof. Richard O. Onchiri, PhD and Dr. Edward N. Masibayi, PhD	45
FACULTY of EDUCATION and SOCIAL SCIENCES	46
Influence of Selected Teacher Instructional Strategies in Students' Learning Outcomes in Mathematics in Secondary Schools of Mumias Sub-County, Kakamega County, Kenya NANDWA Odhiambo Marble with Prof. William Wanjala Toili, Ph.D. and Dr. Duncan Wasike Wekesa, Ph.D.	46

ITEM	Page
Peer Instruction and Secondary School Students' Perfomance in Vectors in Bungoma County in Kenya OUKO Awino Susan with Prof. Amadalo M. Musasia, Ph.D. and Dr. Aurah M. Catherine, Ph.D	46
Influence of Continuing Professional Development Programmes on Secondary School Managers' Competencies in Management of Resources in Western Kenya BULIMO Anne Winnie with Supervisors Dr. Judah Ndiku and Prof. Julius Maiyo	47
Performance Contracting and Service Delivery in Public Primary Teachers Training Colleges in Kenya KIPKENEI Kipsemon Simon with Supervisors Dr. Ndiku Judah, Ph.D. and Prof. Maiyo Julius, Ph.D.	48
School Characteristics and Students' Dropout in Public Secondary Schools in Vihiga County, Kenya SHAVISA Tom with Supervisors Dr. Judah Ndiku, Ph.D. and Prof. Maurice Amadalo, Ph.D.	49
Relationship Between Subsidized Free Day Secondary Education and Student Retention in Secondary Schools in Kenya ASENA Muganda James with Supervisors Prof. AggreyM ukasa Simiyu, Ph.D. and Dr. Adrew Riechi, Ph.D.	50
Examination Policies and their Influence on Quality of Education in High Schools in Central Region of Uganda OBOKO Mark With Supervisors Dr. Zipporah S. Sisungo and Dr. Samuel N. Maragia, PhD	50
Effects of Integrated and Regular Teaching Methods on Students' Academic Achievement and Attitude Formation in Physics on Cells and Simple Circuits in Nandi County MAJERE Inzahuli Samuel With Supervisors Prof. Aggrey Mukasa Simiyu and Prof. Amadalo Maurice Musasia, PhD	51
FACULTY of SCIENCE	
Thermodynamic properties of High Temperature Superconductor Cuprates due to Interactions Between Cooper Pairs and Electrons ODHIAMBO Oloo Jared With supervisors Prof. Thomas W.Sakwa, Ph.D. and Prof. Yudah K. Ayodo, Ph.D.	52
Generating Measurable Covers and Partition of Measurable Sets in R OLWAMBA Otanga Levi with Supervisors Prof. Shem Away, Ph.D. and Dr. Maurice Owino Oduor, Ph.D.	52
Influence of elderly caregivers livelihoods recovery from effects of the AIDS disaster in Garissa County, Kenya Mutere Betty with supervisors Prof. Jacob Wakhungu, PhD, Dr. Edward Masinde Neyole, PhD and Dr. Moses Poipoi, PhD	53
RESEARCH ABSTRACTS FOR THE MASTERS THESES FOR GRADUATES of THE 11TH GRADUATION, MMUST	54
FACULTY of EDUCATION and SOCIAL SCIENCES	54
Composite Instructional Method and its Effect on Secondary School Students Performance and Attitude Formation in Fluid Flow Physic Kwalia Cornelius Kibet with Supervisors Dr. Aurah Catherine and Prof. Amadalo M. Musasia, PhD	54

ITEM	Page
Effects of Land Use Changes on Runoff and Sediment Yield in The Upper River Nzoia Catchment Maloba Joab Joseck with Supervisors Dr. Njenga Mburu, PhD and Dr. Alex Khaemba, PhD	89
Water Demand Determinants and Forecasting For Nzoia Cluster Services Area Munialo Patrick Wanyonyi with Supervisors Dr. Caroline K. Onyancha, PhD and Prof. Basil Tito Iro Ong'or, PhD	90
Contribution of Production Industries to Disaster Preparedness in Mumias and Thika Town, Kenya Imboba Khabetsa N. Immaculate with Supervisors Dr. Stanely Omuterema, Ph.D. and Dr. Edmond Were Ph.D.	91
Fire Hazards Influencing Vulnerability in Kibera Informal Settlement, Nairobi County, Kenya Koome Agnes Enid K. with Supervisors Prof. Jacob W. Wakhungu, PhD and Dr. Stanley O. Omuterema, PhD	92
Impact of Inter-Agency Logistics Planning To Management of Relief Food Aid in Turkana County, Kenya Mudekhere Stephen Muchaki with Supervisors Dr. Stanley O. Omuterema and Dr. Edmond Were Ph.D	92
Post-Conflict Parenting Strategies Influencing Primary School Pupils' Academic Achievements in Sigowet and Nyakach Sub Counties, Kenya Nyongesa Wafula Herbert with Supervisors Prof. Jacob W. Wakhungu, PhD and Dr. Samuel N. Maragia, PhD	93
Cerebral Palsy and its Influence on Psychosocial Wellbeing of Families in Lang'ata Sub-County, Nairobi Kenya Oluchiri Judith O. J. with supervisors Dr. Samuel N. Maragia, PhD and Dr. Wycliffe Oboka, PhD	94
The Role of Public Awareness Campaigns on Fire Disaster Risk Reduction in Nairobi County Kenya Alai Kennedy Ouko with supervisors Dr. Stanley Omuterema, Ph.D. and Dr. Joseph Gweyi, Ph.D.	95
Influence of Domestic Water and Selected Anthropogenic Activities on Quality of Cattle Milk in Kakamega County. Khalembi Agripinah Muranditsi with Supervisors Prof. Jacob W. Wakhungu and Dr. Donald N. Siamba	96
Cross Border Immigration Management Strategies Contributing To Human Trafficking Between Kenya and Uganda Ketoyo Fiona Ajema with Supervisors Prof. Pontian G. Okoth, PhD and Dr. Edmond Were, PhD	97
The role of Urban Agriculture in Enhancing Nutrition Security Among Households in Embakasi Sub-County, Kenya Amayi Maureen Kaleha with Supervisors Prof. Samuel S. China, PhD and Dr. Nicodemus Nyandiko, PhD	97
China's Foreign Economic Policy Influencing Development of Roads in Kenya, 1985-2015 Webi Enock Wanyonyi with Supervisors Prof. Pontian G. Okoth and Dr. Edmond Maloba Were, Ph.D.	98
Artisanal Gold Mining Conflict and Its Influence on The Socio-Economic Lives of The People of Ikolomani Sub-Count, Kakamega County Kenya Machariah Lilian Wanjiku with Supervisors Prof. Chrispinous Iteyo, Ph.D. and Dr. Ruth Simiyu, Ph.D.	99

Producing a global Engineer -
At the Faculty of Engineering, MMUST

The Faculty of Engineering at MMUST was rebranded in 2008 from the then Faculty of Science and Engineering and now has three (3) departments: Civil and Structural Engineering (CSE), Electrical and Communication Engineering (ECE) and Mechanical and Industrial Engineering (MIE).

The faculty offers nine (9) Senate approved programmes at Bachelor, Masters and Doctoral levels with over 800 students undertaking various engineering programmes. The BSc Engineering programmes are accredited by the Engineers Board of Kenya (EBK) and MMUST Engineering graduates are professionally recognized globally.

The Faculty acquired laboratory equipment from Government through the African Development Bank funding. More state-of-the-art equipment have been acquired through internal procurement. The Faculty of Engineering now provides consultancy services in road and building construction in different parts of Kenya and has participated and excelled in robotic competitions internationally. The Faculty is set to enhance collaboration with various industry-based stakeholders to realize its vision as a centre of excellence in applied engineering technology.

From the Directorate of Research and Extension

The Directorate of Research and Extension (DRE) under the leadership of Prof. J .S. K Achoka , PhD oversees research activities at the University and organizes annual Education discourses such as international conferences, workshops and seminars bringing together leading scholars and researchers. As a National Center of Expertise among a few in Kenya. The University Centre serves the mouthpiece of United Nations Organization to promote Education for Sustainable Development (ESD). The Western Regional Center of Expertise (RCE) meant to harness, incubate and disseminate relevant knowledge.

In addition, the Directorate also hosts the Institutional Ethics and Review Committee (IERC) and reviews proposals under clear guidelines from NACOSTI before research permits are issued.

Further the Directorate supports student research with 10% of University research funds directed towards post-graduate students. The Directorate also provides guidance to students who seek to access scholarships, grants, fellowships among other sources of research funding agents.

In 2016, a project focusing food insecurity specifically on Prostephanus truncatus (Larger Grain Borer) by Judith Velma Adhiambo supervised by Prof. Maurice Vincent Omolo , PhD generated a Patent Publication by World Intellectual Property Organization (WIPO). The main findings of her research included discovery of some two indigenous plants in Africa that can deter the LGB from feeding on maize grains for 6 months and invention of blend of chemical formulations that can protect maize against destruction by the LGB for more than 6 months in a single application at very low concentration levels. The Patent number is (WO2016171286) with the title Blend for Post-Harvest Insects Feeding Deterrent.

Enhancing climate change adaptation and mitigation strategies -Centre for Kakamega Tropical Forest Studies (CEKATFOS)

While the world is now focused on implementing the seventeen (17) SDGs, at the MMUST's Centre for Kakamega Tropical Forest Studies (CEKATFOS) relevant research activities are focused on forests biodiversity and sustainable landscapes that are able to support food and energy production, enhance climate change adaptation and

mitigation strategies and provide people-friendly and pro-poor solutions to forest management and restoration. The rebranding of CEKATFOS to the Centre for Integrated Sustainable Conservation Studies (CISCS) will embody this philosophy while the launch of the African Journal for Conservation Studies (AJICS) in 2017 will capture scientific and outreach outputs of various categories of researchers and stakeholders.

Disseminating knowledge across expansive geographical regions-the Digital way

MMUST's Open, Distance & e-Learning platform is a flagship project of the University to consolidate the dissemination of education across a large geographical coverage globally in order to ensure equity. The underlying philosophy of the ODeL platform is to ensure equity and access to quality education is through the ODeL prism.

Since the inauguration of ODeL Platform in August 2014, the ODeL Directorate has increased in Undergraduate and Postgraduate programmesa growth partly attributable to the various unique and customer-focused programmes offered. Apart from students admitted directly at the Main campus on the ODeL mode, MMUST has ODeL Learning Centres spanning across the country such as Kakuma ODeL Learning Center, Kisii ODeL Learning Center, Busia ODeL Learning Center, Kisumu ODeL Learning Center, Kapsabet ODeL Learning Center and Mumias ODeL Learning Center.

Enhancing Certificate and Diploma Programmes -School of Open Learning and Continuing Education-SOLACE

The School of Open Learning and Continuing Education (SOLACE) is focused on increasing access to learning opportunities for both professional and academic learners. In this regard SOLACE offers a prestigious MMUST qualification at Certificate and Diploma levels through the creation of new programmes while enhancing the existing ones in order to ensure preservation of academic freedoms and extension of higher education through flexible tuition hours (regular, evening and weekend classes) so as to meet the diverse needs of our clients. After research and collaboration with industry, the School has developed both academic and short course market-driven programmes that have specialized content which targets specific groups of learners regardless of age, education background or any other orientation. Welcome to SOLACE.

FESS: Working towards academic excellence in Education

The Faculty of Education and Social Sciences (FESS) aspires to be a dynamic and innovative Faculty of excellence, in teaching, learning and research and maintains excellence in research, teaching and extension through the range of FESS runs programmes offered across, disciplines.

In the 11th graduation the Faculty is graduating more than thirty masters and PhD graduands in different specializations.

In line with its ambition to strengthen connections and collaborations with external stakeholders and partners, FESS research ethos creates a focus on synergistic combination of different disciplines through which fertile new fields of knowledge emerge. FESS graduates demonstrate outstanding achievements in advancing knowledge and making breakthroughs relevant to the economic, social and cultural development of society.

EXECUTIVE SUMMARY FOR School of Medicine

Masinde Muliro University of Science and Technology (MMUST) was established as a constituent College of Moi University in December 2002. It attained full university status in December 2006. It is situated in Kakamega town in western Kenya and sits on 133 acres of land. The University's mandate is to offer training with an emphasis on innovative science and technology programmes. The incorporation of a School of Medicine (SOM) would raise the overall status of MMUST in the region and beyond, while fulfilling its man- date. This document sets out the vision for the proposed SOM.

Disease burden and suffering: Kakamega county is located in a region with relatively high infant and maternal mortality as well as a high rural population density, yet there is no SOM in the region to train doctors. The Level 5 County General Hospital (CGH) in Kakamega lacks adequate numbers of medical specialists despite serving as a referral hospital to many surrounding areas beyond the county, such as Nyanza, Rift Valley, Eastern Uganda and South Sudan. Many patients experience suffering and incur extra financial costs travelling to hospitals outside the region in an effort to access specialised care. A SOM in MMUST would alleviate many health- care-related problems and costs.

Overall aim: The overall aims of this project are to build a SOM with physical infrastructures which will still be relevant for 100 years and beyond, to provide excellent facilities, and to train enough medical workers to promote growth in research and innovation relevant to the public health needs of the Kenyan population. Both teaching staff and the postgraduate students will provide health services to patients in the course of teaching and training.

It is proposed that the SOM will be established in two phases. The first phase will comprise the building of all teaching and administrative facilities, while the second phase will entail the construction of a teaching and research hospital.

Most of the activities at MMUST are funded by the Government of Kenya (GOK) through the Ministry of Higher Education, Science & Technology. However, the funds re- ceived by the University are insufficient to meet its obligations. During any financial year, the GOK remits only a fraction of the budget proposal put forth by MMUST; due to these shortfalls, there is need for MMUST to solicit for funds from donors, sympathizers and other sources.

Linkages: The University is thus soliciting for partnerships and collaborations with the community association to facilitate the establishment of the SOM. Once established the SOM will be sustainable through provision of healthcare, research funding and income-generating activities.

The total estimated amount of financial resources being sought to fund the SOM is:

i) Phase1: Medical school Ksh 774,140,000 USD 7,741,400

ii) Phase2:Teaching Kshs 8,492,610,000 USD 84,926,100 & research hospital

iii) In addition, the university requires KSh4,373,250,000 (USD 43,372,500) for STARTUP projects to enable the SOM to be fully operational after construction.

Therefore the total cost to construct the SOM at MMUST and make it operational is KShs 13,640,500,000 (USD 136.4Million).

When is first intake expected? If funding is obtained for the SOM as a priority for MMUST, the first batch of medical students will be enrolled in September 2017. Once the project is completed, the SOM will open up opportunities for the training of students in both pure and para-medical sciences and carry out research to address local and global health challenges.

RESEARCH ABSTRACTS FOR THE DOCTORAL THESES FOR GRADUATES OF THE 11TH GRADUATION, MMUST
Friday 16th December 2016

CENTRE FOR DISASTER MANAGEMENT AND HUMANITARIAN ASSISTANCE (CDMHA)

1. CDS/H/209/11

INDEX BASED DROUGHT EARLY WARNING IN EASTERN ARID AND SEMI-ARID KENYA

Githungo Ndegwa William With Supervisors Prof. Silvery B. B. Oteng'i, Ph.D.; Prof. Jacob Wakhungu, Ph.D. and Dr. Edward Namusasi Masibayi, Ph.D.

ABSTRACT

The last few decades, have been marked by concern of increasing frequency, severity, and magnitude of droughts worldwide. This situation has been associated with anthropogenic climate change. Responses to drought disasters by response agencies throughout the world have however remained generally reactive, poorly coordinated and untimely. Early detection of drought is necessary for effective disaster management. One of the main constraints is inadequate indicators for comprehensive early warning system which inform response. Drought indices are quantitative measures that characterize drought levels by assimilating data indicators into a single numerical value. Such an index is more readily useable than raw indicator data. Kenya however, lacks an objective drought assessment and forecasting approach that would effectively support management of drought hazard. The overall objective of this study therefore was to develop a drought forecasting tool for the ASAL of Kenya. Specifically, the research(i) evaluated existing Drought Indices for their suitability for use in drought forecasting and monitoring in ASALs of Kenya; (ii) Derive a non-linear aggregated drought index that effectively characterize historical droughts in ASALs of Kenya; and (iii)developed and validated a drought forecasting model for ASALs of Kenya. The study was done, in the Counties of Machakos, Makueni and Kitui in Kenya. Specific author defined formula was used for computation of drought indices, spatial analysis techniques, time series analysis, multi-criteria analysis, PCA, NLPCA and ANN methods were used. Primary data was collected by the use of questionnaires from among users of drought index. Secondary data was sourced from relevant institutions in Kenya. Findings revealed that drought indices developed for other regions other than the study area are not capable of modeling historical droughts in Kenya. User preference for drought indices analysed revealed that most drought indices fall short of meeting user needs. The study, established that existing historical documentation of drought in Kenya lacks clear characterization of the drought indicators and parameters and are therefore not good benchmarks for drought analysis in Kenya. The NLADI, however showed agreement in analyzing historical droughts in the relevant periods than other drought indices. The ANN based on RMSNN using the NLADI was capable of forecasting drought conditions with high skill. The developed models showed high performance for the 1-month lead time drought forecasts up to 5-months lead time forecast. Forecast skill however decreased with increasing forecast time. These forecasts achieved high goodness of fit and were statistically significant at 1% level.

2. CDS/H/206/12

ASSESSMENT OF INSTITUTIONAL CAPACITY OF FIRST LINE RESPONSE ORGANIZATION IN URBAN SEARCH AND RESCUE IN NAIROBI AND MOMBASA COUNTIES, KENYA

KIMANI Gacheru Evans with Supervisors Dr. Stanley Omuterema, PhD, Oluchiri, Ph.D. and Dr. Nicodemus Nyandiko, Ph.D.

ABSTRACT

Kenya has in recent times witnessed both natural and manmade induced disasters attributable to drought, road traffic accidents, collapsed buildings and terrorism as well

as many more which have resulted in destruction of property, injuries and loss of lives. During collapsed building incidences for example, trapped people have needlessly died or got avoidable injuries which could have been prevented if those who attempt to rescue them did so competently. The overall objective of this study was to assess the institutional capacity of First Line Response Organizations involved in urban search and rescue (USAR) in Nairobi and Mombasa Counties. Specifically, the researcher sought to establish the human, physical and financial capacities of First Line Response Organizations along with the strategic options for these organizations. This study used cross sectional design method and the target populations were the government institutions and volunteer humanitarian organizations in Nairobi and Mombasa. This study was conducted in Nairobi and Mombasa Counties with 8 First Line Response Organizations randomly selected; four drawn from government institutions and four from humanitarian organizations in each County. The sample size was made of 166 respondents selected through simple random sampling method for questionnaires. Eight respondents with special knowledge on Urban Search and Rescue were selected purposefully for key informant interviews. Qualitative and quantitative data were collected through key informant interviews and questionnaires respectively which were administered personally by the researcher with the help of research assistants. Data analysis was done by use of descriptive statistics and analysis output was presented in charts and tables. Pearson correlation coefficient was used to test relationship between the institutional capacity of First Line Response Organizations involved in urban search and rescue based on the research objectives. Statistical Package for the Social Science (SPSS), a statistical tool, was used to analyze collected data. The study revealed mixed results on First Line Response Organizations' human resource capacity whereby 53.6% of respondents did not have formal technical expertise in urban search and rescue despite the fact that 51.8% confirmed their organizations have training programs on the same. First Line Response Organizations responders' knowledge-ability on USAR and those that receive USAR regular training were positively correlated, (r=.48, p <.01).Trained First Line Response Organizations responders; in USAR and those that have USAR training program were positively correlated, (r=.34, p <.01). Similarly, physical capacity of first responders was varied with 64.5% reporting that they lacked appropriate structural engineering expertise and equipment needed to conduct structural assessments notwithstanding the fact that many said that they have light and basic equipment for USAR. Financial capacity was also found to be largely inadequate particularly on reserve contingency budget and fundraising ability but there was positive score on appropriate personal protective equipment at 65.7% and safety and insurance concerns were fulfilled at 62.7%. 89% of respondents indicated that their organizations do not encourage partnerships through joint drill and there is lack of a framework that covers code of conduct, rules of engagement during joint drills and simulation exercises and joint USAR team membership composition and capabilities. Findings of this research will strengthen First Line Response Organizations and collaboration between First Line Response Organizations during disaster response.

3. CDS/H/17/10

EVALUATION OF DROUGHT IMPACT, MITIGATION AND RESPONSE STRATEGIES IN MAKUENI COUNTY, KENYA

MUTUA Nduku Lydia with Supervisors Dr. S. Omuterema, PhD and Dr. Joseph Gweyi, PhD

4. CDS/H/24/09

INTENSIVE URBAN POULTRY FARMING AND ENVIRONMENTAL HAZARDS IN WESTERN KENYA

*NYENDE Osolo Kefa with Supervisors Prof. Jacob Wakhungu, Ph.D.
and Prof. John Obiri, Ph.D.*

ABSTRACT

Poultry keeping is popular in urban centres of Kenya. Poultry wastes arising from intensive poultry units may become too large to be absorbed in the immediate areas of production as crop plots and gardens decrease in size in urban centres leading to potential for environmental hazards. This study was conducted in four urban centres of Bungoma, Eldoret, Kakamega and Kisumu to evaluate the contribution of poultry wastes to environmental hazards. The study had four specific objectives, namely, to examine selected poultry and manure handling practices; to determine the levels of selected pathogenic microorganisms in poultry manure; to determine the concentration of toxic heavy metals in poultry manure; and to evaluate strategic options for hazard related poultry manure handling practices that minimize environmental pollution. Cross sectional survey and evaluation designs were employed in the study. Questionnaire interviews were used among 475 farmers selected through snowball sampling. Manure samples were collected from 40 farms and taken to the Kenya Bureau of Standards laboratory for microbial and heavy metal content analysis. Poultry and manure handling practices were found to be poor and varied across municipalities. There was a significant difference across the municipalities on stirring or raking poultry manure ($\chi^2 6$, $0.001 = 40.1$). Transport of manure was mainly by wheelbarrows ($\chi^2 12$, $0.001 = 103.72$). Garden crops varied but most of the urban poultry keepers grew leafy vegetables ($\chi^2 18$, $0.001 = 33.58$). There was no significant variation in E.coli levels between the four municipalities (p-value > 0.353) as well as between the poultry manure types (p-value > 0.823). There was a statistically significant interaction between manure condition and municipalities and the Salmonella levels, $F(2, 33) = 6.266$, $p < 0.005$. In line with the findings, the study recommends that: Poultry keepers in urban areas should adopt practices that minimize contamination of feed and environmental pollution by manure; Policy makers should develop programs that ensure safe handling, disposal/transport of poultry wastes from urban poultry farms; With respect to concentration of Copper, Lead and Mercury, the poultry manure could be freely applied on crop fields as soil fertilizer; Poultry keepers should adhere to strict hygiene and bio-security in management of urban poultry farms. Policy makers should focus on poultry hygiene and bio-security subjects by including them in training and extension programs and/or college curricula. Suggestions made for further studies include assessment of pathogen loads in poultry feeds and water; performance of ruminants on diets fortified with poultry manure; evaluation of pathogens and heavy metals in poultry products from urban areas compared to rural settings; and impact of current poultry production practices on soils and domestic water sources.

5. CDS/H/09/08

INFLUENCE OF FLOODS ON COMMUNITY LIVELIHOODS SUSTAINABILITY AND DEVELOPMENT IN NYADO RIVER BASIN, NYANDO SUB-COUNTY IN KISUMU COUNTY, KENYA

*OBIAYO Moses Oduma with Supervisors Dr. Stanley Omuterema , PhD
and Prof. Charles Rambo PhD*

ABSTRACT

The Nyando River Basin experiences floods nearly every year, which is a key factor contributing to high poverty levels in Nyando District. This study investigated the influence of Floods on Community Livelihood Sustainability and Development in Nyando River Basin, Nyando Sub-County in Kisumu County, Kenya on: Household food

security; shelter status, educational attainment, as well as water, sanitation and health services. A cross-sectional design was applied to source data from 384 household heads and 22 officials of humanitarian agencies operating in the Basin. Probability and non-probability sampling procedures were applied to select respondents, while the analysis yielded descriptive statistics, cross-tabulation with Chi-square statistic and one-way analysis of variance. The study area was divided into two zones - high-risk (within 2 kilometres) and low-risk (more than 2 kilometres).The results show that the floods increased the fishing potential but reduced the potential of crop farming and livestock production. The damage was most severe for maize crop (63.2%), beans (61.9%), sorghum (50.5%), poultry (62.6%) and goats (36.5%). The two zones were significantly different in terms of access to food ($\chi2 = 23.151$, df = 3 and a p-value = 0.022); the duration for which pupils stayed out of school due to floods ($\chi2 = 22.861$; df = 3 and p-value = 0.000; and educational attainment ($\chi2 = 46.458$; df = 6 and p-value = 0.000). However, there was no significant difference regarding shelter type. The nalysis obtained a computed $\chi2$ value of 2.166, with 3 degrees of freedom and a p-value of 0.155, which was not significant. This suggests that the high-risk and low-risk zones were not significantly different in terms of the type of shelter prior to the floods. However, after the floods the proportion dwelling in temporary structures increased from 10.6% to 38.5% in the high-risk zone and from 3.0% to 11.6% in the low-risk zone. Besides, the proportion accessing drinking water from open sources increased significantly during the floods. The study concludes that: crop and livestock farming form the main economic activities in the study area; Most of the houses in the study area are semi-permanent and traditional huts temporary shelters, most schools are constructed in floodplains and roper hygiene was lacking in the area of study as most households consumed untreated water and practised OFD. Health facilities were located very far from the communities. The study recommends the need to: Develop crop calendars are to be developed to guide farming activities in the agro-ecological zone, new technologies need to be introduced to boost crop farming in the Nyando River Basin, food store need to be constructed on higher grounds to support grain banking, equip households with knowledge and skills of modern fishing technology in order to enhance fishing as a livelihood for food security in Nyando river Basin, Strong houses should be that cushioned themselves against the floods destruction potential, the government need to establish schools on higher grounds to mitigate against disruptions of education sector in the basin and initiate and sustain hygiene promotion in the community to improve knowledge about the safety of drinking water and the importance of safe disposal of human excreta.

6. CDS/H/01/11

COMMUNICABLE DISEASES AND THEIR VARIABILITY AMONG SECONDARY SCHOOL STUDENTS IN KISUMU COUNTY, KENYA

ODONGO David Otieno with Supervisors Prof. J. Wakhungu, PhD and Dr. S. Omuterema , PhD

ABSTRACT

The purpose of this study wasto determine causes of variability in communicable disease prevalence rates among students in secondary schools to inform policy formulation in public health sector.Kenyagovernment implemented free tuition day schooling in the year 2008. Since then secondary school enrollment shot from 1.2 million in 2008 to 1.85 million in 2012. It was not envisaged that public health intervention challenges would arise from this large enrollment. Safe water provision, bed spacing in hostels, desk spacing in classrooms, student-toilet ratio, and waste management were some of the areas where challenges would arise. Compromising these public health intervention strategies would predispose secondary students to high incidences of

malaria, diarrhea, tuberculosis and pneumonia which could turn to epidemics. Survey, correlational and evaluation research designs were used whereasa representative cluster sample size of 400 for students was estimated using Fisher's et al. formula while schools, sub-Counties and education zones were clustered and sample size calculated based on coefficient of variation by school type. Data was collected by questionnaire, interviews, observation checklist, and focus group discussion. For medical examination, blood slides testing positive for malaria parasite; a positive culture for Mycrobacterium tuberculosisconfirming tuberculosisinfection were used. An acceptable sputum specimen had more than 25 leukocytes and fewer than 10 epithelial cell per lower field. The most common pathogens detected were bacteria such as Streptococcus pneumoniae, Staphylococcus aureus, and Klebsiella species. Sensitivity testing was done for positive results. Other medical examination procedures performed were positive rapid urine antigen testing for Streptococcus pneumonia, positive stool tests for Clostridium difficilefor respondents having diarrhea or watery stools, antigen test for notavirus, ova and parasite exams, and antigen tests specific for the parasites Giardia, Lambia Entamoeba, histolyca, Crystosporidium and Parvum. Descriptive analysis was performed on completed questionnaires and SWOT analysis on qualitative data from focus group discussion. Comparisons between risk factors were made by chi-square and ANOVA using SPSS Windows (version 15.2; Chicago, IL) software. A p value of < 0.05 was considered statistically significant. There was significant variation between communicable disease prevalence rates and age (X24, $0.05 = 2.458$); school size (X2 12, $0.05 = 18.636$); gender (X24, $0.05 = 5.723$) and class of students (X212, $0.05 = 15.202$); bed and desk spacing (p< 0.05 at 95%C.I.). However, there was no significant association in prevalence rates between both locality and type of school. There was strong evidence that age of students had effect on prevalence rates. The prevalence rate of malaria was higher in male students (14.02%) than female students (6.68%) compared to prevalence of diarrhea which was higher in female students (7.96%) than male students (0). This study revealed that prevalence of diarrhea, tuberculosis, pneumonia and other respiratory tract infections were lower among female students than males whereas prevalence of malaria was higher in males than females. Age of students was a significant vulnerability factor to malaria, diarrhea, tuberculosis and pneumonia which were the important communicable diseases most prevalent among secondary school students in Kisumu County, Kenya. Insecticide treated mosquito net use was the best practice in malaria control among students. Provision of water at hand washing area was best practice for diarrhea control while health seeking behavior among students was the gold standard for control of the burden of communicable diseases Answers as to why prevalence rates of diarrhea, tuberculosis, and pneumonia are higher among female than male students should be sought.

7.   CDS/H/203/12

GENDER AND AGRICULTURAL PRODUCTION IN POST CONFLICT GREATER GULU, UGANDA

TINO Stella with Supervisors Prof. Jacob Wakhungu, Ph.D. and Dr. Janet Kassily, Ph.D.

ABSTRACT

The purpose of this study wasto determine causes of variability in communicable disease prevalence rates among students in secondary schools to inform policy formulation in public health sector.Kenyagovernment implemented free tuition day schooling in the year 2008. Since then secondary school enrollment shot from 1.2 million in 2008 to 1.85 million in 2012. It was not envisaged that public health intervention challenges would arise from this large enrollment. Safe water provision, bed spacing in hostels, desk spacing in classrooms, student-toilet ratio, and waste management were

some of the areas where challenges would arise. Compromising these public health intervention strategies would predispose secondary students to high incidences of malaria, diarrhea, tuberculosis and pneumonia which could turn to epidemics. Survey, correlational and evaluation research designs were used whereasa representative cluster sample size of 400 for students was estimated using Fisher's et al. formula while schools, sub-Counties and education zones were clustered and sample size calculated based on coefficient of variation by school type. Data was collected by questionnaire, interviews, observation checklist, and focus group discussion. For medical examination, blood slides testing positive for malaria parasite; a positive culture for Mycrobacterium tuberculosisconfirming tuberculosisinfection were used. An acceptable sputum specimen had more than 25 leukocytes and fewer than 10 epithelial cell per lower field. The most common pathogens detected were bacteria such as Streptococcus pneumoniae, Staphylococcus aureus, and Klebsiella species. Sensitivity testing was done for positive results. Other medical examination procedures performed were positive rapid urine antigen testing for Streptococcus pneumonia, positive stool tests for Clostridium difficilefor respondents having diarrhea or watery stools, antigen test for notavirus, ova and parasite exams, and antigen tests specific for the parasites Giardia, Lambia Entamoeba, histolyca, Crystosporidium and Parvum. Descriptive analysis was performed on completed questionnaires and SWOT analysis on qualitative data from focus group discussion. Comparisons between risk factors were made by chi-square and ANOVA using SPSS Windows (version 15.2; Chicago, IL) software. A p value of < 0.05 was considered statistically significant.There was significant variation between communicable disease prevalence rates and age (X24, 0.05 = 2.458); school size (X2 12, 0.05 = 18.636); gender (X24, 0.05 = 5.723) and class of students (X212, 0.05 = 15.202); bed and desk spacing (p< 0.05 at 95%C.I.). However, there was no significant association in prevalence rates between both locality and type of school. There was strong evidence that age of students had effect on prevalence rates.The prevalence rate of malaria was higher in male students (14.02%) than female students (6.68%) compared to prevalence of diarrhea which was higher in female students (7.96%) than male students.This study revealed that prevalence of diarrhea, tuberculosis, pneumonia and other respiratory tract infections were lower among female students than males whereas prevalence of malaria was higher in males than females. Age of students was a significant vulnerability factor to malaria, diarrhea, tuberculosis and pneumonia which were the important communicable diseases most prevalent among secondary school students in Kisumu County, Kenya.Insecticide treated mosquito net use was the best practice in malaria control among students. Provision of water at hand washing area was best practice for diarrhea control while health seeking behavior among students was the gold standard for control of the burden of communicable diseases Answers as to why prevalence rates of diarrhea, tuberculosis, and pneumonia are higher among female than male students should be sought.

8. CDS/H/210/12

INFLUENCE OF HIV AND AIDS INVENTION PROGRAMS ON BEHAVIOR CHANGE AMONG PEOPLE LIVING WITH HIV IN KISII COUNTY, KENYA

WAMALWA Simiyu Emmanuel with Supervisors Dr. Edward Neyole, Ph.D.;
Dr. Moses Poipoi, Ph.D.

ABSTRACT

The HIV pandemic continues to represent one of the greatest health and developmental challenge globally, regionally and locally. Behaviour change among People living with HIV and AIDS (PLWHAs) offers a cost efficient and effective opportunity for reducing new infections and improving the quality of lives for the infected, but uptake for this

preventive strategy remains low. To enhance Behaviour change among PLWHAs, there is need to better understand associated factors, and their application in HIV programs. This study sought to determine the contribution of HIV interventions on Behaviour change among PLWHAs. Specifically, the study sought to determine the level of HIV and AIDS related knowledge among PLWHAs; determine the influence of HIV prevention, care and treatment programs on Behaviour change among PLWHA; and evaluate measures needed in enhancing effectiveness of HIV and AIDS intervention programs in changing Behaviours of PLWHAs in Kisii County, Kenya. This study's conceptual framework was based on the understanding that a person's decision to change Behaviour after an exposure to a HIV intervention program is modified by various factors including demographics, knowledge and attitudes as well as perceptions. A cross sectional design was used, with 340 respondents interviewed using a questionnaire, and 6 Key Informants interviewed using an interview guide. Multistage sampling was used to select questionnaire respondents while purposive sampling was used to select Key Informant Interview respondents. The study team was trained, tools pre-tested and a pilot study conducted for validity. The test retest method was used to determine tools reliability. In analysis, comparison was made among and between individuals exposed to various HIV intervention program categories against positive Behaviour change. Although this study found high generalized knowledge among PLWHAs, there were specific areas that exhibited low levels of knowledge such as biomedical and Behavioural HIV prevention methods available beyond condom use, being faithful to one partner and abstinence; as well as knowledge on phases in which Mother to Child Transmission (MTCT) occurs – pregnancy, delivery and breast feeding. Stigma was found to be a major hindrance to Behaviour change and up take of HIV services in Kisii County, especially for rural communities. Risky sexual Behaviours were noted among PLWHAs and their partners including high rates of multiple partnerships (11%), casual sex (18%), and sexual encounters with drunken partners (23%). Males exhibited lower clinic service satisfaction levels (77%), as compared to females (89%) and rapid test kits supply continued to hinder service delivery. This study noted that HIV programs in tier 2 and tier 3 facilities were associated with gains in safer sex practices and service satisfaction, perhaps due to better client – health worker contact in lower level facilities. The study recommends more education on available positive prevention measures, anti-stigma campaigns and enhancing advocacy initiatives targeting safer sex practices and decentralizing ART services to all facilities. This study generates information on the influence of HIV and AIDS intervention programs on behaviour change among PLWHAs in Western Kenya. This information can be used by Government, Donor Agencies and Civil Society Organizations to better understand and prioritize HIV interventions that result in desirable behaviour change among PLWHAs, a key aspect in HIV prevention.

9. CDM/H/204/12

WATER CONSERVATION PROJECTS AND HOUSEHOLD FOOD SECURITY IN KITUI COUNTY, KENYA

ASIGO Ogecha Peter with Supervisors Prof. Jacob Wanambacha Wakhungu , PhD and Prof. John Obiri , PhD

ABSTRACT

The study sought to establish the nexus between Water Conservation Projects (WCPs) and household food security. Although much has been written on the humanitarian response to water scarcity in Kitui County, little effort has been done to examine farm and nonfarm water productivity with regard to household food security. The study fills this gap guided by the following specific objectives: (i) examine the types of established

WCPs; (ii) determine the effects of water uses from WCPs on household food security; (iii) determine the challenges facing water conservation and use (v) evaluate the intervention options for increasing water conservation and household food security. This study makes recommendations for improving water uses with regard to household food security, and adds content to existing body of knowledge on WCPs, dry-land water uses and household food security. The study used cross-sectional survey and evaluation research designs. Questionnaires, FGD guides, interview guides, document analysis and observation checklist were used for data collection. The sample size of 400 household heads represented the targeted County population. Sampling techniques comprised stratifiedrandom sampling for household heads, quota sampling for FGD informants and purposive sampling for expertise. Descriptive statistical and inferential analysis was used to depict household data and the state of WCPs and food security; Chi Square (χ^2) test to test associations of water uses and agricultural output, and document content analysis to evaluate intervention options for increased water conservation and food security. The established WCPs in the Kituiare 16%(64) earth dams; 23%(92) sand dams; 18%(72) subsurface dams; 9%(37) rock catchment dams; 15%(61) farm ponds; 11%(45) soil moisture conservation, and 7%(29) rain water tanks. 48% household heads agreed that WCPs have enhanced food productivity while 52% disagreed. Water uses have fostered food production only in areas that have WCPs while few households have physical and economic access to the food. Challenges associated with water conservation and use include 8%(30) responsibility wrangles; 10%(39) parents' failure to initiate their children into water conservation and use; 17%(66) negative attitude towards water conservation and use; 11%(44) competing interests; 15%(60) pursuit of self-interests by household heads; 9%(35) ill will of politicians and NGOs; 10%(38) conflict between short term goals versus long-term goals; 11%(44) absence of follow-up mechanisms; 4%(17) costly building materials and 7%(27) cultural beliefs.For the purpose of increasing water availability, 29% of the respondents opted for supplement WCPs with boreholes; 45% supplement of WCPs with piped water; 1% supplement of WCPs with increased roof-water harvesting; 14% minimize water wastage during irrigation and 10% subsidization of domestic water tanks. For the purpose of increasing household food security, household heads opted for growing early maturing crops; drought resistant crops; drought resistant livestock; crops that produce more per unit area.

10. CDM/H/200/11

PREPAREDNESS AND MANAGEMENT OF AVIAN FLU EPIDEMIC THREAT IN NAKURU COUNTY, KENYA

CHERUIYOT Kiplangat Michael with Supervisors Prof. Jacob W. Wakhungu, Ph.D and Dr. Stanley Oluchiri Omuterema, PhD

11. CDM/H/25/10

SOCIO-ECONOMIC FACTORS INFLUENCING VULNERABILITY OF HOUSEHOLDS EXPOSED TO FLOOD RISK IN LOWER NYANDO BASIN, KENYA

MASESE Alice with Supervisors Dr. Edward Neyole, Ph.D and Dr. Nicholas Ombachi, PhD

12. CDM/H/201/12

ROLE OF HEALTH AND SAFETY MEASURES IN DISASTER RISK REDUCTION STRATEGY IN SELECTED KENYA HORTICULTURAL RESEARCH INSTITUTIONS

MUCHIRI Wakiuru Florence with Supervisors Dr. Stanley Omuterema Oluchiri, Ph.D.

Dr. Edward Masinde Neyole, Ph.D

ABSTRACT

This study evaluated the role of health and safety measures in disaster risk reduction strategy in selected Kenya horticultural research institutions. The three objectives of the study were: to examine the extent of staff involvement in health and safety; to establish extent to which the health and safety programmes comply with set standards within the institutions and. To examine health and safety policy in relation to disaster risk reduction in the institutions. The study adopted a descriptive survey research design. A sample size of 167 staff members was drawn using stratified random sampling from four horticultural research centres in Kenya, comprising technical and non-technical staff. Data instruments used were questionnaires, observation checklists and interview guides. Descriptive statistics were used to present the data for ease of interpretation. Spearman's correlation coefficient (r) was used to measure the strength of relationship between variables and asymptotic significance (p-Value) was used to measure the extent to which relationship is skewed. Results illustrate an average employee involvement at 55.6%, indicated by staff involvement in orientation at 64.8% for new staff. There was 60.4% compliance with set standards in policy implementation guidelines. This is reflected in 46.5% of respondents who said safety audits are carried out in their institutions Health and safety policies were found to be in 78.9% of the institutions indicated by 80.3% awareness of policy guidelines reported by respondents. There was low compliance with implementation of some aspects of policy guidelines at (31.6%). Though there were high levels of employee involvement, there was low reporting on health and safety. Notwithstanding the high level of compliance to set requirements in general, there was low response to accidents and incidents by management. Even with health and safety policies in place, accidents are still common and at times fatal. The study recommends more effective reporting systems to be created by management where employees are encouraged to report on health and safety. Also, staff should be more involved in formulation of policy, its implementation, monitoring, evaluation and recommendations for improvement. It also recommends full compliance with set requirements like OSHA and other standards in the sector and for safety audits to be done independently to notify management on identified gaps. It also recommends review of existing policies and guidelines by management to make them clearer, more comprehensive and easily understandable

13. CDM/H/05/10

HOMEOWNERS' ENVIRONMENTAL ATTITUDE AND FLOOD DISASTER INTERVENTION IN MAVOKOPERI- URBAN SETTLEMENT OF NAIROBI METROPOLIS, KENYA

OMUKAGA Onabiria Panyako with Supervisors Prof. Jacob W. Wakhungu, Ph.D. and Dr. Felix Ngunzo Kioli, PhD

14. CDM/H/17/10

MOTORCYCLE PUBLIC TRANSPORT ACCIDENT DYNAMICS AFFECTING HOUSEHOLD SOCIO-ECONOMIC DEVELOPMENT IN BUNGOMA COUNTY, KENYA

SINGORO Wanyama Brian with Supervisors Prof. W. Wakhungu, Ph.D and Prof. John F. Obiri, Ph.D. and Prof. Edmond Were, Ph.D

ABSTRACT

There has been a drastic increase in the use of motorcycles as a means of transport worldwide due to various reasons. In Kenya, the increased use of motorcycles has been seen over the last decade. This increase has, however, brought forth public health

challenges, namely, motorcycle accidents on disproportionate scale comparative to the world statistics. Indeed motorcycle accidents constitute a major cause of death and injuries to thousands of people every year. In spite of this, motorcycle accidents remain a neglected public health problem in Kenya. The overall objective of the study was to examine the dynamics of motorcycle public transport accidents and their effect on household socio-economic development in Bungoma County. The specific objectives of the study were to determine the causes and trends of motorcycle accidents, associated socio-economic effects and evaluate the strategic options that have been adopted to manage motorcycle Public transport in Bungoma County. The study population comprised 400 people from households of motorcycle riders involved in accidents and those not involved. Key informants in the motorcycle transport industry were interviewed. The study adopted mixed research designs, including, evaluation, correlational and cross-sectional survey to establish the causes, incidences/trends, vulnerability and socio-economic outcomes of motorcycle accidents. An evaluation of the strategic options adopted to manage motorcycle public transport was also undertaken. Descriptive and inferential statistics was used in the analysis of data. The study was anchored on crunch model, Wish to die, Domino and Modernization theories. From the study, human errors are the leading causes of motorcycle accidents. This is imparted on by poor regulatory and enforcement regimes. Structured and comprehensive training of riders on traffic code and regulations will most likely reduce accidents and associated economic losses. Collective action measures such as motorcycle Saccos for voluntary enforcement and pooling of resources, to aid riders in case of injuries and death, should be explored and pursued. The study provides information and insights into disaster risk reduction for policy formulation on motorcycle accident mitigation. From the results, the proposed strategies that can be employed to curb motorcycle accidents in the order of magnitude are: Training of motorcycle riders; observing speed limits; improved roads; not driving while under the influence of drugs/ alcohol; not carrying more than one passenger; improved enforcement by police; proper motorcycle maintenance; wearing protective clothes/ helmets/ boots; wearing reflective jacket; and not driving while tired.

15. CDM/H/26/12

HOUSEHOLD VULNERABILITY TO FOOD INSECURITY IN BUNGOMA COUNTY, KENYA

WABWOBA Mary Stella with Supervisors Prof. Jacob. W. Wakhungu, Ph.D. and Prof John Obiri, PhD

ABSTRACT

Food insecurity is a recognized public policy concern for all countries in the world. Sub-Saharan Africa is the most affected, with an estimated 239 million people suffering from chronic hunger and malnutrition. Kenya's long-term goal of food self-sufficiency remains unmet as fifteen million Kenyans are food insecure with three million in constant need of food relief. For many years, the Kenya Government has strived to achieve national, household and individual food security through various initiatives. Nonetheless, Bungoma County residents are still vulnerable to food insecurity. The overall objective of this study was to examine the vulnerability of Bungoma county households to food insecurity. It focused on four specific objectives namely; to establish household food insecurity level, examine the vulnerability levels, investigate the potential to address food insecurity and finally, it evaluated strategies used by households during times of food shortage. The study adopted survey, cross –cultural and evaluation research designs. The population of the study area was 724,453, drawn from Bumula, Sirisia, Mt. Elgon and Tongaren sub counties. Multi-stage random sampling method was used to

select a sample size of 400 households. Focus Group Discussions and Key informants were purposively selected using quota sampling. A total of 100 household heads in each sub county were interviewed. Data was collected using questionnaires, interview guides, focused group discussions and observation checklists. The instruments were pilot tested on 40 households in Kabuchai Sub County and an alpha coefficient of 0.702 obtained. Data were analyzed using descriptive and inferential statistics (chi-square analysis, spearman rank order correlation and linear regression).The study revealed that Bungoma County is food insecure. Households' vulnerability is attributed to poor road network and high cost of farm inputs. The study recommended that farmers should be trained on modern farming technologies and sensitized on balanced diets for adults. Bungoma County should subsidize costs of farm inputs and improve the roads network. Further study to be done on the role of women in household food security provisioning, and the impact of extension methodology on food production in Kenya.

16. CPC/H/227/11
INTRASTATE CONFLICTS INFLUENCING HUMAN RIGHTS ENFORCEMENT WITH SPECIFIC REFERENCE TO THE REPUBLIC OF SUDAN,
1956 – 2011

KIOKO Mbindyo Philip with Supervisors Prof. Pontian Godfrey Okoth, Ph.D. and Prof. Kennedy Onkware, Ph.D

ABSTRACT

The Republic of Sudan has suffered various intrastate conflicts from independence in 1956 to 2011 just before the secession of the south. These conflicts have been long and have caused untold suffering and destruction. The Republic of Sudan has also been facing various threats to human survival. None of the previous studies on conflicts had addressed to why some of the conflicts take long time to be resolved while others take short time. There are none of those studies also that had studied the conflicts and its influence in the republic of Sudan. The general objective of the study was to examine the influence of intrastate conflict on human rights enforcement in the Republic of Sudan. This was achieved by three objectives namely: identify causes and nature of intrastate conflicts, evaluate the extent of intrastate conflicts in influencing human rights enforcement and assess strategies for managing intrastate conflicts and mitigating human rights violation in the Republic of Sudan. This research used descriptive design. The study population of 500 respondents was selected comprising Ministry of Foreign Affairs officers, Republic of Sudan Diplomatic Mission officials, UNHCR employees, academicians, experts in conflict management and human rights, humanitarian experts and Sudanese refugees. The sample size of the study was 239 respondents with a response rate of (230; 96.2%) that was used in the analysis.   This study used both probability and non-probability sampling to minimize bias and achieve a representative sample from which inference was drawn. Data collection methods included interviews, questionnaires, focus group discussions and library research. The data was captured and analysed using SPSS version 20. Descriptive analysis was done and relationship between variables established. Descriptive analysis included, means percentages and frequency distribution. Inferential statistics was done by use of Chi-square test of association to find relationship between variables under study. The findings showed that the causes of intrastate conflicts in Republic of Sudan and extent of intrastate conflicts by sustained denial of human rights and instrumental use of human rights violation by the state, influenced negatively on human rights enforcement. The study concluded that there was gross violation of human rights enforcement as a result of intrastate conflicts. The study recommended that there is need to continue engaging international efforts in resolving the conflicts and that the perpetrators should be held

accountable within the international human rights standards for justice to prevail. Further study should be conducted to identify contentious issues that make prolonged conflicts in the Republic of Sudan.

17. CDM/H/29/09

HOUSEHOLD FOOD ACCESS AND COPING STRATEGIES DURING HAZARDS: A COMPARATIVE STUDY OF GITHUNGURI AND MWALA SUB-COUNTIES KENYA

WAWERU Kinyanjui Geoffrey with Supervisors Dr. Stanley Omuterema, PhD and Dr. Fridah W. Mugo, PhD

18. CDM/H/01/11

POST - 2007 ELECTION VIOLENCE AND EFFECT ON PSYCHOSOCIAL ADJUSTMENT OF CHILDREN IN UASIN GISHU COUNTY, KENYA

WERE Shisia Dinah with Supervisors Prof. Jacob W. Wakhungu, Phd and Dr. Samuel N. Maragia, PhD

ABSTRACT

Most nations strive to ensure that citizens choose their political leaders in a free and fair way during elections. It is also their responsibility to ensure that citizens are protected and live in a safe and healthy environment afterwards. However in recent years, various forms of violence have erupted soon after elections and caused a lot of damage on property and death of its citizens in Kenya and other countries. One of the most affected areas by the post 2007 election violence in Kenya was UasinGishu county. Children in the affected areas suffered mentally, physically, socially and emotionally from the experiences during violence. The general objective of the study was to examine the implications of the Post 2007 EV on the psychosocial adjustment of children between 10-18 years. The concern to carry out the study was after realizing that children's psychological needs were not adequately addressed after the Post 2007 EV. Specifically the objectives were to establish the forms of violence on children between 10-18 years during the Post 2007 EV, to determine the psychological effects of the Post 2007 EV on children, to examine the influence of 2007 PEV on the social adjustment of children and evaluate the mitigation strategies employed during the Post 2007 EV. Descriptive survey design was used to establish forms of violence children experienced during the Post 2007 EV in UasinGishu County- Kenya. The total sample size was 503 which included:- 96 Primary school teachers, 12 Key informants, 86 parents and 288 children were involved in the study. 3 IDP camps were visited for observation and 21 participants for FGDs. A pilot study was carried out in Kakamega County. A reliability coefficient of 0.70 was considered ideal for the adoption of questionnaire. Questionnaires were administered to teachers, Interview schedules to parents and key informants, Psychological tests to children 10-11 years and essays by children between 12-18 years. Purposive and snowballing sampling techniques were used to identify children and their parents, stratified and simple random sampling were deployed to select older children between 12-18 years in classes. Data from interviews and observation schedules were analyzed using descriptive statistics. Inferential statistics were used to analyze data from psychological tests and questionnaires. Summaries were done using means, mode and percentages and presented in charts and graphs. Findings indicated that children experienced many forms of violence ranging from rape, hunger, assault, displacement, loss of property and death of parents. Psychologically, children developed hatred and fear towards other tribes and security men. They have developed anxieties over elections and they blame IEBC for the Post 2007 EV and hope that one day their attackers will be punished. Socially children have not adjusted well and many still lack basic needs which have affected their academic performance. The findings indicated

that mitigation measures during the violence were not adequate. The conclusions are that children suffered many forms of violence, which affected them psychologically and socially and they have not adjusted adequately. Recommendations are that government organizations and NGO s working with persons affected by disasters should improve intervention services in future.

19. CPC/H/227/11

THE INFLUENCE OF CATTLE RUSTLING ON SOCIO-ECONOMIC DEVELOPMENT IN MARSABIT AND SAMBURU COUNTIES, KENYA.

*KHISA Simiyu Christopher with Supervisors Prof. Chrispinous Iteyo, PhD
and Dr. Edmond Were, PhD*

ABSTRACT

Livestock rustling remains a major cause of insecurity and conflict among the pastoral communities occupying the Arid and Semi-Arid Lands (ASALs) of Kenya. Since the year 2000 there has been an upsurge in livestock rustling, leading to new trends with protracted use of advanced weaponry which has not only grown to become a major security threat to the lives of the pastoralists but also a key threat to their livelihoods which is anchored in the ownership of large herds of livestock. The practice hasfor many years negatively affected pastoral communities in Samburu and Marsabit Counties. Frequent raids involving massive theft of livestock, killings and expansive destruction of property have led to reduced economic activities, collapse of education system and infrastructural development as well as displacements of various pastoral communities within these Counties mostly inhabited by the Borana, Turkana, Samburu, Burji and Rendile communities. This study explored the trends in livestock rustling, the impact on social-economic development in these Counties in Northern Kenya. The two counties have experienced frequent livestock rustling with themost dreaded one that took place in Suguta valley in Samburu County. The general objective of this study was to investigate the impact of livestock rustling on socio-economic development in Marsabit and Samburu Counties, Kenya. The specific objectives were to determine the trends in livestock rustling and the dynamics of socioeconomic development, evaluate the extent to which livestock rustling impacts socio-economic development and examine sustainable strategies that have been put in place to contain livestock rustling and influence socio-economic development in these areas of study. The study was guided by Cattle Complex Theory. This study utilized the descriptive research and explanatory design. The study areas were Samburu and Marsabit counties and it targeted household heads, herders, market chairmen, politicians, chiefs and officer commanding police stations. Simple random, purposive and snowballing sampling procedures were used to select 384 household heads and 56 key informants. The main research instruments were questionnaires in addition to face to face interviews and focus group discussions (FGDs). Validity was determined using content validity while reliability was determined using test retest method. Data was analysed using SPSS version 21. Quantitative data was analysed using percentages, frequencies and chi-square at 0.05 significance level and presented in form of charts and tables. Qualitative data was analysed using emerging themes and presented in form of verbatim and narrations. The findings revealed there were new trends in livestock rustling as the raiders were motivated by commercial/economic and political interest. The raiders did not only steal livestock but also food stuffs and medicines from dispensaries. The rustling had negative impact on socio-economic development. Socially, it leads to loss of lives, property, spread of livestock diseases, erosion of social and cultural values, insecurity and displacement. Economically, it leads to poverty and income inequalities, low investments, loss of labour force, tax evasion and environmental degradation. The sustainable strategies to contain

livestock rustling were to improve security, justice system, and disarmament, and infrastructure, initiating income generating activities, awareness creation on impacts of livestock rustling, introduction of livestock Insurance and provision of formal education. The study concluded that new trends in livestock rustling have significant impact on the socio-economic development in Marsabit and Samburu Counties, Kenya therefore empowerment and awareness creation would contain the trends and its impact. The study recommended for the need to establish resource centres for awareness creation and sensitization on the livestock rustling. Additionally, there should be legislations on arms and commercialization of livestock rustling to ensure that the perpetrators are severely punished by law. Lastly, there is need to provide compulsory formal education where, the youth would appreciate that there is life beyond livestock rustling.

20. CPC/H/19/10
THE CATHOLIC CHURCH'S CONTRIBUTION TO THE PEACE-BUILDING PROCESS IN KAKAMEGA COUNTY, KENYA

KIZITO Lusambili Muchanga with Supervisors Prof. Frank K. Matanga , PhD and Prof. Ezekiel Musembe Kasiera , PhD

ABSTRACT

In a world marred by conflicts, peace-building has become more urgent than ever before in the history of humanity. The Catholic Church has not been left behind in working for peace in collaboration with other stakeholders. The main purpose of this study was to interrogate the contribution of the Catholic Church to peace-building in Kenya, with reference to Kakamega County. Specific objectives of the study were to: examine the involvement of the Catholic Church in peace-building in Kakamega County in Kenya before 2007; assess the Catholic Church's peace-building strategies in Kakamega County since the 2007 Post-Election Violence (PEV); and evaluate the challenges facing the Catholic Church in her contribution towards peace-building in Kakamega County. The justification for this study was that various studies had been conducted on Kakamega County but hardly any had dwelt on the management of conflicts and particularly the contribution of the Catholic Church. This was a major gap that this study sought to fill. The research was guided by two theories: Functionalism Theory (FT) by Emile Durkheim, which stresses social solidarity, and Structural Peace Theory (SPT) by Johan Gultang (1969). These two theories guided the development of the conceptual model for this study. This study systematically handled the research problem by using both qualitative and quantitative research approaches. A descriptive survey design, informant Interviews, focus group discussions and a review of secondary literature were employed. The descriptive design utilizes the strength of both qualitative and quantitative research. Both probability and non-probability sampling techniques were used. Purposive non-probability was used to select 12 Catholic parishes, because of the intensity of 2007/08 PEV experienced in these parishes. Questionnaires, interviews and observation methods were used to collect primary data while secondary data was obtained through document analysis and internet sources. The research targeted 400 respondents: 12 clergy, 384 laity, two Non-Governmental Organizations (NGOs) and two government officials. A pilot study was carried out to establish the reliability and validity of the instruments. The data collected was coded and arranged in themes in relation to the objectives, and the findings were then analyzed using SPSS. The findings were then presented using tables, pie charts, bar-graphs, figures and thematic narrative technique based on the objectives of the study. Despite the challenge of ethnicity and corruption, the church has made a commendable contribution in peace building. The main finding from the study is that peace-building in the Catholic Church in Kakamega County is more than addressing direct violence. Instead, the church takes a holistic and

multi-pronged approach to peace building. Apart from adding unto existing knowledge about the contribution of the Catholic Church to peace building, this study would also be of benefit to policy makers, academicians and the Catholic Church in Kakamega as well as in Kenya at large. It is hoped that the findings will help the church to re-evaluate and improve on her peace-building strategies. The key recommendations of the study are: the church has to intensify her strategies of peace building, to intervene in the conflicts in the sugar industry in the region and reach out to *bodaboda* groups, which are more vulnerable to manipulation by the political class. The church has to also incorporate traditional peace-building strategies which may have been eroded during the colonial era.

21. CPC/H/203/11

SOCIO-ECONOMIC CONFLICTS ARISING OUT OF INTERACTIONS BETWEEN MUMIAS SUGAR COMPANY AND THE LOCAL COMMUNITY IN KAKAMEGA COUNTY, KENYA

OTIENO Beldinah Kochwa Oranga with Supervisors Prof. Kennedy Onkware, Ph.D. and Prof. John K. Byaruhanga, Ph.D.

ABSTRACT

Electromagnetic Induction is one of the key topics in the secondary schools' Physics syllabus. It is taught in a spiral manner from form one to form four. In the KCSE examination, questions from this topic feature prominently every year – both in the theory and practical examinations. However, over the years, the performance in this topic has remained dismal. This research aimed at finding out if Video Based Instruction could help change this trend. This is because Video Based Instruction has been found to be an effective method of teaching many subjects and its potential has encouraged instructors and learners to opt for it. Despite this knowledge, many Physics instructors still employ the conventional method of instruction. This study sought to investigate the instructional effectiveness of video –based instruction vis-à-vis Conventional Teaching Methods on students' achievement, attitude formation and skill acquisition in Electromagnetic Induction among secondary schools in Kenya. A quasi experimental study entailing the pre-test, post test non- equivalent group design was used. The study was conducted on form four boys and girls from Sub County and County schools selected from Former Kakamega Central District. The students were assigned into experimental and control groups. Groups in their intact classes were used. Data was collected using Physics Achievement Tests, Observation of students' practical performance and Students' Attitude Questionnaire. To test for validity, the researcher ensured that instruments covered the study variables. The instruments were given to three different Physics educators to ensure that face and content validity was acceptable. For reliability, the test-retest method was used. A correlation coefficient of 0.94 for PAT1, 0.96 for PAT2, 0.89 for ESS and 0.81 for SAQ was found using the Pearson Product Moment Correlation formula. This was considered sufficient enough to judge the instruments as reliable. Data was collected in second term since this is when the topic is usually covered. Both the experimental and control groups were subjected to a pre- test to determine their entry behavior. Then the experimental group was taught using Video Based Instruction, while the control group was taught using the Conventional Teaching Methods. Both groups were then subjected to the post- test after instruction. The results from the two groups were compared to establish the gains as a result of the two teaching methods. A total of 326 students participated in the study. Qualitative data for attitude formation and skill acquisition in Electromagnetic induction was collected and analyzed using Chi-square. Quantitative data for achievement was analyzed using t-test and analysis of variance. All tests of significance were conducted at $\alpha = 0.05$. The results showed

that Video Based Instruction resulted in higher achievement, greater skill acquisition and better attitudes formed towards the topic of Electromagnetic Induction. Video Based Instruction tended to demystify the abstract nature of Electromagnetic Induction and hence made it comprehensible to the learners. It was concluded that Video Based Instruction improved the students' achievement, skill acquisition and attitude formation towards Electromagnetic Induction compared to Conventional Instructional Methods. It is recommended that the findings from this study should provide a basis upon which assessment is made on the usefulness of integrating video-based instruction in the learning of Electromagnetic Induction and other topics in the Physics curriculum.

22. CPC/H/01/09
EXTERNAL ACTOR INFLUENCE ON SOMALIA PEACE BUILDING PROCESS

ONGOMA Otieno Calleb with Supervisors Prof. Potian G. Okoth, Ph.D.
Prof. Frank Matanga, Ph.D.

23. CPC/H/08/09
MANAGEMENT OF GENDER-BASED VIOLENCE AFFECTING STUDENTS IN KENYAN UNIVERSITY

WAFULA Adikinyi Judith with Supervisors Dr. Janet Kassilly, Ph.D
and Prof. Judith Achoka, Ph.D.

ABSTRACT

Gender-based violence (GBV) violates human rights and is a public health concern as it affects the well-being of victims. It consists of physical acts of force, social and psychological harm meted to an individual or group of individuals for no other reason than that they are male or female. Moreover, it denies the victims the opportunities for self-actualization, obstructing national development. Previous studies, apart from highlighting GBV issues affecting girls in primary and secondary school settings also gave an overview of the prevalence in society, including educational institutions. Subsequently this research undertook an in-depth study on the management of GBV affecting students in Kenyan universities. The independent variable was management as a function while dependent variable was GBV. Management entailed the provision of policies on GBV; prevention, support of victims and actions on the perpetrators of GBV. Additionally, challenges in the management of GBV at the universities were examined. A GBV-free university will promote the realization of full potentials for both the male and female students and further contribute to national development. The information gathered forms a basis for policy interventions in GBV and provide useful insights to researchers on GBV. A cross-sectional survey design was utilized in three public (Maseno, Egerton, Nairobi) and private (USIU, KeMU, Daystar) universitiesobtained by simple random sampling. A total of 399 students from each university cluster were obtained using convenience and simple random sampling. Hence students who were free from class at the time of data collection were chosen albeit through simple random sampling achieved by taking every third person by gender. Questionnaires were used to collect data from students, lecturers, student leaders, counsellors and deans of students in addition to in-depth interviews for vice chancellors and document analysis of policy documents from the universities. Other sources included government records, unpublished and published books, reports, journals, newspapers and internet sources. Data collected were coded and examined by both descriptive and inferential (Chi-Square) statistics using SPSS and Excel to obtain frequencies, percentages, graphs, Chi-Square tables and levels of significance. Results were presented both qualitatively and quantitatively in the order of the study objectives by university category. The findings show that universities had policy provisions and took measures to prevent

GBV majorly through awareness, and uniquely, one public university organized forums for discussion exemplified through "coffee hour" and gender days. However, there were deficiencies in the management of GBV shown by gaps in the policies such as classification of GBV under discrimination, inadequate elaborateness, exposition of GBV and policy implementation. Consequently, there was limited support for victims by the university authorities and delayed action on perpetrators. Stigmatization was found to be a major challenge in GBV management. Accordingly, re-examination of GBV policies is recommended with involvement from students, staff and faculty. On prevention and support of victims, empowerment of gender institutes to play a more active role in GBV management is recommended. This is to ensure civic education; clear reporting structures; evidence preservation; victim support channels and collation of sex segregated data on GBV for purposes of tracking improvements in the management of GBV. Fast investigation and action on perpetrators by the disciplinary machineries at universities is also recommended to prevent escalation of violence.

24. CDC/H/23/08
STATE AND CIVIL SOCIETY INTERVENTIONS IN POST-CONFLICT RECONSTRUCTION: A COMPARATIVE STUDY OF KIBERA AND MATHARE SLUMS NAIROBI, KENYA

WAMALWA Nyongesa Dennis with Supervisors Prof. Frank Matanga, Ph.D Prof. Kennedy Onkware, Ph.D

25. CDR/H/207/13
SECURITY-BASED DIPLOMACY INFLUENCING TRANSNATIONAL TERRORISM MANAGEMENT BETWEEN KENYA AND SOMALIA

CHUMBA Christopher with Supervisors Prof. Potian G. Okoth, Ph.D. and Dr. Edmond Were, Ph.D.

ABSTRACT

The shift from diplomacy-based security to security-based diplomacy has been attributed to the fact that generating a comprehensive response to transnational terrorism since September 11, 2001 has proven to be difficult. Multilateralism and bilateralism have been employed in security relations with regard to transnational terrorism. However, the increasing transnational terrorist attacks; particularly terrorist incidences in Kenya with attributes from Somalia have been increasing over time. While the role of the military (as a security-based diplomacy actor) has emerged in supporting foreign policy to promote security and deter transnational terrorism, there seems to be a discernable gap on how each country employs particular military engagement tools. The general objective of this study was to examine security-based diplomacy influencing transnational terrorism management between Kenya and Somalia. The specific objectives of this study focused on: assessing the historical evolution of security-based diplomacy between Kenya and Somalia; examining the effects of state-centric counter-radicalization measures; assessing the structural capacity of intelligence sharing and evaluating the effectiveness of border surveillance strategies in the management of transnational terrorism between Kenya and Somalia. The study was grounded on three theories; neo-realism, post-modernism and new social movement. An exploratory research design and descriptive research design were adopted. The study covered Kenya (Nairobi, Mombasa, Lamu, Garissa and Mandera) and Somalia (Mogadishu, Kismayu and RasKamboni). The choice of these regions was centred on the fact that they have experienced a series of terrorist attacks by al-Shabaab insurgency. The total sample size for the study was 400. Cluster sampling and purposive sampling techniques were used to determine the settings and the participants. Data collection was both interactive

(interviews and focus group discussions) and non-interactive involving questionnaire and document analysis. A total of 350 questionnaires were issued to respondents drawn from state and non-state actors, 20 interview guides targeting key informants drawn from state and non-state actors and 30 respondents from religious institutions participated in Focus Group Discussions. A pilot study was carried out at Jommo Kenyatta International Airport and Kenya Ports Authority in Mombasa. Moreover, a pilot interview and focus group discussion was done with a group of leaders and members respectively, drawn from Holy Family Basilica and Jamia Mosque in Nairobi. The reliability of the instruments was determined through the calculation of a correlation coefficient between the first and second administration. The study instruments were tested for validity through consultations and discussions with the supervisors and experts in peace and conflict studies for validation. Data were analyzed by use of descriptive statistics, through quantitative and qualitative techniques. The study found out that the security-based approach involving KDF intervention in Somalia has not been effective in managing transnational terrorism; counter-radicalization programs are weak and disjointed and civil society groups are not fully engaged in such initiatives. The study further established that the structural capacity of intelligence sharing is weak, while border surveillance strategies such as migration controls and technology use are fragile. Overall, the study concluded that a more robust understanding of the effectiveness of particular tools, such as terrorism prevention, is essential in delivering a security-based approach to counterterrorism that is balanced and effective. The study recommended the need for Kenya to reassess its interventionist strategy in Somalia, engage the civil society in counter-radicalization efforts as well as utilizing community intelligence in the management of transnational terrorism.

26. CDR/H/02/13

PEACE BUILDING DIPLOMACY INFLUENCING MANAGEMENT OF TERRITORIAL BOARDER NATURAL RESOURCE-USE CONFLICT BETWEEN KENYA AND ETHIOPIA

KIMOKOTI Namaemba Sussy With Supervisors Prof. Pontian G. Okoth, Ph.D. and Prof. Edmond Were, Ph.D.

ABSTRACT

The exploitative and inequitable management of natural resources has been a pervasive feature of the degenerative trends of the environment making the potential for conflict over non-renewable resources immense. The functions of diplomacy are particularly related to evolving events and issues such as international crises and outbreaks of violence which shift the diplomatic spotlight. The management of territorial border natural resource-use conflict between Kenya and Ethiopia has peripheralized the more problem-oriented multi-sector approach. The general objective of the study was to evaluate the role of peace-building diplomacy influencing management of territorial border natural resource-use conflict along Kenya-Ethiopia border. To achieve this objective, the study sought to examine the nature of territorial border natural resource-conflict; examine the role of actors involved in the diplomacy of peace-building; and assess the effectiveness of the peace-building diplomatic strategies employed in the management of the natural resource-use conflict between Kenya and Ethiopia. The study was anchored on the conflict transformation theory which focuses on transformation of armed conflict into peaceful situations. The power theory which highlights state centric nature to conflict management and the modern diplomacy theory which elaborates the transformed environment of actors, issues and modes of communication within diplomatic functions, were used. The three theories are complemented by the United Nations (UN) agenda for peace. The study adopted historical and exploratory research

designs. The target population included local leaders, government officials, opinion leaders, community members, and officials from Civil Society Organizations (CSOs) from Kenya and Ethiopia. Both probability and non probability sampling techniques were used. A sample size of 381 household heads wasselected, 78 key informants including state and non state actors from the two countries were also sampled for the study. The research instruments included questionnaires, interviews and document analysis from relevant publications. Data analysis was done using selected qualitative and descriptive statistical techniques. The study findings have both policy and academic implications to the communities, local leaders and the governments of the two states in addressing the complex nature of natural resource-use conflict and the deficiencies of a mono-causal analysis towards resource-use conflict management. The study findings indicate that the conflicts have increased and diversified due to clashes over pasture at 32.3% from Kenyan respondents and 23.3% from Ethiopia citing fishing points. Other causes noted werewater usage, economic and social threats including poverty, under development, cultural issues, group identity, environmental degradation and inabilityof land to support large populations. The study further demonstrates the integration of state and non-state actors in the control of shared natural resources with a shift from macro-level to micro-level structural dimension. The overall conclusion validates the paradigm shift in diplomatic structural peace-building initiatives taking a central role, to involve the application of approaches that transcend erstwhile state-centered reactive initiatives which have shown positive outcomes in the diplomacy of conflict management in the region. The study recommends adequate understanding of the root causes of conflict rather than merely focusing on its nature and manifestations; improved coordination and integration among actors; and strengthenedmiddle level structures to enhance their authority and operations.

27. CDR/H/217/13
TERRITORIAL BOUNDARIES AND CONFLICT MANAGEMENT WITH SPECIFIC REFERENCE TO ELEMI TRIANGLE, EASTERN AFRICA

Joseph Eroo Mele with Supervisors Prof. Pontian Godfrey Okoth, Ph.D and Prof. Frank Khachina Matanga , PhD

28. CDR/H/04/13
MILITARY PROFESSIONALISM INFLUENCING ANGLO-KENYAN DIPLOMATIC RELATIONS SINCE 1963

ELIJAH Onyango Standslause Odhiambo with Supervisors Prof. Pontian G. Okoth, Ph.D. and Dr. Edmond Maloba Were, Ph.D.

ABSTRACT

Military professionalism has three characteristic: expertise, social responsibility and corporateness. Africa as a continent has faced numerous *coup d'état* because of lack of military professionalism,ethnic and tribal biases in recruitment and promotion. Politicization of the military and militarization of politics and legacy of colonialism was perfected by Africans who became military head as their countries got their independence. While the independence period has witnessed cordial diplomatic,trade and economic relations between the two countries, the ideal military professionalism is a key factor in interstate diplomatic relations. Anglo-Kenyan diplomatic relations has been beset with challenges embedded in military professionalism on both sides. These include challenges in professional training, academic training and character development in terms of military relations. It was, therefore, imperative that this study sought to assess military professionalism influencing Anglo-Kenyan diplomatic relations since 1963 when Kenya got indepedence. Specifically the study sought to:

trace the origin and evolution of Anglo-Kenyan military relations; examine character development opportunities and challenges influencing Anglo-Kenyan diplomatic relations; assess academic opportunities and challenges influencing Anglo-Kenyan diplomatic relations and evaluate socio-economic impacts of undetonated ordnance used by the Anglo-Kenyan militaries in the study location.The study was based on a theoritical frame work, namely realist theory. The study adopted mixed approach which included: historical research design, descriptive survey research design and cross-cultural research and a sample size of 384 was used. The study used simple random sampling method and purposive sampling to distribute 196 KDF and BATUK soldiers across Archer's Post training area and 188 key stakeholders, key informants and knowledgeable locals (indigenous) and residents in the training area. The instruments used for collecting data from the field were: observation, questionnaires and In-depth interview guide. Frequency distribution and descriptive statistics were used to determine a general profile of the informants through summing and categorizing variables such as gender, age, qualifications, years of experience and other items. Data were analyzed with the aid of statistical package for social sciences software (SPSS) version 22. The findings are presented in percentages, tables, bar-graphs and pie-chart. On the general objective of the study which was to assess military professionalism influencing Anglo-Kenyan diplomatic relations, the study found out that military professionalism had three characteristics: expertise, responsibility and corporateness. The KDF and BATUK professionalism was wanting. This was due to: Africa as a continent has faced numerous *coup d'état;* ethnic and tribal biases in the military; politicization of the military and militarization of politics and legacy of colonialism. The findings in objective one were: Kenya sovereignty is compromised by the permanent BATUK bases in the country. Eavesdropping by BATUK a foreign troop poses a threat to Kenya's national security. British had three major interests in Kenya which were: to ensuret hat Kenya remained socially, economically and politically friendly to Britain, the retention of "forward basing". The findings in objective two indicated that the specialized trainings are undertaken by young soldiers below 35 years of age for "group bonding". One challenge is soldiers are trained to kill by desensitisation and behavioural conditioning. Some of the opportunities created are; foreign exchange in favour of Kenya but the trade balance between Kenya and Britain is in favour of Britain. Challenges were: terrorism, religious tensions,and environmental degradation. The findings in objective three revealed that new technology in the world of military hardware has brought about many sophisticated approaches to military. To catch up, the military officers must learn these new approaches through studies. The last objective found that the impacts of UXO on livelihoods could be classified as: fear leading to lower agriculture production,loss of labour force and diminished child education. These were the key impacts that affected livelihoods differently.

29. CDR/H/05/13

APPLYING TRACK THREE DIPLOMACY TO THE MANAGEMENT OF CROSS-BOARDER SECURITY RELATIONS BETWEEN KENYA AND SOMALIA

STELLA Wasike with Supervisors Prof. Pontian Godfrey Okoth, Ph.D and Dr. Edmond Were, PhD

ABSTRACT

The complexity of interstate and intrastate conflicts has become a critical challenge to the field and to methods of conflict resolution even though the number of conflicts has decreased since the end of the Cold War. In trying to find the best methods of resolving conflicts, a variety of types of diplomacy have been identified. Diplomacy has been a paramount element in the upkeep of peace and in the creation of positive change.

The Kenya-Somalia border has had protracted tension which is deeply rooted in history. Various diplomatic approaches have been employed, with a view to addressing the insecurity between the two countries, to no avail. The purpose of the study was therefore to evaluate the application of Track Three diplomacy to the management of cross-border security relations between Kenya and Somalia. It addressed four specific objectives. First, it examined the nature of Track Three diplomacy and its influence on cross-border security relations between Kenya and Somalia. Secondly, it investigated the processes of Track Three diplomacy in the management of cross-border security relations between Kenya and Somalia. Thirdly, it assessed the effects of Track Three diplomacy on the management of cross-border security relations between Kenya and Somalia. Lastly, the study interrogated the challenges of applying Track Three diplomacy to the management of cross-border security relations between Kenya and Somalia. The study was guided by the sociological liberalism and securitization theories. The study adopted descriptive survey and explorative research designs. The target population for the study included 143,811 local residents from both Kenya and Somalia, 103 national officials from both Kenya and Somalia, 6 County officials from Kenya, 34 local leaders from Kenya and Somalia, 218,625 refugees and IDPs from Dadaab refugee camps and Dobley IDP camps, 121 opinion leaders from both Kenya and Somalia, 68 local NGOs and CBOs of Kenya and Somalia, 124 religious leaders specifically from Kenya, 1,686 aid workers from Kenya and Somalia and 3001 business people of Kenya and Somalia. Stratified sampling technique was used to arrive at nine strata, namely that of County and National officials, local residents, refugees and IDPs, local leaders, religious leaders, opinion leaders, aid workers, local NGOs and CBOs and one for business people . 538 subjects for study were chosen from these strata and they were arrived at through purposive, census and snow ball sampling methods. Primary data were collected through Focused Group Discussions, interviews and questionnaires, while secondary data involved document analysis from relevant publications. Quantitative data was analyzed using appropriate descriptive statistics while qualitative data basically involved thematic and content analysis. The study concluded that Track Three is capable of managing security relations between countries and based on the findings, the study generally recommended that Track Three be embraced in high diplomatic circles since it has proven to be more effective in managing security relations where other forms of diplomacy have failed.

30. CDP/H/03/11

MODELLING LAND USE CHANGE AND SEDIMENT YIELD FOR DISASTER PREPAREDNESS IN RIVER NZOIA BASIN, KENYA

AKALI Ngaywa Moses with Supervisors Prof. Silvey B.B. Oteng'I, Ph.D. and Dr. Edward N. Masibayi, Ph.D.

ABSTRACT

River Nzoia basin is predisposed to degradation ascribed to poor anthropogenic land use practices, soil erosion and sedimentation. Annual cropland and deforested areas generate sediment that is eventually deposited in river Nzoia lower basin, accentuating flood hazard. The main objective of the study was to model land use change and sediment yield for disaster preparedness in river Nzoia basin, Kenya. Specific objectives were, to: Characterize and predict spatio-temporal land use change; Examine seasonal and annual trends in sediment loading and determine the spatial distribution of soil erosion hazard and estimate sediment yield. Database of the basin comprised of 90m DEM, LandSat imagery, hydro-meteorological and soil data. Landsat satellite images were used for land use change analyses applying ENVI4.7 and ArcGIS 10.1. Cellular Automata (CA)-Markov model projected land use scenario for 2020. Seasonal and annual

trend analyses for sediment loading were performed using Mann-Kendall statistics. Average annual soil loss rate and soil erosion hazard mapwere modelled using RUSLE model in a GIS environment.Sediment yield was computed from sediment delivery ratio (SDR). SWAT modelling involved input data preparation, sensitivity analysis, calibration and validation. Model accuracy was evaluated based on graphical and statistical techniques. Six optimal functions: coefficient of determination ($R^2 = 0.965$), weighted coefficient of determination ($\lambda = 0.917$), Nash Sutcliffe efficiency ($R_N^2 = 0.964$), root mean square error ($RMSE = 5.0$), normalized root mean square error ($NRMSE = 4.6$ %) and Pearson's correlation coefficient ($r = 0.9$) at the basin outlet, indicated acceptable performance of SWAT hydrologic modelling for river Nzoia basin. During the study period, shrubland, annual cropland, and grassland increased by 13.28%, 5.59% and 0.06% while forestland, water body and wetlands experienced decrease in percentage coverage by 10.97, 3.78 and 4.18, respectively. Cellular Automata (CA)-Markov model projected land use scenario for 2020 with R_N^2 = 99.92% where annual cropland and shrub land would respectively account for 64.2% and 30.01% coverage. Forest land coverage will be 3% while water body, grassland and wetland would, respectively cover 1.51, 0.32 and 0.71% of the river Nzoiabasin.Annual sediment loading trend analysis between Webuye and Rwambwa gauging stations revealed a significant ($r = 0.857, p < 0.6$)strong positive correlation. RUSLE modelling yielded average annual soil loss rate of 0.51Mtonha[-1]yr^{-1} and generated spatial soil erosion hazard map for river Nzoia Basin.Sediment Delivery Ratio of 0.121 revealed that 87.9% of the soil eroded by water in the basin is deposited before reaching the basin outlet. Average annual sediment yield estimated was 0.06Mtonyr[-1]. Four SWAT model most sensitive parameters were:CN2.mgt; ALPHA_BF.gw; GW_DELAY.gw and GWQMN. gw. Agricultural expansion is the main driving force for loss of forest cover in the basin and has the potential to continue in future. Projected land use scenario for 2020 would provide useful insights to land use planning for effective management of the basin. Sediment loading is season sensitive and significantly increasing annually. Most of the erosion occurring in the basin is from annual croplands and the deforested slopes of Mount Elgon, Cherenganyi hills and Nandi Escarpments. Afforestation programmes and sustainable agricultural practices should be enhanced to mitigate soil erosion and reduce sediment generation in river Nzoia basin.

31. CDP/H/03/12

EVALUATION OF SELECTED HUMAN, PHYSICAL AND ENVIRONMENTAL RISK FACTORS FOR ROAD ACCIDENTS IN UASIN GISHU AND BUNGOMA COUNTIES –KENYA

WAPUKHA Makhumi Jason with Supervisors Prof. Jacob W. Wakhungu, Ph.D. and Prof. (Eng) Richard O. Onchiri, Ph.D.

ABSTRACT

Road accidents in the transport industry are a threat to public health and national development in many developing countries. It contributes to poverty by deaths, injuries, disabilities, grief, and loss of productivity and material damages. The road accidents in Uasin Gishu and Bungoma counties are alarming. The road accidents have resulted in loss of life and resources. The society is overburdened by the loss of young people who are active and productive in Uasin Gishu and Bungoma Counties. Evaluation of selected human, physical and environmental risk factors influencing road accidents in Uasin Gishuand Bungoma Counties was carried out. The study focused on the following specific objectives, to; determine risk factors for road accidents in Uasin Gishu and Bungoma Counties, determine the relationship between road geometry features and road accident, determine the relationship between speed of a vehicle and

impacts on road accidents and evaluate strategic options to reduce road accidents. The methodology; Study areas were, Uasin Gishu and Bungoma counties. The study population of 1,185 with sample size of 596 which represents 50.3% was done. Sample Techniques; The target populations for the study were the vehicle drivers, accident victims, hospital workers and police in Uasin Gishu and Bungoma Counties who were assessed through survey. Records from public hospitals, private hospitals and police stations were used to identify the casualties and fatalities involved in road accidents within the two counties. Six research assistants were employed to list down each vehicle number and the route of operation and road geometry features. The procedure for data collection was based on both qualitative and quantitative approach. Interview schedules focus group discussion and observations. Analyses of data were done by descriptive statistics using the measures of central tendencies, frequency distributions, difference between a set of observed frequencies and a corresponding expected frequency. Inferential analyses were done by use of Chi-square, correlation analyses and simple regression. The findings were 40% of respondents held that high speed is a risk factor for road accidents. It was found that 63.3% of drivers of age 25 and below are risk factors for accidents. It was established that 42.9% of shift workers were exposed to accident risks. It was found that 57% of respondents held that economic activities expose road users to risks of road accidents. In Bungoma County; horizontal curvature was found to have the slope (b) 0.02 which was less than the critical value-t (2.82) therefore it predicted that horizontal curvatures influence risk factors for accidents. The potholes was found to have a slope (b) (0.0002) which was less than the critical value-t (1.7903), therefore it predicted that Potholes influenced risk factors for road accidents. The junctions per kilometer was found to have a slope (b) 1.2474 which was less than the critical value-t (4.0060), therefore it predicted that junctions per Kilometer were influencing risk factors for accidents. In Uasin Gishu County; average width was found to have a slope (b) -0.8414 which was less than the critical value-t (2.8441), therefore it predicted that average width (m) was a risk factor for road accidents. When speed of vehicles goes up, the number of road accidents or injured road users go up by 75.9%. It was established that 67% of respondents held that education and testing reduce risk factors for accidents. The traffic co-existence and segregation was found by 77% of respondents as a strategy that can reduce risk factors for road accidents. It was held by 75% of the respondents that road safety and safety systems reduce risks for road accidents. It was found by 90% that provisions of vibratory feedback through in-vehicle support systems reduce risk factors for road accidents. Conclusions; Young male drivers, shift workers, early hours of the morning are some of factors that contribute to risks for accidents. Drivers' speed choices impose risks that affect both the probability and severity of accidents. The recommendations are; the junctions should have adequate safety information such as pumps, rumbles, clear sign posts that warns drivers, potholes should be removed by regular road maintenance and reinforcing the emergency services by installing e-Call device so as accesses the emergency services in case of road accident.

32. CDP/H/09/12

HYDROLOGIC MODELING FOR MANAGEMENT OF YALA RIVER FLOOD FLOWS, WESTERN KENYA

WANYONYI Sabuni Enock with Supervisors Prof. Jacob W. Wakhungu, Ph.D. and Dr. Kiluva Mwikali, Ph.D.

ABSTRACT

Flooding has been a major issue in the lower reaches of the Yala River Basin (YRB) in Kenya for the past 30 years. The basin has experienced loss of lives, destruction of

property, outbreak of water borne diseases and siltation of arable lands that have followed flood events. Various intervention measures have been put in place to address this problem such as construction of dykes; however, the problem still persists. This is due to lack of quantified information on the volume and extent of the Yala river flood flows. This has hampered efforts to design and plan for proper intervention measures in the affected areas. The lack of information on the flood magnitude and extent has been due to difficult conditions to measure discharge in the lower YRB because of channel instability, high silt content and presence of Papyrus Reeds in the swamp. This research focused on mapping out the flood area extent, modeling and simulating water balance for Yala river flood flows, determination of rainfall –runoff parameters and evaluating engineering management options in order to address the perennial flood problem. Satellite imagery data analysis was applied to detect, delineate and map out areas of YRB often affected by floods. This was done using Multi-temporal LANDSAT Thematic Mapper satellite imagery. Satellite imagery data was used as a suitable alternative in obtaining information where traditional discharge measurement methods were not applicable. The estimates of total water balance for the YRB for 30 years (1980 - 2010) on daily basis was developed using MIKE 11-NAM model. Rain fall –runoff parameters were obtained using HEC-HMS model. Evaluation of Engineering Management options was carried out using the ArcGIS 10.0 analysis tool.The results indicated that flood area extent varied by 34.23 km2 for the 27 year period of study. The YRB has an estimated inflow from rainfall of 4,814.72 Million Cubic Meters (MCM) and outflow of 4,578.23 MCM leaving a balance of 236.49 MCM that forms the flood flow. The 236.49 MCM formed the basis of dam evaluation upstream of YRB for management options to mitigate the risk from the flood flows that perennially affect the population living downstream of the basin. Rainfall – runoff parameters using HEC – HMS model were determined. The study established that Nandi Forest dam site alone has a storage volume of 201.61 MCM. Kaimosi dam has storage of 10.2MCM. Nandi Forest and Kaimosi dams if constructed will hold 89.6% of the flood flows. This will signicantly reduce flooding in the lower YRB. The results indicated that the extent of Yala river flood flows has a significant impact in the basin, while the water balance model significantly simulated the water balance in the basin with a Coefficient of determination of 87% (R2 =0.867) This enhanced evaluation of management options of floods in the basin where dam sites were considered to reduce flooding by 89.6%. This study recommends that control policies and actions to reduce exposure and risks from flooding should target structural interventions for optimum results. The performance of the adopted flood models and the options proposed in this study should be enhanced through intensified real time data collection. This will assist in increasing model performance and dam design.

Key Words: Satellite imagery, Flood extent, Modeling, Yala River

33. CDP/H/01/08

FACTORS LEADING TO STRUCTURAL FAILURE OF THE HOT MIX ASPHALT PAVEMENT ALONG TIMBOROA TO MALABA CLASS 'A' ROAD IN KENYA

SAMUEL Gathuka Waweru with Supervisors Prof. Richard O. Onchiri, PhD and Dr. Edward N. Masibayi, PhD

ABSTRACT

Transportation infrastructure plays a vital role in the economic and social development of any country and this role cannot be underestimated. The impact of growth and prosperity achieved in the transportation sector extends to include other sectors, and therefore, there is a strong synergy between growth in the transportation sector and the overall growth of a country's economy. In Kenya flexible pavements are generally adopted for the construction of our major highways. A flexible pavement consists of a

matrix of sub-base, base course, and surface course positioned on top of the subgrade to support and distribute the traffic load uniformly. Distresses in the form of rutting, cracking and ageing are a common occurrence on HMA pavements. Rutting is one of the habitually observed permanent distresses on major highways in Kenya and consequently instigated the research. This research addressed the factors and attributes which lead to structural failure of the flexible pavement along the Timboroa - Malaba (A104) road section which forms part of the Northern corridor. The objectives of the study were; to identify the main factors causing structural failure of the flexible pavement, to evaluate the effects of traffic characteristics on the stability of the pavement and, finally to develop rutting models capable of predicting failure of flexible pavements. Both primary and secondary data were applied for the accomplishment of this research. Pavement failure is a highly variable event that is influenced by several factors including material properties, environmental factors, hydrogeological conditions and traffic characteristics. Failure is defined in terms of amount of surface cracking, rut depth, surface roughness, skid resistance, or combinations of these and other indicators of performance. Field data collection methods and elaborate laboratory testing procedures were applied to obtain data on the physical and mechanical properties of the subgrade soils, environmental and hydrogeological data and traffic characteristics at selected sampling points along the Timboroa - Malaba road section. Geological maps and ArcGIS software were useful in analysing the hydrogeological conditions of the study area. Current design standards and construction methods were evaluated in order to verify their impact on the pavement deterioration. Regression method of analysis was applied on the data obtained to correlate the results with pavement failure. Research findings from this study indicate that the major contributors to pavement distresses are the weak subbase layer and unstable subgrade used which results to permanent deformation. Overloading factor associated with the heavy goods vehicles was also found to play a significant role. This information provides an insight on the probable design improvements to counter the alarming pavement distress levels observed on Kenyan roads. The model developed here offers an important tool for predicting the performance of the highway pavement when subjected to traffic loading for a given period of time. The critical knowledge developed here can be utilized by the National Government and other road agencies, for planning and design and also in preparation of highway maintenance and rehabilitation schedules.

FACULTY OF EDUCATION AND SOCIAL SCIENCES

34. EDM/H/04/10

INFLUENCE OF SELECTED TEACHER INSTRUCTIONAL STRATEGIES IN STUDENTS' LEARNING OUTCOMES IN MATHEMATICS IN SECONDARY SCHOOLS OF MUMIAS SUB-COUNTY, KAKAMEGA COUNTY, KENYA

NANDWA Odhiambo Marble with Prof. William Wanjala Toili, Ph.D. and Dr. Duncan Wasike Wekesa, Ph.D.

35. EDM/H/01/09

PEER INSTRUCTION AND SECONDARY SCHOOL STUDENTS' PERFOMANCE IN VECTORS IN BUNGOMA COUNTY IN KENYA

OUKO Awino Susan with Prof. Amadalo M. Musasia, Ph.D. and Dr. Aurah M. Catherine, Ph.D

ABSTRACT

To achieve Kenya's vision 2030, human resource needs to be developed in areas such as such as engineering, accounting, medicine, nuclear science and space exploration. Good performance in mathematics is one of the factors that determines suitability for training in these areas. Students who will further their studies in these areas find that vectors is prerequisite knowledge. Kenya Certificate of Secondary school results over the past five years reveals that less than 15% of the students scored quality grades of B- and above. More than 70% of the students scored grades D+ and below. A survey conducted by Strengthening Mathematics and Science Secondary Education (SMASSE) in Bungoma County revealed that the teachers of mathematics largely used teacher centered instruction. The purpose of this study was to determine the impact of peer instruction and conventional methods on students performance in vectors. This study was guided by the social learning theory advanced by Albert Bandura. The study employed a quantitative research design. A modified version of the Solomon four group design was used. The independent variable is method of instruction (peer instruction and conventional instruction). The dependent variables are achievement in mathematics, motivation to learn mathematics and attitude formation. The study was conducted in Bungoma county in western Kenya. The study population comprised of the form three class. Using multi stage sampling technique, 16 schools were selected from which 479 students participated in the study. 239 learners were randomly assigned to the experimental group and 240 to the control group. A questionnaire and two achievement tests were used to collect quantitative data from students. Content validity of the instrument was assessed by expert reviewers, whose recommendations were incorporated to refine the instruments. Piloting was done in 3 schools not included in the 16 in Bungoma county. The test-retest technique was used for reliability analysis. A reliability coefficient of 0.85 for the questionnaire (SMAQ), 0.72 for the pre-test (SVAT I) and 0.8 for the post-test (SVAT II) were obtained. Data were analyzed using descriptive statistics (frequencies, percentages and means) and inferential statistics (t-test, ANOVA and Chi square). All tests of significance were conducted using the Statistical Package for Social Sciences (SPSS version 12) at $\alpha = 0.5$. The findings revealed that using peer instruction enhanced positive attitude formation, motivation to learn mathematics, and better achievement scores in the mathematics test compared to using conventional instruction. Therefore it is concluded that peer instruction improves students performance in vectors. It is recommended that teachers should incorporate and oversee peer instruction in their classes.

36. EPM/H/02/12

INFLUENCE OF CONTINUING PROFESSIONAL DEVELOPMENT PROGRAMMES ON SECONDARY SCHOOL MANAGERS' COMPETENCIES IN MANAGEMENT OF RESOURCES IN WESTERN KENYA

BULIMO Anne Winnie with Supervisors Dr. Judah Ndiku , PhD and Prof. Julius Maiyo , PhD

ABSTRACT

The dynamic changes of school management call for skilled and knowledgeable school managers to enable schools gain and sustain competitive advantage. This calls for advocacy for Continuing Professional Development (CPD). Guided by the Learning Organizations' theory of Peter Senge (1990) and a conceptual framework developed, the study sought to investigate the implication of CPD on resource management competencies of secondary school managers. Specifically it aimed at: establishing the proportion of secondary school managers participating in CPD programmes; determining the factors influencing participation to CPD; determining the difference between the contribution of CPD on the teacher management competencies of the Heads of Department and the senior managers and; determining the difference between financial management competencies of the school managers before and after attendance to CPD in Western Kenya. The study employed descriptive survey design. The study target population was 1,379 which comprised of 959 HoDs, 137 principals and 137 deputy principals. In addition 137 chairpersons of the BoM, 4 County Quality Assurance and Standards Officers, 4 TSC Human Resource Development Officers and the Kenya Education Management Institute head of training department. The sample for the study comprised of 443 respondents determined from the target population using the Cochran's sample size formula. Stratified random sampling was used to pick 44 schools within the region while purposive sampling was used to pick the respondents of the study who included 44 principals, 44 deputy principals, 44 BoM chairpersons and 308 HoDs. Data were collected using questionnaires, document analysis and interview schedules. Validity and reliability of the research questionnaires was done through consultation with experts as well as through Split Half method. Data was analyzed using descriptive and inferential statistics such as means, percentages, Chi square, regression analysis and t-tests. The findings were presented using tables and bar graphs. The study found out that there was fair participation to CPD by gender and by school type. However it was observed that there was a significant relationship between participation to CPD programmes and the manager's designation. Attendance to KESSHA and KEMI CPD was skewed towards the school principals while majority of the HoDs attended School Based Mentorship programmes and the Quality Assurance and Standards CPD programmes. It was also established that, inadequacy of funds and absence of CPD policy were major barriers to access to CPD. It is hoped that the findings of this study will inform the policy makers, education planners and managers on the need to participate in CPD. Again the research established that there was a significant difference in contribution of CPD to the HoDs and senior managers' teacher management competencies. Lastly, there was a significant difference in the financial management competencies of the managers before and after undergoing a CPD programs.The study recommends that through policy intervention, the government should make it compulsory for all education managers to undertake CPD training. To this end, the government should re-energize the role of the KEMI to address the management competency gaps of all education managers. The researcher suggests that a similar study should be replicated in primary schools.

37. EPM/H/05/12

PERFORMANCE CONTRACTING AND SERVICE DELIVERY IN PUBLIC PRIMARY TEACHERS TRAINING COLLEGES IN KENYA

KIPKENEI Kipsemon Simon with Supervisors Dr. Ndiku Judah, Ph.D. and Prof. Maiyo Julius, Ph.D.

ABSTRACT

The Government of Kenya introduced Performance contracting in the public service as one of the tools to improve service delivery. Since its introduction in 2004, where only a few of the state corporations participated, performance contracting is now being implemented in a majority of the Ministries, Departments and Agencies. Service delivery in Public institutions is still wanting in spite of the introduction of Performance contracting. That was why this study seek to examine the implementation of performance contracting in Public Primary Teachers Training Colleges in Kenya with a view of improving service delivery. The study was guided by the following objectives: to examine employees' perception of Performance contracting, to determine the practice set by employees in Performance contracting, to establish the availability of resources for implementing Performance contracting and to investigate the implementation strategies of Performance contracting, all with an aim of improving service delivery to the public. The study utilized "The Institutional theory". It employed descriptive survey design. The target population was 2270 employees and 783 members of the students' councils of Public Primary Teachers Training Colleges. Purposive sampling, simple random sampling and stratified random sampling were used to identify the sample population. A total of 429 respondents formed the sample size representing 30% of the study population. The instruments used to collect data were questionnaires, interview schedules, observation checklist and document analysis. Data analysis was done using Chi-square which was the main statistical tool, descriptive statistics of frequencies and percentages were also used to summarize data. The findings were presented using tables and figures. The study established that there is a significant relationship between employees' perceptions of performance contracting and service delivery. The implication of the results is that performance contracting is affected by employees' perceptions. This is to say PC activities had brought some impact in service delivery hence there must be a great change in employees' perceptions of performance contracting as a tool to improve service delivery. The study revealed several challenges in the implementation process which included lack of training, and capacity building of employees regarding performance contracting, ambiguity in the process and resistance by personnel to participate in the process hence these challenges had hindered the successful implementation of Performance contracts in PPTTCs. The results further reveal that the teaching staffs' level of knowledge of PC was relatively high. Colleges which were ranked low had fewer PC sub sectors, fewer sub committees, and meets for planning less often. The study therefore recommends that for effective Performance contracting on the improvement of quality services in PPTTCs, all employees need to be included in the signing of the performance contracts. Also, Performance contracts should be linked to rewards and all employees should be trained on Performance contracting since each employee will be held accountable at the end of each financial year. The study further recommends that the set targets be well communicated to all members of staff and students should also be included in the setting of their own targets in Colleges for effective implementation. The Government should set a monitoring team on the ground to make sure all agreed PC activities are fully implemented and that rewards must be set for the best and poor performers alike.

38. EPM/H/11/10

SCHOOL CHARACTERISTICS AND STUDENTS' DROPOUT IN PUBLIC SECONDARY SCHOOLS IN VIHIGA COUNTY, KENYA

SHAVISA Tom with Supervisors Dr. Judah Ndiku, Ph.D.
and Prof. Maurice Amadalo, Ph.D.

ABSTRACT

Sustainable students' enrollment with minimal drop outs in public secondary schools has remained a great concern to many educators in the educational realm. There have been different opinions amongst stakeholders on what actually causes students' dropout in public secondary schools. Some schools of thought ascribe dropout to the composition of the school that students enroll in, while others account it to school characteristics. In this study, the school characteristics examined the school culture and socio-economic characteristics of the student. However, this may not have been documented through an empirical study. This study investigated the relationship between school characteristics and student dropout in public secondary schools in Kenya. The study investigated the reasons for dropping out by seeking responses from the actual dropouts. The study was guided by the following three objectives: to investigate the effect of school composition on students' dropout in public secondary schools in Vihiga county between 2011 and 2014; to determine the effect of school culture on students drop out in public secondary schools and to determine the effect of students' characteristics on dropouts in public secondary schools in Vihiga County. The study adopted students' retention theory as propounded by Vincent Tinto in 1993 which was augmented by a conceptual framework developed by the author. Related literature was reviewed from the global scene, Kenya and Vihiga County in line with the study objectives. The study used a descriptive survey design which was suitable for collecting data for generalization. The sample frame was derived from 133 public secondary schools in Vihiga County, which were stratified as County or Sub-County. The study population was 1,555 respondents who included 1,285 student dropout, 133 principals, 133 PA chairpersons and 4 Sub-County Directors of Education. The sample size was 284 respondents. Student sample of 200 dropouts was derived from a targeted sample of 386 dropouts being 30% of the total dropouts (1,285). From a school population of 133, 30% gave out a sample of 40 principals and 40 PA chairpersons respectively. Four Sub-County Directors of Education were purposively sampled. However, multi-stage sampling procedures were used to enable selection of a sample. The instruments of data collection were: questionnaire, interview schedule and document analysis. The study instruments were piloted to ensure validity and reliability in data collection. Data analysis procedures involved descriptive technique by use of percentages and tables. Computation of inferential data was done using SPSS package, version 20.0. Inferential statistics adopted the use of a two sample independent t-test and multinomial regression analysis to establish the students' mean dropout and the magnitude of independent variables on dropout. The qualitative data from the interviews were summarized thematically to triangulate the study findings. The study findings revealed that school composition, school culture and students' characteristics had a significant effect on dropout. The study recommended that schools should enroll professional counselors to attend to guidance and counseling issues than involving teachers. It further proposed the inclusion of vulnerable students into family support groups and work study programmes at school for effective mentorship and support. These recommendations would be a basis for reforms to equalize students' retention in various school statuses.

39. EPS/H/01/10

RELATIONSHIP BETWEEN SUBSIDIZED FREE DAY SECONDARY EDUCATION AND STUDENT RETENTION IN SECONDARY SCHOOLS IN KENYA

ASENA Muganda James with Supervisors Prof. AggreyM ukasa Simiyu, Ph.D. and Dr. Adrew Riechi, Ph.D.

ABSTRACT

Learners are important in any education system as they are the key stakeholders of a school for it to be registered by the Ministry of Education in Kenya. However the retention of these learners in Kenya's Secondary Education is a great challenge. Every secondary school dropout signifies unfulfilled objective, goal and aim for the individual as well as the community at large leading to a crucial question;why do the learners drop out of the learning cycle despite the huge investment by the government in the education sector. The purpose of the study was to establish the relationship between Subsidized Free Day Secondary Education (SFDSE) and student's retention in secondary schools. The study was guided by the following specific objective to determine: students' retention rates in secondary schools before and after the introduction of SFDSE by the government in the year 2008; the adequacy of SFDSE funds, factors affecting the effectiveness of SFDSE and students' retention and if SFDSE has enhanced students' retention in secondary schools in Bungoma County. The study adopted a cross-sectional survey research design and used both questionnaires and interview schedules to gather information from the target population of 3,993 comprising education officers, principals of schools, parents, PA and BOM Chairpersons. The study adopted Yamane simplified formula to calculate the sample size of 364. The data was coded and analyzed using Statistical Package for Social Sciences (SPSS) computer software. Qualitative data was analyzed using content analysis based on analysis of meaning and implications emanating from respondents' information and documented data while Quantitative data was analyzed using various descriptive statistics which included the mean, mode, standard deviation and variance. The results indicated that enrollment in schools had increased and about 87% of those respondents believed that children were retained in school. The study recommended that due to the importance of SFDSE which had enhanced retention the amount allocated per child should be increased. This was useful information to education planners, stakeholders and well wishers. They should also remove the extra burdens from the parents by removing extra charges.

Keywords:Subsidized Free Day Secondary Education (SFDSE), School Finances, Learners' Retention

40. EPS/H/18/10

EXAMINATION POLICIES AND THEIR INFLUENCE ON QUALITY OF EDUCATION IN HIGH SCHOOLS IN CENTRAL REGION OF UGANDA

OBOKO Mark With Supervisors Dr. Zipporah S. Sisungo , PhD and Dr. Samuel N. Maragia, PhD

41. ECI/H/12/08

EFFECTS OF INTEGRATED AND REGULAR TEACHING METHODS ON STUDENTS' ACADEMIC ACHIEVEMENT AND ATTITUDE FORMATION IN PHYSICS ON CELLS AND SIMPLE CIRCUITS IN NANDI COUNTY

MAJERE Inzahuli Samuel With Supervisors Prof. Aggrey Mukasa Simiyu , PhD and Prof. Amadalo Maurice Musasia, PhD

ABSTRACT

Physics concepts and skills are very useful in manipulating a wide range of tools found in the home, Industry, Medicine, Aviation and Agriculture. Physics is a subject in the secondary school curriculum in many countries. In Kenya, Physics is studied by all Form one and two students. At forms three and four, Physics is studied as an optional subject. The performance of students in Physics at the Kenya Certificate of Secondary Education is generally poor. The methods that encourage direct and concentrated student involvement in Physics activities have been in vogue. Integrated Teaching Approach (ITA) promises better engagement than the Regular Teaching Method (RTM) through: provision of hands- on activities, short assignments, opportunity to acquire skills, formation of positive attitudes towards Physics and ensuring that concepts are applied in life. The study was quantitative, quasi experimental design approach utilizing pre- test, post- test, and non-equivalent groups. This study was done in Nandi County in the former Rift Valley Province of Kenya. This study compared ITA and RTM teaching methods. The objectives of the study were: to find out the achievement of students in Physics, determine the skill acquisition and establish attitude formation after instruction using ITA and RTM on the topic of cells and simple circuits. The target population was form two students who study Physics in sub county and county schools. A sample of 395 respondents from ten schools was selected using stratified and simple random sampling techniques. A questionnaire was used to determine students' attitude formation towards Physics. A checklist was used to gauge the acquisition of skills. Two Physics Assessment Tests (PAT) gauged students' achievement in Physics. PAT 1 was administered at the beginning of the study to determine the students' entry behavior while PAT 2 established the students' achievement after instruction using ITA and RTM. The instruments were pilot tested for reliability in two secondary schools in Nandi County. Validity was determined by three Physics-subject experts was classified as good. Reliability coefficients of 0.803, 0.791, 0.910 and 0.715 for PAT1, PAT2, Skill Observation Checklist (SOC), and Attitude Questionnaire (AQ) respectively were obtained using Cronbach's Alpha coefficient. Data on PAT1 and pre test questionnaire was collected by the researcher during the second visit to the schools. The post test questionnaire, skill acquisition checklist and PAT 2 were collected during the final visit to the schools. Data analysis utilized t- test, ANOVA and chi square. The results of the study showed that ITA enhanced higher academic achievement, better levels of skill and positive attitude formation towards Physics compared to RTM.

FACULTY OF SCIENCE

42. SPH/H/02/10

THERMODYNAMIC PROPERTIES OF HIGH TEMPERATURE SUPERCONDUCTOR CUPRATES DUE TO INTERACTIONS BETWEEN COOPER PAIRS AND ELECTRONS

ODHIAMBO Oloo Jared With supervisors Prof. Thomas W.Sakwa, Ph.D. and Prof. Yudah K. Ayodo, Ph.D.

ABSTRACT

Superconductivity is a state of zero DC electrical resistance (ρ 0), hence infinite conductivity of electrical current ($\sigma = \infty$); when the temperature of the material is lowered below critical temperature (T_c) of the material in a zero magnetic field strength. Superconductivity is categorised into two main classes: low temperature superconductors, explained successfully by the BCS theory and whose T_c is less than 30 K, and the High Temperature Superconductors (HTS) whose T_c is 30 K and beyond. Currently the highest experimentally achieved T_c is 140 K in a cuprate superconductor $HgBa_2Ca_2Cu_3O_x$ at normal atmospheric pressure and T_c of 154 K in the same compound under pressure. Superconductivity mechanism for HTS has remained elusive to date. Most discovered properties are very difficult to replicate due to bulky and anisotropy nature of HTS. Furthermore orientation and oxygen content has made cuprates not to be understood. The discovery of energy gap has been seen as a harbinger of discovering superconductivity. Energy gap occurs between excited and condensed state. This study was aimed at investigating the thermodynamic properties of HTS cupratedue to interactions between Cooper Pairs and Electrons, Cooper pairs being in a condensate state and electrons being in an excited state.In our study we selected the HTS cuprates and exposed them to our model. The following HTS cuprates were used in the study: $YBa_2Cu_3O_7$ (Y123), $Tl_2Ba_2CaCu_2O_8$ (Tl2212), $HgBa_2CaCu_2O_8$ (Hg1212) and $Bi_2Sr_2CaCu_2O_8$ (Bi2212). This is because these compounds are naturally occurring. Our objective included determining the energy of interaction, the specific heat as well as entropy. Based on number operation of second quantization formalism, equation of energy, specific heat, entropy and critical temperature were derived based on the formulated Hamiltonian and the commutation rules. The computer software MATLAB was used in generating results from the derived equations. Kaleidagraph software was used in drawing the graphs. The energy of interaction between Cooper pair and an electron was found to range between 2.0 – 4.0 meV per mole or 240 – 380 mJ per gram mass of the HTS cuprate compound. The energy per mole was found to exhibit a linear relationship with the critical temperature of the cuprates. A plot of the specific heat against temperature was a skewed Gaussian shaped curve. All the cuprates possessed a common specific heat of approximately at varied T_c whereas each studied cuprate exhibited different specific heat if measured in other units ranging from 4.5 – 7.0 $mJg^{-1}K^{-1}$ at the T_c. The Sommerfeld coefficient ranged between 0.054 – 0.091 $mJg^{-1}K^{-2}$. The peak Sommerfeld coefficient occurred at an approximate temperature $T'=0.66T_c$ in all the cuprates under study. The interaction experienced entropy ranging from to at the T_c. The entropy was a constant value of for all cuprates when the disorder was considered in the units of per mole of HTS Cuprates. A further study in this area to investigate the effect of magnetic field on the energy gap is recommended. The approximate temperature T' related to T_c, and found at peak Sommerfeld coefficient needs to be investigated.

43. SEP/H/01/13

GENERATING MEASURABLE COVERS AND PARTITION OF MEASURABLE SETS IN R

OLWAMBA Otanga Levi with Supervisors Prof. Shem Away, Ph.D.
and Dr. Maurice Owino Oduor, Ph.D.

ABSTRACT

Over the years vector measure integration has been shown to be a useful tool for analysis of structural properties of Banach space functions. However, this technique has found no application to generate measurable covers for measurable sets. This research formulates an n-dimensional structure of measurable covers for measurable sets. The study involves the construction of measurable covers using multiple integral of functions with respect to projective tensor product of vector measure duality. Measurable sets with respect to sigma rings generated by rings are considered. The study applies extension procedures of the projective tensor product of vector measure duality defined on rings generated by subsets of **R**. In the application of this technique, the existence of the upper and lower bounds of measurable covers requires the variation of all possible countable coverings of sets in a ring by sets in a sigma ring, so as to achieve structural and geometrical equality between measurable sets and their covers. Measurable sets in **R** are partitioned into pairwise disjoint sets of finite dimension using measurable cover estimate technique. The existing estimates of measurable covers are in **R**. This research contributes to knowledge in the field of measure theory on improved estimates of measurable covers in the n-dimensional Euclidean space with respect to function approximation.

44. CDM/H/14/06

INFLUENCE OF ELDERLY CAREGIVERS LIVELIHOODS RECOVERY FROM EFFECTS OF THE AIDS DISASTER IN GARISSA COUNTY, KENYA

MUTERE Betty with supervisors Prof. Jacob Wakhungu, PhD,
Dr. Edward Masinde Neyole, PhD and Dr. Moses Poipoi, PhD

RESEARCH ABSTRACTS FOR THE MASTERS THESES FOR GRADUATES OF THE 11ᵀᴴ GRADUATION, MMUST FACULTY OF EDUCATION AND SOCIAL SCIENCES

45. EDS/G/01/12

COMPOSITE INSTRUCTIONAL METHOD AND ITS EFFECT ON SECONDARY SCHOOL STUDENTS PERFORMANCE AND ATTITUDE FORMATION IN FLUID FLOW PHYSIC

KWALIA Cornelius Kibet with Supervisors Dr. Aurah Catherine , PhD and Prof. Amadalo M. Musasia, PhD

Abstract

Physics is one of the sciences that are applicable in day to day life activities. Physics ideas are also required in other science subjects such as biology and chemistry. It is evident that Physics related courses from tertiary level are very marketable. Despite of this importance and value of Physics, very few students in Kenyan secondary schools take Physics thus hindering them from doing Physics related courses at tertiary level. In Mt Elgon District, the report from District Education office showed that very few students take Physics at form four levels. Those who have done Physics, in the past have always obtained poor results. This study investigated the effect of Composite Instructional Method on students' performance, attitude formation in physics and the interactive effect of the school type on academic performance and attitude formation in fluid flow physics. The study was done in Mt Elgon Sub-county of Bungoma County. The target population was twelve thousand five hundred (12, 500) students in thirty two (32) public secondary schools in Mt Elgon Sub-county. Stratified random Sampling was used to select the participating schools. Simple random sampling was used to select classes which participated and the sample comprised of 300 secondary students. The study adopted Pre-test, Post-test non equivalent quasi experimental design. Achievement tests were used to collect data of students' performance while questionnaires were used to find out information about students' attitude towards physics. Piloting was done one month prior to the study. Reliability of the instruments was determined using the test and retest method while their validity was established from experts' comments and advice. The collected data were analyzed descriptively (means and standard deviations) and inferentially using independent samples t-tests and two-way Analysis of Variance (ANOVA). The research found that composite instructional method had strong effect on academic performance and attitude formation. The type of school does not have effect on performance. The new method does not discriminate the type of school thus it will help secondary school teachers and physics curriculum reforms by Ministry of Education.

46. EDS/G/07/10

EFFECT OF COMPUTER SIMULATIONS IN TRANSVERSE WAVES ON PHYSICS PERFORMANCE IN SECONDARY SCHOOLS IN KAKAMEGA COUNTY, KENYA

LIPUKU Sween Natecho with Supervisors Prof. Amadalo Maurice Musasia, PhD and Dr. Ongunya Raphael, PhD

ABSTRACT

Physics is one of the most useful subjects towards achieving Kenya's Vision 2030, yet the enrolment and performance at secondary school level is wanting. The physics concepts are not well grasped by learners. They can be reinforced using laboratory experiments. However, this is not always done since some of the apparatus may be harmful to

handle or too expensive for the schools to purchase. As a result, students are taught theoretically. Computer simulations can be integrated in such cases to make learning more meaningful. The purpose of this study was to investigate the effect of computer simulations in transverse waves on physics performance in secondary schools in Kenya. The objectives of the study were to establish if there is any difference in students' achievement in properties of transverse waves when taught by integrating computer simulations compared to conventional methods; to determine if there is any difference in students acquisition of practical skills when taught by integrating computer simulations compared to conventional methods and to establish if there is a difference in students attitude towards waves due to integration of computer simulations compared to conventional methods. The study involved 16 mixed day public schools. Each school had an average of 37 students from the stream selected. A total of 618 students were involved. Mixed day schools were selected because they make up more than 90% of the schools in the area. Purposive sampling was used to select eight schools supplied with electricity and equipped with computers. These was the experimental group. The other eight schools were selected randomly which was the control group. A two group pre-test, post-test quasi experimental design was used. Piloting in two schools was done to assess the research instruments validity and reliability. Face and content validity was determined. Test, re-test was used to check reliability of the research instruments. rxy for SPT1 was 0.736 and for SPT2 was 0.847. Students' Physics Tests, Students' Skills Acquisition Check list and Students' Attitude Questionnaire and were used to collect data. Independent samples t-test on the pre-test indicated that the two groups were not significantly different. Independent samples t-test on the post-test showed a significant difference between the experimental group and the control group. Descriptive and inferential statistics were used to analyze quantitative data. In practical skills acquisition, chi square yielded a value greater than the critical value. This implied that the method of intervention significantly improved students' acquisition of practical skills. In attitude formation, chi square value was greater than the critical value. This showed that the experimental group had significantly improved attitude after intervention. Therefore, findings from this may provide a basis for assessment of usefulness of integrating computer simulations in the learning of waves and other abstract concepts in physics.

47. EDS/G/01/10

EFFECTS OF VIDEO BASED INSTRUCTION ON STUDENTS' PERFORMANCE IN ELECTROMAGNETIC INDUCTION CONCEPT IN SECONDARY SCHOOLS IN KAKAMEGA CENTRAL DISTRICT

LIPUKU Belidina Shibalira with Supervisors Prof. Amadalo Maurice Musasia, PhD and Mr. Francis Gaitho

ABSTRACT

Electromagnetic Induction is one of the key topics in the secondary schools' Physics syllabus. It is taught in a spiral manner from form one to form four. In the KCSE examination, questions from this topic feature prominently every year – both in the theory and practical examinations. However, over the years, the performance in this topic has remained dismal. This research aimed at finding out if Video Based Instruction could help change this trend. This is because Video Based Instruction has been found to be an effective method of teaching many subjects and its potential has encouraged instructors and learners to opt for it. Despite this knowledge, many Physics instructors still employ the conventional method of instruction. This study sought to investigate the instructional effectiveness of video –based instruction vis-à-vis Conventional Teaching Methods on students' achievement, attitude formation and skill acquisition

in Electromagnetic Induction among secondary schools in Kenya. A quasi experimental study entailing the pre-test, post test non- equivalent group design was used. The study was conducted on form four boys and girls from Sub County and County schools selected from Former Kakamega Central District. The students were assigned into experimental and control groups. Groups in their intact classes were used. Data was collected using Physics Achievement Tests, Observation of students' practical performance and Students' Attitude Questionnaire. To test for validity, the researcher ensured that instruments covered the study variables. The instruments were given to three different Physics educators to ensure that face and content validity was acceptable. For reliability, the test-retest method was used. A correlation coefficient of 0.94 for PAT1, 0.96 for PAT2, 0.89 for ESS and 0.81 for SAQ was found using the Pearson Product Moment Correlation formula. This was considered sufficient enough to judge the instruments as reliable. Data was collected in second term since this is when the topic is usually covered. Both the experimental and control groups were subjected to a pre- test to determine their entry behavior. Then the experimental group was taught using Video Based Instruction, while the control group was taught using the Conventional Teaching Methods. Both groups were then subjected to the post- test after instruction. The results from the two groups were compared to establish the gains as a result of the two teaching methods. A total of 326 students participated in the study. Qualitative data for attitude formation and skill acquisition in Electromagnetic induction was collected and analyzed using Chi-square. Quantitative data for achievement was analyzed using t-test and analysis of variance. All tests of significance were conducted at $\alpha = 0.05$. The results showed that Video Based Instruction resulted in higher achievement, greater skill acquisition and better attitudes formed towards the topic of Electromagnetic Induction. Video Based Instruction tended to demystify the abstract nature of Electromagnetic Induction and hence made it comprehensible to the learners. It was concluded that Video Based Instruction improved the students' achievement, skill acquisition and attitude formation towards Electromagnetic Induction compared to Conventional Instructional Methods. It is recommended that the findings from this study should provide a basis upon which assessment is made on the usefulness of integrating video-based instruction in the learning of Electromagnetic Induction and other topics in the Physics curriculum.

48. EDS/G/08/08

INTEGRATING MICRO ELECTRICITY KITS IN LEARNING SECONDARY SCHOOL ELECTRICITY AND ITS IMPACT ON STUDENTS ACHIEVEMENT

MULONGO Monica Khasandi with Supervisors Prof. Amadalo Maurice Musasia, PhD and Michieka Ronald Mongare

ABSTRACT

Physics is an important subject studied at secondary schools in Kenya. It forms the basis of most technology in advanced studies, opening doors to many marketable careers. Yet many high school learners face difficulties when studying it. Most instruction has been deemed uninspiring and unimaginative. The practical aspects of the subject are not well executed. Few if any useful practical skills are effectively learnt. Students are not familiar with experimental equipment, generation of experimental data, and its subsequent manipulation. This is due to insufficient laboratory equipment leading to negative attitude towards physics practical work among learners. Most learning is theoretical. The sole aim appears to cover the curriculum for learners to achieve high grades in exams there by abandoning practical classes. Many students interact with practical equipment briefly just before their final practical examinations. Most of the time there is lack of laboratories, and poor or inadequate equipment to carry out every day experiments. This leads to poor performance in the practical paper and by extension

the whole physics paper. The purpose of this study was to investigate the efficacy of the micro electricity kit, as an intervention mechanism. Specifically the study compared the learners' performance in an electricity practical test by students who used the micro electricity kit and those taught using conventional experimental apparatus. The study also investigated relative attitude formation and development of practical skills after using the two instructional techniques. The study was carried out in Kakamega North sub-county using a sample of 537 form two students as respondents. A two group pre-test, post-test quasi-experimental design was utilized. The experimental group used the micro electricity kit technique while the control group used the conventional instructional technique to study electricity experiments. Four research instruments were used to collect data. These were two Experimental tests (EPT1 and EPT2) which acted as pre-test and post-test respectively. A Student Questionnaire (SQ) was used to monitor attitude formation as a result of the differential instruction. Similarly a Practical Skill Checklist (PSC) was used to determine the acquisition of physics experimental skills. Validity of the instruments was determined with the help of three experienced secondary school Physics teachers at values between 5 and 9 out of 10. The instruments reliability was determined using the test retest technique. A (PPMCC) reliability index $\alpha= 0.6$ was determined to be 0.74 and 0.92 for pre-test and post-test respectively. PPMCC was 0.6 and 0.85 for (PSC) and (SQ) respectively. This was deemed suitable for the study. Both descriptive (means, percentages frequency tables) and inferential (t-test, Chi square and Anova) statistics were used in the analysis of data. The findings were presented in frequency tables, interpretations made and the results discussed. The findings showed that integration of micro kits improves students' achievement scores in secondary school physics practical work. It was found that micro electricity kit utilization boosted students' interest in electricity leading to higher motivation to engage with the subject. It was also found that these kits improved students' science practical skills. Therefore the kits should be incorporated in the Kenyan school curriculum. These kits can be mainstreamed in physics practical work since more respondents from the experimental group were involved in carrying out experiments as compared to those in control group.

49. EDS/G/04/11

MAPPING TECHNIQUE AND ITS EFFECT ON ACHIEVEMENT IN ECOLOGY CONCEPTS AMONG SECONDARY SCHOOL STUDENTS IN HAMISI SUB-COUNTY, KENYA

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and Dr. Akwee Peter Edome, PhD*

ABSTRACT

Despite Kenya Government and other stakeholders' effort in provision of resources, performance in biology at Kenya Certificate of Secondary Examination has been consistently low. National projects, such as Strengthening of Mathematics and Science Education have been initiated and heavily funded by the government of Kenya in collaboration with Japan International Cooperation Agency to ensure teacher in-service training to improve on pedagogy in biology among other science subjects. Studies reveal that this has had minimal impact on teachers' classroom practices and students' achievement. According to the Kenya National Examination Council reports, ecology is among the topics that are poorly performed over the years with most candidates indicating misconceptions and inappropriate application of ecological terms and concepts. The purpose of this study was to investigate the effect of incorporation of Mind Mapping technique in the teaching-learning process on students' academic achievement in ecology and consequently biology as a subject. The study also aimed at

establishing the opinion of students on the use of mind mapping technique in learning. The study adopted the two groups non-random selection Pre-test Post-test research design to address the objectives. Stratified random sampling method was used to select two county and ten sub-county secondary schools in Hamisi sub-county. The schools were then assigned into experimental and control groups by simple random sampling method. The researcher selected one form three class in each of the sample schools to give a total of four hundred and eighty students. The students in both groups were taught selected ecology concepts using the conventional methods. A biology achievement pre-test was administered and the test scores recorded. The experimental group was taught another set of selected ecology concepts using mind mapping technique while the control group was taught the same concepts using conventional methods. A biology achievement post-test was administered to both groups and the test scores recorded for each group. Instrument reliability and validity had been established by the Pearson product moment correlation coefficient in two pilot schools. Questionnaires were administered to the students and teachers of the experimental classes. The scores and responses from the questionnaires were analyzed descriptively and inferentially using measures of central tendency, a t-test and a two way ANOVA. The findings of the study showed that mind mapping technique resulted into higher students' scores in achievement test on ecology. It also revealed from students that mind maps were interesting, and enabled them to easily understand, revise, make personal study and remember learned concepts. The study recommends that teacher training institutions, Kenya Institute of Curriculum Development and teachers of biology should incorporate Mind mapping technique as a component of teaching/learning process in Kenyan Secondary Schools.

50. EDS/G/09/12

TEACHER-RELATED DETERMINANTS AFFECTING INTEGRATION OF COMPUTER BASED INSTRUCTION IN BIOLOGY IN TESO SOUTH SUB-COUNTY, KENYA

OMASET John Ogwane with Supervisors Dr Raphael Ong'unya and Dr. Peter Edome Akwee , PhD

51. EDS/G/11/11

PROJECT BASED LEARNING TECHNIQUE ON STUDENTS' ACHIEVEMENT IN THE CONCEPT OF CLASSIFICATION OF ORGANISMS AMONG SECONDARY SCHOOLS IN KENYA

WEKESA Noah Wafula with Supervisors Prof. Toili William, PhD and Dr. Ong'unya Raphael Odhiambo, PhD

ABSTRACT

Poor performance in Biology and particularly in classification topic is a problem that has persisted for many years in Kenya. Though the topic of classification of organisms is very important for understanding of biodiversity and conservation, it has been noted to be one of the most difficult topics to students in Biology. According to the Kenya National Examinations Council reports, teacher centred pedagogical techniques in teaching have been identified to be one of the main causes for this poor performance. Project Based Learning technique has been successfully used as an instruction technique in developed countries like Japan and United States of America to improve students' academic achievement in Biology and also in preparing them for life outside classroom. The purpose of the study was to investigate the influence of Project Based Learning technique on achievement of students in classification of organisms among secondary schools in Kenya. The research work was based on constructivist theory of learning. The study's specific objectives are: to determine difference in academic achievement

between students' taught classification of organism by Project Based Learning technique and those taught by conventional method; to establish the difference in attitude change towards classification of organism between students taught using Project Based Learning technique and those taught by conventional method and determine difference in acquisition of practical skill between students taught classification of organisms using Project Based Learning technique and those taught by conventional method. Quasi experimental design was used in the study. The study population consisted of 1,100 Form Three Biology students in Mount Elgon Sub-County. Stratified random sampling was used to select four secondary schools; two County secondary schools and two Sub-County secondary schools that were used for study. Stratified random sampling technique was also used to select two secondary school, a County secondary school and a mixed sex Sub-County secondary school that were assigned to experimental group. The remaining County secondary school and Sub-County secondary schools were assigned to control group. The four secondary schools consisted of a total of 335 students. The research instruments were: Students' Attitude Questionnaire, Classification Achievement Test and practical skills acquisition schedule. Two secondary schools selected by stratified random sampling were used for pilot study to establish validity and reliability of instruments. The descriptive and inferential statistics, Analysis of Variance (ANOVA) were used for data analysis by Statistical Package for Social Science. The study findings revealed that Project Based Learning technique enabled students: to improve in academic performance, to positively change attitude towards classification of organisms and improve learners' acquisition of practical skills. The study recommends to the Ministry of Education and its agencies to adopt Project Based Learning technique because it is student centre and lead to improved students' academic achievement. The study significance is based on its usefulness: in equipping teacher trainees with Project Based Learning skills, in helping Ministry of Education to come up with policies that encourage Project Based Learning and lastly in encouraging production of individuals with skills to cope with life outside classroom.

52. EPM/G/20/12
SELECTED JOB SATISFACTION FACTORS AND TEACHER TURNOVER INTENTION IN SECONDARY SCHOOLS IN KAKAMEGA CENTRAL SUB-COUNTY, KENYA

EMOJA Margaret Mmbone with Supervisors Mr. Epari Ejakit
and Mr. Paul Akumu Ogenga

53. EPM/G/02/13
EFFECT OF FAMILY RELATED FACTORS ON PUPILS' ACADEMIC ACHIEVEMENT IN PUBLIC PRIMARY SCHOOLS IN BUNGOMA CENTRAL SUB-COUNTY, KENYA

MASINDE Nangila Carolyne with Supervisors Dr. Geoffrey Ababu Musera , PhD
and Dr. Kaberia Limukii , PhD

ABSTRACT

One question that has preoccupied researchers for decades is the variations in pupils' academic achievement in national examinations in public primary schools despite a uniform curriculum, trained teachers and government funding. The variations have both positive and negative impact on a pupil's future life chances, income and wellbeing. It's for this reason that this study sought to establish the effect of family related factors on pupils' academic achievement in public primary schools in Bungoma Central Sub-County. This study sought to establish the effect of parental SES, family type, family size and parental education level on pupils' academic achievement in public primary schools in Bungoma Central Sub-County. The study used the education production function theory abstracted from Coleman report and guided by a conceptual

frame work showing the relationship between family related factors and academic achievement. The study used descriptive research survey design. The study targeted 6, 008 respondents comprising of 5, 458 class eight pupils and 550 class eight teachers of 2015 in 55 public primary schools in Bungoma Central Sub County. The public primary schools were stratified into three zones (Chwele, Nalondo and Kabuchai). Simple random sampling was used to pick 30 percent of primary schools in each zone making a total of 17 primary schools. Simple random sampling was used to pick 30 percent of streams in each sampled schools making a total of 34 streams. All the 300 class eight pupils and 75 class eight teachers in the sampled streams making a total of 375 were purposively sampled to participate in the study. Data collected using a questionnaire for class eight pupils and teachers; and document analysis. Research instruments were validated using face and content validity while reliability was determined using spilt-half test technique at r= 0.8. A pilot study was conducted in one public primary school. The data was used in the reliability of research instruments. Data was analyzed descriptively using means, percentages and principal component analysis; and inferentially using multiple linear regression by aid of SPSS version 21. Inferences were made at 0.05 level of significance on a two-tailed test. Data was analyzed objectively and presented inform of tables. The findings of the multiple linear regressions revealed that parental SES, family type, family size and parental education level were important in explaining variations in pupils' academic achievement in KCPE in Bungoma Central Sub-County. Pupils from high SES, pupils with both parents alive, pupils with fewer siblings, inspired pupils and pupils with parents with higher education levels were predicted to do better in KCPE. It was recommended that pupils from poor backgrounds, orphans and those whose parents had low levels of education be assisted morally, financially and be placed in boarding schools to enhance their performance in KCPE.

54. EPM/G/03/09

GRADE REPETITION AND PUPILS' ACADEMIC PERFORMANCE IN PUBLIC PRIMARY SCHOOLS IN KENYA

NAFULA Imelda with Supervisors Dr. Lydia Wamocha , PhD and Mr. Epari Ejakait

ABSTRACT

Grade Repetition is one of the factors that influence the internal efficiency of institutions. The National Association of School Psychologists views the practice of grade repetition to be so ineffective. Majority of studies observe that the practice does more harm than good, then why is it still practiced? This study sought to examine grade repetition and pupils' academic performance in public primary schools in Bungoma North Sub-county. The study was based on self-efficacy theory which holds that confident individuals anticipate successful outcomes. The study objectives were to determine the levels and trends of grade repetition identify forms and causes of repetition and hypothesis grade repetition has no effect on pupil's academic performance. The study was guided by a conceptual framework which shows the independent and dependent variables used in the study. The study employed descriptive survey design targeting 4890 pupils, 151 class eight teachers, 66 deputy head teachers and 66 head teachers. The study sample consisted of 21 head teachers, 21 deputy head teachers, 49 class 8 teachers and 370 pupils randomly sampled from 21 public primary schools .The SQASO and three CSO were part of the respondents. Schools were randomly selected from the 66 schools that have done KCPE for the past five years. This study used Questionnaires, interview schedules and document analysis. Reliability of instruments was ensured by piloting the questionnaires using 6 schools in Bungoma East Sub-County. Validity of the instruments was ensured through the advice of specialists in the field of Educational Planning and Management whose views were incorporated in redrafting the final instruments.

The analysis of data was done using Statistical Package for Social Sciences (SPSS). In descriptive statistics data was analysed by use of tables, percentages, frequencies and graphs. In inferential statistics the researcher used Pearson correlation analysis to measure repetition and academic achievement. Qualitative data was organized in themes and sub themes as they emerge from content analysis. The study findings show that repetition is still practiced in schools and prevalent in class 7. The findings show that 77.7% of the pupils had repeated grades and 48.9% had repeated more than once. The main cited causes of repetition were parental request, absenteeism and forced by teachers. The findings show that first attempt in KCPE accounted for 76.6% of variation in pupils KCPE performance in second attempt as indicated by coefficient of determination of 0.766; showing that it improves performance. However, it has rather negative effects for lower grade repeaters causing dropout from school, drug abuse and early marriages. The researcher recommends a 'once only' repetition policy in a learner's cycle to avoid wastage. The researcher suggests studies on grade repetition and pupils' academic performance to be carried out in other sub counties in Kenya. The researcher hopes that the outcome of this study will provide insights of grade repetition which will enable education planners and policy makers to make informed decisions on repetition of pupils.

55. EPM/G/06/13

TEACHER CHARACTERISTICS AND PROMOTION TO HEADSHIP IN PUBLIC PRIMARY SCHOOLS IN KAKAMEGA EAST SUB-COUNTY, KENYA

MABIA Isalano Valentine with Supervisors Dr. Geoffrey Ababu Musera, PhD and Mr. Paul Akumu Ogenga

ABSTRACT

Teacher promotion to headship has received criticism from the public domain in the wake of poor, ineffective and inefficient administration and management of resources in public primary schools in Kenya. The study is based on the premise that school leadership, as provided by respective head teachers has a direct bearing on institutional achievements. Therefore, this study sought to establish the effect of teacher characteristics on promotion of teachers to headship in public primary schools in Kakamega East Sub-County, Kenya. Specifically, the study sought to establish the effect of; teacher demographic factors, teacher professional factors and teacher performance on promotion to headship in Kakamega East Sub –County. The study was guided by Allison's political model of organizational functioning. The study used an Ex-Post Facto research design. This study used a census. All the 90 teachers who were interviewed for promotion to headship in the 96 public primary schools between 2012 and 2014 participated in the study. Data was collected using a questionnaire for teachers who were interviewed for headship and document analysis. Validity of the research instruments was done using face and content analysis while reliability involved the use of test-retest technique using data obtained from the pilot study. A Pearson's moment coefficient of reliability of 0.811 was obtained. Data was analyzed descriptively using means and percentages; and inferentially using Logistic Regression by aid of statistical package for social sciences version 21. All inferences were made at 0.05 level of significance, on a two-tailed test. Data was analyzed objectively and presented in form of tables. The study found out that teacher demographic factor, teacher professional factors and teacher performance had statistically significant effect on teacher promotion to headship; TSC criterion on promotion to headship is adhered; meritocracy prevails in teacher promotion to headship and that there are gender disparities in teacher promotion to headship. The study concluded that TSC criterion on teacher promotion to headship is adhered although the gender policy is not observed. The study recommended that

the Ministry of Education, Teachers Service Commission, County Education Office, Sub-County Education Office, sponsors, teachers, stakeholders and teacher unions to address gender disparities in teacher promotion to headship in Kakamega East Sub-County, Kenya.

56. EPM/H/18/12
DETERMINANTS OF PROMOTION TO SECONDARY SCHOOL HEADSHIP IN KAKAMEGA

Wamalwa Jane with Supervisors Dr. Judah Ndiku, PhD and Prof. Maurice Amadalo, PhD

57. EPM/G/13/08
TIME MANAGEMENT PRACTICES AND ACADEMIC PERFORMANCE IN SECONDARY SCHOOLS IN VIHIGA COUNTY, KENYA

SAGWA Dorothy Muhenge with Supervisors Dr. Alice Owano and Mr. Epari Ejakait

ABSTRACT

While some schools have customized the time allocated by the Ministry of Education (MoE) for the better, others have taken time for granted. In the process of planning in school, time management helps to enhance the flexibility of teachers and students and hence determines academic performance .The purpose of this study was to establish the relationship between time management practices in secondary schools and their overall academic performance measured by their mean scores in the Kenya Certificate of Secondary Education (KCSE) examination in Vihiga County. The objectives of the study were to establish time set for academic work in secondary schools and the relationship to academic performance; to determine time management practices used in secondary schools and their relationship to the school KCSE mean score and to establish the relationship between non academic time on punishment, manual work and co-curricular activities and school academic performance. This study helps analyze the positive and negative impact of time management on academic performance of schools. It may also help to make some decisions about changes some schools would like to make to use their time more effectively. The study was guided by the General Systems Theory. A co-relational research design was adopted. Sixty secondary schools out of one hundred and twelve were randomly selected for the study. This was fifty three percent of the schools in the county. The study targeted a population of 60 schools that are purely boarding or day. From these schools sixty administrators (heads or their deputies) were purposively selected because they bear the responsibility of implementing the school's time management policy and five students in every school were randomly selected to report on time management practices in the school. Questionnaires and observation were used for data collection of time usage in the sampled schools. Document analysis technique was used to collect data on examination results (schools mean score) of the schools KCSE results. The collected data was coded first before analysis. Data was analysed quantitatively with the aid of the Statistical Package for Social Sciences (SPSS) - a special computer programme for data analysis. Quantitative data was analysed using frequency counts, mean, mode, percentages, Pearson correlation coefficient, one way ANOVA and linear regression. Means, variance and standard deviations were computed and presented in form of tables, and brief discussions. The results showed that there is a significant relationship between the amount of time set for academic work, time management practices and time on punishment, manual work, and co-curricular activities in secondary schools and school mean scores in Vihiga County. It was evident that boarding schools and number of extra lessons per week are associated with a 1.813 (p=0.010) and 0.1013 (p=0.013) increase in the outcome variable respectively.

58. EPM/G/05/14

EFFECT OF SCHOOL BASED FACTORS ON GIRLS' PERFORMANCE IN MATHEMATICS IN PUBLIC SECONDARY SCHOOLS IN MUMIAS SUB-COUNTY, KENYA

MANGO Consolata with Supervisors Dr. Geoffrey Ababu Musera , PhD and Mr. Paul Akumu Ogenga

ABSTRACT

Girls' performance in mathematics at the Kenya Certificate of Secondary Education (KCSE) examination has been generally dismal for many years despite the various measures that have been put in place by the government such as in-servicing mathematics teachers through Strengthening of Mathematics and Sciences in Secondary Education (SMASSE), review of mathematics syllabus and provision of subsidized secondary education. Yet, performance in mathematics significantly impact on students' future life chances, income and wellbeing. The purpose of this study was to establish the effect of school based factors on girls' performance in mathematics in Mumias Sub-County. Specifically, the study sought to establish the effect of: teacher instructional practices, teacher characteristics, school type and school culture in mathematics on girls' performance in mathematics in Mumias Sub-County. The study was guided by the education production function theory. The study adopted a descriptive research survey design and targeted a population of 1334 comprising of 1284 form four girls of 2015 and 50 form four mathematics teachers in 33 public secondary schools in Mumias Sub-County. Public secondary schools and form four girls were stratified by school type. Simple random sampling was used to select 30 percent of secondary schools and form four girls in each school type. A total of ten schools and 385 form four girls were sampled. Purposive sampling was used to select one form four mathematics teacher in each of the ten sampled schools. A total of 395 respondents were sampled to participate in the study. Data was collected using a questionnaire for form four girls and form four mathematics teachers; and document analysis. Research instruments were validated using face and content validity while reliability was determined using test-retest technique at r= 0.7 using data collected from pilot study. Data was analyzed descriptively using means and percentages; and inferentially using multiple linear regression and independent t-test by aid of Statistical Package for Social Sciences version 21. Inferences were made at 0.05 level of significance on a two-tailed test. Data was analyzed objectively and presented in form of tables. The study established that teacher instructional practices, teacher characteristics, school type and school culture in mathematics had a statistically significant effect on girls' performance in mathematics at KCSE level. The study concluded that school based factors were important in explaining variations in girls performance in mathematics. The study recommended that the Ministry of Education, County Director of Education, Sub-County Director of Education , Board of Management and principals to strengthen the constructs of teacher instructional practices, teacher characteristics, school type and school culture in mathematics that predicted girls performance in mathematics in Mumias Sub-county.

59. EPM/G/08/08

AN ASSESSMENT OF THE EXTENT OF INTEGRATION OF INFORMATION SYSTEMS IN MANAGEMENT OF EDUCATION IN PUBLIC SECONDARY SCHOOLS IN RARIEDA SUB-COUNTY

WALEKHWA David Wabomba with Supervisors Prof. Achoka, J.S.K , PhD and Dr. Ndiku, J.M.

ABSTRACT

Education Management Information Systems (EMIS) is a management tool that

enhances data flow thus inevitable in education management. It has been embraced globally to achieve targets such as Education for All(EFA) and Millenium Development Goals (MDGs). In Kenya, delays in dissemination of data to and from the MoE headquarters to schools which caused many challenges in decision making; it became a policy for all schools to integrate EMIS in education management. Rarieda being one of the sub-counties in Kenya was selected as a location for study by the researcher to assess the extent of integration of Information Systems in management of education in public secondary schools. The researcher endeavored to establish the presence of EMIS infrastructure Public Secondary Schools in Rarieda Sub-County, support by School Management and Sub-county Education Office towards integration of EMIS in schools and extent to which public secondary schools in Rarieda Sub-County use EMIS.The study adopted descriptive survey design using structured questionnaires. The researcher collected primary data from 28 public secondary schools in Rarieda Sub-County through questionnaires administered to HoDs and principals through drop and pick method. Interviews were conducted using interview schedule for the SCEO, SCQASO and TSC official at Madiany. A total of 148 Respondents took part in the study. Quantitative data was analyzed using descriptive statistics and simple percentages while qualitative data were analyzed using verbatim reports and frequency tables. The researcher intended this study to find out the extent Information Systems(IS) has been integrated in education management as well as encourage education managers to avail EMIS infrastructure in order to move in tandem with the contemporary needs of the society as they endeavour to meet the set MoE policy. The researcher also expected the study tochallenge education stakeholders on importance of producing accurate and timely reports based on available accurate EMIS data used in decision making at all levels of education. The reliability of the questionnaires for the principals and HoDs had a correlation coefficient of 0.89 and 0.82 respectively. Content validity was used to determine how meaningful the data obtained using the research instruments represents the variables in the study. The conclusions of the study were: extent ofpresence of EMIS infrastructure in schools wasbetween 0-26%, support by schools management and the SCEO is between 0-26% while the extent of use was between 26-50%. In spite of the desire expressed by HoDs and principals to collect and maintain a database, lack of financial support, ICT infrastructure and know-how has remained a hindrance. Consequently, EMIS still has a long way to go since its support and implementation is only to a moderate extent (26-50%). The researcher thus recommends HoDs and principals to be sensitizedon the significance of EMIS while the School management, SCEO,MoEST and all policy developers and implementers should step up effort through increased financial support, training and monitoring and supervision activities. Further research should thus endeavor to investigate the impact of EMIS on performance as well as impact of ICT on EMIS.

60. EPM/G/05/13

EFFECT OF SUBSIDIZED SECONDARY EDUCATION POLICY ON INTERNAL EFFICIENCY OF PUBLIC DAY SECONDARY SCHOOLS IN KAKAMEGA EAST SUB-COUNTY, KENYA

SHIPITI Muchalwa Hudson with Supervisors Dr. Pamela Buhere , PhD and Mr. Paul Akumu Ogenga

ABSTRACT

In 2008, the Kenyan government introduced subsidized secondary education with an aim of enhancing access, retention and success in secondary education. The launch was meant to address, amongst other things, the problem of low retention rate, low survival rate, low completion rate and high wastage rate witnessed in day secondary

schools across the country. This study sought to establish the effect of subsidized secondary education policy on internal efficiency of Public Day secondary schools in Kakamega East Sub-County. The objectives of the study were: to establish the effect of subsidized secondary education on retention of students in Public Day Secondary schools in Kakamega East Sub-County, to establish the effect of subsidized secondary education on survival of students in public day secondary schools in Kakamega East Sub-county, to establish the effect of subsidized secondary education on wastage of students in public day secondary schools in Kakamega East Sub-county and to establish the effect of subsidized secondary Education on completion of students in Public Day Secondary Schools in Kakamega East Sub-county. The study was guided by Production Function Theory. The study adopted survey design and targeted all the 35 Public Day Secondary Schools in the Sub-County. The school principals and the DEO were used as the respondents. A census of all the 35 the Public Day Secondary Schools principals was undertaken while purposive Sampling technique was used to pick the Sub-county Director of Education. Data from school principals was gathered by use of questionnaires whereas those from the D.EO were collected with the aid of interview schedule.. Reliability of the questionnaire was undertaken by Tested-Retest approach and a co-efficient of 0.821 was realized. Quantitative data was analyzed descriptively and by use of Paired Sample t-test while Qualitative data was analyzed thematically. Both Qualitative and Quantitative data was merged for presentation. Data was presented descriptively and by use of tables, means, range and percentages. The study established significant difference in students' retention, survival, wastage and completion rates before and after the introduction of Subsidized Secondary Education Policy. It was therefore concluded that the Subsidized Secondary Education Policy had positively contributed to internal efficiency in Public Day Secondary Schools as measured by students' retention rates, survival rates, wastage rates and completer rates. However, to improve further on internal efficiency of the secondary schools, this study recommends that the government should increase capitation to cater for extra levies that are not covered by the policy and to improve on the status of human and physical resources. The study further recommends that the government should ensure strict implementation of policy on repetition so as to eliminate wastage and improve completion.

61. EPM/G/19/06

EXPANSION OF UNIVERSITY EDUCATION AND INSTRUCTIONAL EFFECTIVENESS IN MASENO UNIVERSITY, KENYA

MUKHANJI Josephat Matwang'a with Supervisors Dr. Judah Ndiku, PhD and Dr. Samwel Obaki, PhD

Abstract

Higher education in Kenya has experienced tremendous growth since independence. With only one public university with an enrolment of less than 1000, the number stands at twenty two public universities with student population of over 150,000. This growth has been attributed to the introduction of module II programs and increased private and public funding for university education. However, despite the increase in enrolments, there has been no commensurate development and/or improvement of the requisite teaching staff and other teaching and learning resources. Consequently, stakeholders have raised concerns on the instructional effectiveness and the quality of education provided in public universities in Kenya. This study was conceived to establish the effect of university expansion on instructional effectiveness in Maseno University. The study was anchored on the education production functiontheory and adopted a descriptive design. The study was carried out in Maseno University. The target population was 7,377

comprising of 7,000 undergraduate students and 377 lecturers of Maseno University in the 2011/12 academic year. Simple random sampling was used to select 2,100 students and 114 lecturers making a sample of 2,214. Data were collected using a questionnaire for students and lecturers and document analysis. Research instruments were validated using face and content validity while reliability was determined using the test-retest technique at r= 0.7. A pilot study was conducted in Maseno University and the data collected used to determine the reliability of research instruments. Data was analyzed descriptively using frequencies and percentages by aid of SPSS version 17 and analyzed objectively and presented in tables and graphs. The findings of the study revealed that enrolments, especially under Module II, were on a steady rise. However, the study revealed that there was commensurate development and/improvement of teaching and learning resources to match the increased enrolment, which puts in question the instructional processes and quality of education provided in Maseno University. Based on the findings, it was recommended that the management Maseno University puts in place a practical strategy to ensure development and improvement of teaching and learning resources to match the increasing enrolments. In addition, there is need for the lecturers to be supported to use more learner-centered instructional methods to promote effective teaching and learning. Lastly, it was recommended that a similar study be conducted to determine the effect on increased enrollment on teaching and learning in other universities in Kenya.

62. EPM/G/18/12

DETERNINANTS OF PROMOTION TO PUBLIC SECONDARY SCHOOL HEADSHIP IN KAKAMEGA COUNTY, KENYA

Jane Wamalwa Kadogo with Supervisors Dr. Samuel Obaki, PhD and Mr. Epari Ejakait

ABSTRACT

Re-construction and re-organization of Education experiences in schools so as to increase Educational output requires highly competent and responsive leadership.Educational institutions should ideally be reconstructed in order to facilitate the physical social and mental interaction among learners that will enhance the attainment of the desired Educational goals. How well teachers are promoted to headship has a direct bearing on the effectiveness with which they run schools. This study sought to establish the determinants of promotion to secondary school headship in Kakamega County, Kenya. Specifically, the study sought to: examine the relationship between the characteristics of the secondary school preceding the promotion to headship and the characteristics of the current type of secondary school of promotion; investigate the influence of individual respondent's characteristics on promotion to secondary school headship; and, establish community-related factors that influence promotion to secondary school headship in Kakamega County. A Conceptual framework was used to show the linkage between the independent variable and the rest of the variables, that is independent and control variables respectively. The study adopted a correlational research design. The targeted population comprised of 538 secondary school head teachers and their deputies. Purposive and probability proportional to size (PPS) sampling techniques were used to select a sample of 225. The head teachers and deputy head teachers' questionnaire were used to collect data. Research instruments were validated using face and content validity while reliability was determined using spilt-half test technique at r= 0.762 and 0.811 for the head teachers and deputy head teachers' questionnaires respectively. Data was analysed descriptively using percentages, frequencies and means and inferentially using a Chi-square and logistic regression by aid of STATA version 11.2 for windows. The results showed that the former secondary school type, the teachers' gender, whether principal applying for headship and the location of the former secondary school were good predictors of promotion to headship in public secondary schools in Kakamega

County. It is hoped that, the findings of this study will not only contribute to knowledge, but will also provide a statistical quantification of the effect sizes of the determinants of promotion to secondary school headship in Kakamega County as well as contribute to literature and scholarly debate on the drivers of promotion to headship in Kakamega County secondary schools.

63. EPS/G/15/09

INFLUENCE OF SCHOOL RELATED FACTORS ON DEVELOPMENT OF STUDENTS' TALENTS IN CO-CURRICULAR ACTIVITIES AMONG SECONDARY SCHOOLS OF KWANZA SUB-COUNTY KENYA

WAFULA Martin Wekesa with Supervisors Dr. Judah M. Ndiku, PhD and Dr. Lydia L. Wamocha, PhD

ABSTRACT

Poor performance in Biology and particularly in classification topic is a problem that has persisted for many years in Kenya. Though the topic of classification of organisms is very important for understanding of biodiversity and conservation, it has been noted to be one of the most difficult topics to students in Biology. According to the Kenya National Examinations Council reports, teacher centred pedagogical techniques in teaching have been identified to be one of the main causes for this poor performance. Project Based Learning technique has been successfully used as an instruction technique in developed countries like Japan and United States of America to improve students' academic achievement in Biology and also in preparing them for life outside classroom. The purpose of the study was to investigate the influence of Project Based Learning technique on achievement of students in classification of organisms among secondary schools in Kenya. The research work was based on constructivist theory of learning. The study's specific objectives are: to determine difference in academic achievement between students' taught classification of organism by Project Based Learning technique and those taught by conventional method; to establish the difference in attitude change towards classification of organism between students taught using Project Based Learning technique and those taught by conventional method and determine difference in acquisition of practical skill between students taught classification of organisms using Project Based Learning technique and those taught by conventional method. Quasi experimental design was used in the study. The study population consisted of 1,100 Form Three Biology students in Mount Elgon Sub-County. Stratified random sampling was used to select four secondary schools; two County secondary schools and two Sub-County secondary schools that were used for study. Stratified random sampling technique was also used to select two secondary school, a County secondary school and a mixed sex Sub-County secondary school that were assigned to experimental group. The remaining County secondary school and Sub-County secondary schools were assigned to control group. The four secondary schools consisted of a total of 335 students. The research instruments were: Students' Attitude Questionnaire, Classification Achievement Test and practical skills acquisition schedule. Two secondary schools selected by stratified random sampling were used for pilot study to establish validity and reliability of instruments. The descriptive and inferential statistics, Analysis of Variance (ANOVA) were used for data analysis by Statistical Package for Social Science. The study findings revealed that Project Based Learning technique enabled students: to improve in academic performance, to positively change attitude towards classification of organisms and improve learners' acquisition of practical skills. The study recommends to the Ministry of Education and its agencies to adopt Project Based Learning technique because it is student centre and lead to improved students' academic achievement. The study significance is based on its usefulness: in equipping

teacher trainees with Project Based Learning skills, in helping Ministry of Education to come up with policies that encourage Project Based Learning and lastly in encouraging production of individuals with skills to cope with life outside classroom.

64. EDG/G/56/10

FACTORS THAT CONTRIBUTE TO TRUANT BEHAVIOUR AMONG PRIMARY SCHOOL PUPILS IN HAMISI SUB-COUNTY, KENYA: IMPLICATIONS FOR COUNSELING

KANG'AZI Violet with Supervisors Dr. Bota Kennedy, PhD and Dr. Poipoi W. Moses, PhD

ABSTRACT

Truancy is any intentional, unauthorized or illegal absence from compulsory schooling. It also refers to the tendency of students intentionally failing to attend to some lessons while in school. The purpose of this study was to find out the factors that contribute to truant behavior among primary school pupils in Hamisi Sub-County, Kenya and its implication to counseling. The study population consisted of 4561 Class Seven pupils from 108 primary schools, 108 head teachers, 108 school counselors and 1 Sub-County Quality Assurance Officer. The specific objectives were to; establish the contributing factors to truant behaviour; determine the prevalence of truancy on gender basis; establish the guidance and counseling strategies used in controlling truant behaviour and find out the challenges that school counselors face while handling truant behaviour among primary school pupils in Hamisi Sub-County. Mixed methods approach was used, in which the Descriptive survey research design was adopted as a model. Stratified sampling was used to put schools into strata (boarding public, day public and private). Simple random sampling was used to select 32 primary schools, 32 school counselors, and 295 pupils. A pilot study was carried in three schools in order to establish the validity and reliability of the research instruments. These schools were not used in the final study. Focus Group Discussion, questionnaire and interview schedule were used to gather information from respondents. Test-retest method was used to establish the reliability of research instruments. A Cronbach's alpha co-efficient of 0.792 was obtained for the Focus Group Discussion and 0.867 for the Guidance and Counseling teachers' Questionnaire, which was deemed adequate. Content validity was ascertained by experts from the Department of Education Psychology, Masinde Muliro University of Science and Technology. Quantitative data was analyzed using descriptive statistics such as frequency counts, percentages and means. Regression analysis was used to establish the association between variables under investigation. Qualitative data was transcribed, put into various categories and reported as themes and sub-themes. Findings revealed that parental negligence, economic difficulty, peer pressure, school work load and bullying were the factors that contributed to truancy. It was also discovered that the males truant more than the females. Guidance and Counseling in primary schools in Hamisi Sub-County was discovered to be weak although discussion with truants' parents was the strategy fairly used to counsel pupils. The leading challenge that the Guidance and Counseling teachers faced was lack of support from school management, followed by lack of parental support, heavy school work load and lack of cooperation from pupils. It is recommended that parents / guardians to work together with the teachers and the local administration to look for better ways to eradicate truant behavior among pupils in Hamisi Sub-County. All stakeholders are also advised to look at the problems facing the boy child and address them urgently. The findings of the study may help the Ministry of Education, parents, teachers, local administration and the entire community in finding better solutions to curb truant behavior so as to improve school attendance and academic performance of pupils in Hamisi Sub-County

65. EDG/G/02/08

EFFECT OF CHILD HEADED FAMILIES ON THE ACADEMIC ACHIEVEMENT OF ORPHANED LEARNERS IN PRIMARY SCHOOLS IN KIMILILI SUB-COUNTY, KENYA

MALOBA Benard Walubengo with Supervisors Dr. Kennedy Bota, PhD and Dr. Kenneth Otieno, PhD

ABSTRACT

Child headed families is now a common phenomenon especially in developing countries. Children growing up in child-headed families often face numerous challenges such as bereavement, discrimination and financial burdens. These challenges may affect their academic achievement. The purpose of the study was to investigate the effect of child headed families on the academic achievement of orphaned learners in primary schools in Kimilili sub County. The study was guided by Maslow's Hierarchy of Needs by Abraham Maslow and Ecological Systems Theory by Urie Bronfenbrenner.The specific objectives were to; examine the effect of child headed families on the academic achievement of orphaned learners in primary schools in Kimilili sub County, identify challenges faced by primary school learners from child headed families in Kimilili Sub County; to establish the intervention strategies that facilitate their academic achievement. The research adopted a descriptive survey research design. Stratified, random and purposive sampling techniques were used to select participants. Data were collected through interviews, questionnaire and document analysis. The study sample comprised of 76 pupils from child headed families and 15 teachers from fifteen schools. The data was analyzed using descriptive statistics. Qualitative data was analyzed by generating themes while quantitative data was analyzed using SPSS version 17.0 and Microsoft Excel computer programme.The findings indicate that child headed family has a negative effect on the academic achievement of orphaned learners. Learners from child headed families face challenges such as lack of personal effects, working for upkeep at the expense of learning and stress. Some intervention strategies to assist learners from child headed families include; food subsidy programmes and peer counseling that are available in schools. Guidance and counseling which is a key strategy is lacking in most of the schools. From the study findings, it can be concluded that child headed families have a negative effect on the academic achievement of orphaned learners and that intervention strategies put in place to support these learners need to be improved since those put in place to support these learners seem to be inadequate. First, it is recommended that teachers should enhance services offered by the guidance and counseling departments to help orphans in schools. Secondly, teachers should also give remedial or extra instructions to the pupils with poor academic achievement. Thirdly, learners from child headed families need to be identified and given special attention just like other special children. Finally, other stake holders in the education sector such as quality assurance and standards officers should also come up with pragmatic strategies such as in servicing teachers on how to help this special group of learners.

66. EDG/G/15/08

PSYCHOSOCIAL CHALLENGES EXPERIENCED BY ABANDONED CHILDREN IN ORPHANAGES IN KAKAMEGA COUNTY, KENYA

MASIKA Nafula Judith with Supervisors Dr. Samuel L. Maragia, PhD and Dr. Moses W. Poipoi, PhD

ABSTRACT

Over the years, Kenya has experienced an increase in abandoned children. The situation is aggravated by the increasing economic difficulties in the country. Abandoned

children are assisted by orphanages that are mainly set up by voluntary and charitable organizations such as churches and NGOs. After abandonment, children are affected emotionally and therefore require specialized attention. The purpose of the study was to establish psychosocial challenges experienced by abandoned children in the orphanages in Kakamega County, Kenya. The specific objectives focused on the causes of abandonment of children, psychosocial factors affecting self-esteem of abandoned children, characteristics of abandoned children and challenges encountered by caregivers when handling the abandoned children. The study was based on Erickson's psychosocial theory of personality development. The target population was 1500 abandoned children, 180 caregivers and 3 children officers. Simple random and purposive sampling was used respectively to select 384 abandoned children and 60 caregivers to take part in the study. Abandoned children were also stratified according to age, gender and class of study. Three children officers from the three Sub Counties (Kakamega Central, Kakamega South and North Sub County) also participated in the study. Questionnaires were administered to abandoned children and caregivers. Interview schedules were used to gather information from caregivers and children officers. Observation was used to collect information on how the abandoned children interacted with the rest of the people in the orphanage. A pilot study was carried out in three orphanages from Lugari sub-county and data was scored using Kunder Richardson approach to determine reliability. Validity was determined by giving the items to a group of experts in the area to assess the concept measured. A reliability coefficient of 0.8 was obtained and adopted since it was above 0.7 the recommended value. Analysis for descriptive statistics was on causes of child abandonment, psychosocial challenges facing abandoned children and their characteristics. Data obtained was presented in frequency tables, pie charts, percentages and bar graphs bringing out both the qualitative and quantitative aspects of child abandonment and psychosocial problems experienced by abandoned children in Kakamega County. The findings of the study revealed that the main causes of child abandonment were poverty, family breakdown, teenage motherhood and exploitation by adults. Further results pointed out that it was vital for abandoned children to be given attention and mental stimulation to develop healthy social skills and self-confidence. Based the results, proper psychosocial intervention that could be used to prevent psychological rejection and other forms of child abuse and neglect include: offering counseling services to abandoned children, assessment of the care given to children in orphanages, community education and empowerment.

67. EDG/G/23/12

PSYCHO-SOCIAL FACTORS INFLUENCING PERFORMANCE IN PHYSICAL AND HEALTH EDUCATION AMONG STUDENTS IN PRIMARY TEACHER TRAINING COLLEGES IN VIHIGA COUNTY, KENYA

RAGOR Geoffrey Kiplimo with Supervisors Prof. Peter Odera, PhD and Dr. Peter Bukhala, PhD

Abstract

Over the years, Physical Education in Kenya has undergone gradual transformation from being an extracurricular to co-curricular and presently it is one among the curricular subjects in syllabuses in schools and colleges. In Primary Teacher Training Colleges (PTTCs), Physical and Health Education (PHE) as an academic and practical subject finds itself on across road. The purpose of this study therefore was to establish psycho-social factors influencing performance in Physical and Health Education among students in primary teacher training colleges, specifically in Vihiga County, Kenya. The population of the study comprised of 8 PHE tutors, 1 Quality Assurance and Standards Officer (QUASO),

and 700 students. Saturated sampling technique was used to select 8 PHE tutors and one QASO. Stratified sampling was applied to create two strata of students on the basis of gender; male and female, and thereafter simple random sampling was used to select 203 students. The study used descriptive survey research design. Data was collected using a questionnaire. The questionnaire was pilot tested in one college to determine its validity and reliability and was found to have a reliability coefficient of r = 0.82. One-way ANOVA was used to compare means and establish differences based on gender. The findings revealed that a majority of the students in PTTCs in Vihiga county have a positive attitude towards PHE. However a big percentage of female students have a negative attitude towards PHE. As a result of the findings, the researcher recommended that there should be a concerted effort to enhance sport culture in PTTCs. The study further recommended that there is a need to define teacher effectiveness as bench mark for performance. Other recommendations include application of new modalities of teaching especially team teaching, increase of the number of tutors in PTTCs and QUASO to be more proactive.

68. EDG/G/21/11

RELATIONSHIP BETWEEN CHILD ABUSE AND ACADEMIC ACHIEVEMENT AMONG STUDENTS IN PUBLIC SECONDARY SCHOOL IN BUNGOMA EAST SUB-COUNTY, KENYA

WAKHURA Judith Keya with Supervisors Prof. Peter Odera, PhD and Dr. Moses W. Poipoi, PhD

ABSTRACT

The purpose of this study was to establish the relationship between child abuse and academic achievement among students in public secondary schools in Bungoma East sub-county. Bungoma County was chosen for having multiple cases of child abuse in secondary schools compared to Busia and Kakamega County where a single teacher could abuse as many as 20 students (Simiyu, 2011).The issue of concern was that 15 people appeared in court in February (2012) in the sub-county for child abuse, while the sub-county K.C.S.E (Kenya certificate of secondary education) mean scores had average since 2007 to 2014. Pointing to a relationship between the study variables. The specific objectives of the study were, to find out the relationship between sexual abuse and academic achievement, to establish the relationship between child labour and academic achievement, to determine the relationship between psychological abuse and academic achievement and to evaluate the relationship between physical abuse and academic achievement among students in public secondary schools in the sub-county. The study adopted a conceptual framework from Bowen Family systems theory. A correlation research design was used on a target population from 40 schools and 1 sub county education officer. Piloting was conducted in 3 mixed schools one in each division of the sub county to improve data collection procedures. The study population was drawn from the 40 public secondary schools. The targeted population was 3493 Form 3 students, 40 deputies and 40 HOD's G/C. Snowball sampling technique was used to obtain a sample size of 3 abused students for interviewing. Purposive sampling technique obtained 1849 students counseled or guided, 1 Sub-county Education officer, 13 deputy principals, 13 HOD's G/C (Heads of Department Guiding and Counseling), and 3 parents of abused students. Questionnaires were used to collect data from the deputy principals and the HOD's G/C. Interview guides were used to collect data from parents of the abused students while the focused group discussion guide was used to collect data from the form 3 students. Experts from the Department of Educational Psychology in Masinde Muliro University of Science and Technology (MMUST) checked on content validity. Restructuring and reframing of items was done thereafter to enhance content

validity. A pilot study was conducted in 4 mixed public secondary schools to test the reliability of data collection instruments by production of repeated results. The reliability of the questionnaires was 0.8 while that of focused group discussion guide was 0.7. Reliability was determined using split half method. Quantitative data from the questionnaires and examination results were analyzed using descriptive statistics (percentages and frequencies) and inferential statistics (t-test and Pearson's product moment correlation coefficient). Qualitative data from interview guides and focused group discussion guides was received verbatim, transcribed and organized into sub-themes based on the research objectives. Analyzed data was presented using tables and graphs. The researcher found out that the forms of child abuse were norms in the schools hence they were often unreported. The study concludes that there is a strong and statistically significant relationship between child abuse and academic achievement among students in public secondary schools. The study recommends that schools should avoid being compromised hence report child abuse manifestations and that all forms of child abuse should be banned in schools. The recommendations from the study may benefit school administrators and policy makers in Bungoma East sub-county and may then be generalized to other counties in Kenya.

69. EDG/G/38/09

EFFECTS OF STEREOTYPES IN ACADEMIC PERFORMANCE AMONG GIRLS IN PUBLIC CO-EDUCATIONAL SECONDARY SCHOOLS IN TESO NORTH SUB-COUNTY, BUSIA COUNTY, KENYA

WAKOLI Humpreys Musee with Supervisors Dr. Samuel N. Maragia, PhD and Prof. Peter Odera, PhD

ABSTRACT

The Government of Kenya through the Ministry of Education has put in place several measures to help children to access, be retained in schools and complete their education. More schools have been established, existing schools expanded to accommodate more pupils and students and special programmes have been initiated to facilitate girls in accessing education. These efforts have not yielded much fruits; combinations of obsolete cultural stereotypes continue to deny girls their rights to education. Therefore, girls' education remains elusive. The purpose of this study was to determine the effect of cultural stereotypes on the girls' academic performance in public co-educational secondary schools in Kenya. It was conducted in Teso North Sub-County in Kenya. Teso North sub-county has twenty one (21) co-educational public secondary schools. The specific objectives of this study were to: determine the influence of cultural stereotypes on academic performance of girls in co-educational secondary schools, identify the types of gender-based cultural stereotypes affecting girls' academic performance, assess the efforts made by the Sub County Education office in implementing government policies such as reinforcing guidance and counseling in schools to mitigate gender-based cultural stereotypes affecting girls' education and compare academic performance between boys and girls in the Kenya Certificate of Secondary Education (KCSE) for the years 2011, 2012 and 2013. The study was guided by Stereotype Threat Theory by Steel and Aronson in which stereotype threat was assumed to hamper performance of girls who were identified with negatively stereotyped group in society. The study adopted the descriptive survey research design. A sample size of 369 respondents comprising of 355 students, 7 teacher counselors, 6 principals of co-educational public secondary schools and 1 Sub County Education Quality Assurance and Standards Officer participated in this study. Proportionate, stratified random, purposive and saturated sampling techniques were used to select the required sample size. Two co-educational public secondary schools were used for piloting purpose. The

research instruments that were used include questionnaires, interview schedule and document analysis. The reliability of the instruments was established during a pilot study, which was carried out in two selected schools. The test-retest method was used to test reliability. The face validity of the instruments was determined by giving the instruments to experts in the department of Educational psychology, MasindeMuliro University of Science and Technology for verification. Content validity and construct validity was also established. Quantitative data was analyzed through descriptive statistics such as frequency counts, percentages, means, mode and median. Qualitative data was transcribed and discussed based on established themes. The study revealed that despite concrete effort geared towards supporting girls' education, girls' academic performance was lower than boys and that they were disadvantaged in many aspects including having to walk long distances to school. The findings of this study may help education policy makers, education policy implementers and other stakeholders to find solutions that may minimize the cultural stereotypes that affect academic performance of girls. The study recommends that stakeholders look at modalities to cut down on fees, provide bursaries and enhance sensitization campaign. The study suggests further research to establish the extent to which gender-based cultural stereotype influences the academic performance of girls in secondary schools.

70. EDG/G/02/12

GIRL CHILD SEXUAL VIOLENCE AND ACADEMIC ACHIEVEMENT IN PUBLIC PRIMARY SCHOOLS OF KURIA WEST SUB-COUNTY, KENYA

WERUNGA Sussy Nafula with Supervisors Kenneth Otieno, PhD and Eric K. Kabuka

ABSTRACT

Sex violence against children particularly girls is a global concern. It is estimated globally that 150 million girls under the age of 18 years have experienced sexual violence. In Kenya, a survey of 2010 showed that 32% of females experienced sexual violence prior to age 18 while 100 girls from Migori County dropped out of school for early marriage in 2012. Reports from Kuria West sub-county children's department indicated that 100 girls of ages 6 to 17 years had experienced sexual violence of one kind or other. The purpose of this study was to examine girl-child sexual violence and academic achievement in public primary schools of Kuria West sub-county. The objectives wereto;find out extent to which home and school factors contribute to girl-child sexual violence and academic achievement, determine the extent to which girl-child sexual violence affects academic achievement,examine mechanisms put in place by the Ministry of Education to monitor girl-child sexual violence on academic achievement and establish the role of Guidance and Counseling in addressing girl-child sexual violence. The study population comprised 90 head teachers, 90 Guidance and Counseling teachers, 4590 girls of class seven and eight and one Education officer. The sample size was; 27 Head teachers, 27 Guidance and Counseling teachers, 360 class seven and eight girls, and one Education officer. Stratified random sampling technique was used to select 180 class seven girls, and another 180 class eight girls. Simple random sampling was used to select 27 Head teachers and 27 Guidance and Counseling teachers while saturated sampling was employed to select one Education officer. A questionnaire, interview schedules and document guide analysis were used to collect data. Test- retest method was used to determine the reliability of the instrument and its index was 0.76. Face and Content validities were ascertained by experts from the department of Educational Psychology, MasindeMuliro University of Science and Technology. Data was analyzed using Statistical Package of Social Sciences (SPSS) version 18. Quantitative data was presented using descriptive statistics such as; frequency counts, percentages and means. Qualitative data was transcribed, put into various categories as themes and subthemes. Findings indicated that both home and

school factors such as Female Genital Mutilation and developed relationships between boys and girls significantly contribute to sexual violence among girls. It was also found that sexual violence such as rape highly affects academic performance among the girls. It was further found that the Ministry of Education has put in place measures to mitigate girl child sexual violence. Finally, the results showed that Guidance and counseling plays a significant role in supporting girl child's education. It was recommended that the community should use alternative initiation rites of passage for girls instead of female genital mutilation to educate girls on cultural matters. Head teachers should strengthen school rules, regulations, and counseling programmes to guide pupils. The Ministry of Education should organize sensitization workshops for parents, Board of management and head teachers on legal handling of sexual violence. Teachers Service Commission should employ more effective ways of disciplining teachers involved in sexual abuse in schools.

71. LCL/G/01/10

THE DEPICTION OF THE WOMAN BY MALE AUTHORS IN THE 21ST CENTURY: A STUDY OF THREE SELECTED KENYAN NOVELS

MADETE Lydia Vidembu with Supervisors Dr. Kesero Tunai, PhD and Prof. Egara Kabaji, PhD

ABSTRACT

This thesis embarks on establishing whether women's struggle for gender equality has been realized in selected literary works over the first decade of the twenty first century. This study analyses MejaMwangi'sThe Last Plague (2000), Ondukobw' Atebe'sVerdict of Death (2005) and Henry R, Ole Kulet'sBlossoms of the Savannah (2008)   with a specific emphasis on gender relations as portrayed in their works of literature because, although women have been appointed to senior positions in the Kenyan government it is believed that gender equality is still a mirage and gender equality is a concept every society strives to achieve. The study analyses the role played by three literary works in propelling these societies towards gender equality. Given that all writing is shaped by the social, economic and cultural environments, the study assesses how these environments impact on the development of individual characters. The study analyzes the challenges faced by female characters, in the three selected novels, which arise from stereotyping. It also examines societal perception of female characters in these novels. Finally the study assesses the strategies the female characters employ in order to overcome the adversities they are placed in. All the works being analyzed have been published within the first decade of the twenty first century, to provide the standing on gender relations as depicted by the authors. The study is guided by Elaine Showalter's feminist theory which argues that women authors are better placed to analyze female experiences and not male authors whose stereotypic views do not define the woman. This study has employed primary and secondary research method relying on library research of primary and secondary materials which included reading and analyzing previous and current materials such as novels, articles in journals and magazines. The study relies on purposive sampling where three novels have carefully been selected after a wide reading of several novels from Kenyan authors. Descriptive analysis has been done after a close reading of the selected texts with the intention of answering the questions raised.

72. LCL/G/01/11

GENDER DYNAMICS AND IMAGES OF MOTHERHOOD IN SELECTED BUKUSU WORK, RITUAL AND INITIATION SONGS

KASILI Wanjala George with Supervisors Prof. Egara Kabaji, PhD and Dr. Jairus Omuteche, PhD

ABSTRACT

This study isan investigation of gender dynamics and different images revealed about motherhood in selected Bukusu work, ritual and initiation songs. The study seeks to demonstrate how the rich language variety embodied in the performance of the songs is deployed in the construction of images of motherhood. Further, it analyzes the gender dynamics that accompany the performances and how they enhance the construction of images of motherhood. Employing ideas from feminism (African feminism), we seek to unravel the Bukusu construction of female identity (Motherhood). Motherhood in this study refers to the Bukusu understanding of the person of mother. The study intends to examine gendered discourses that can be read in work, ritual and initiation songs, an area that has received little scholarly attention; this affords the study a lot of space within which to work. Both primary and secondary sources were consulted. Primary sources included books, journals, articles, seminar papers, among other sources. The study relied on fieldwork which involved active participation, participant observation, observation and recording and interviews. Purposive sampling and snow balling techniques were used in identifying informants. Among the respondents were men and women who had either participated in ritual, work or initiation songs. The study was carried out in Bungoma Central Sub-county of Bungoma County. A total of twenty five songs were collected for purposes of this study. Interpretation of the data involved analysis of form and structure, textual content analysis and analysis of performance. Findings of this study reveal that the Bukusu community uses elements of drama and their rich language variety to reveal images of Motherhood. The mother is constructed as the true parent, a complement of the father, a nurturer, and a proactive member of the Bukusu community. The findings are vital as they reveal gendered discourses embodied in the construction of images of motherhood. The study contributes to the existing stock of knowledge on Gender and women studies with particular emphasis on motherhood through an African Feminism prism. The study forms a source of reference for future researches in literature and opens up new vistas in the study of literature.

73. LAL/G/01/13

TEACHERS' AND PARENTS' PERCEPTION STRANDS OF MOTHER TONGUE AS MEDIUM OF INSTRUCTION IN LOWER PRIMARY SCHOOLS, BUNGOMA SOUTH SUB-COUNTY, KENYA

MANYONYI Joan Omuka with Supervisors Dr. Bob Mbori, PhD and Dr. Erick Okwako, PhD

ABSTRACT

This study set out to investigate the teachers' and parents' perception strands of mother tongue as medium of instruction in lower primary schools in Bungoma South Sub-County, Kenya. The specific objectives of this study were; to investigate the teachers' perception strands of mother tongue as medium of instruction in lower primary schools, to investigate the parents' perception strands of mother tongue as medium of instruction in lower primary schools and to establish the current state of the medium of instruction in lower primary schools. Although the language policy in Kenya is that mother tongue should be the medium of instruction from class 1- 3, the repeated

directives by the government on the same indicate that there may be a mismatch between policy and implementation. The study was guided by the Theory of Planned Behaviour which predicts deliberate behavior. The theory proposes a model which can measure how human actions are guided. It predicts occurrence of a particular behavior provided the behavior is intentional. The research adopted a descriptive survey design. The independent variable of the study was teachers' and parents' perception, while the dependent variable was, use of mother tongue as a medium of instruction. The study targeted 119 public and private primary schools which were stratified into three categories namely: urban, peri- urban and rural. A total of 36 schools representing 30% were randomly selected. Three schools not included in the study; one representing each stratum was used in the pilot study. The study sample comprised 108 lower primary teachers out of which 96 responded to the questionnaire and 12 teachers were purposively sampled for interview. In addition 24 lower primary parents were purposively sampled for interview. Out of the 96 teachers who were expected to respond to the Questionnaire, 93 (97.9%) responded. In addition, 12 teachers and 24 parents were interviewed. Data were collected using interview schedules and questionnaires. Data were analyzed both quantitatively and qualitatively. Quantitative data were analyzed descriptively through frequencies and percentages and presented using tables and pie charts generated using the SPSS. Quantitative data were coded using open coding, categorized and reported under common themes that emerged. Qualitative data were analyzed using the Atlas ti and were coded using open and invivo coding and were categorized and reported thematically. Findings indicated that both teachers and parents did not favour a mother tongue medium of instruction. Most teachers 70 (75.26%) did not use mother tongue as a medium of instruction due to lack of instructional materials, difference between the teachers' and learners' mother tongue and lack of training on how to teach in mother tongue. There was a strong feeling among the teachers and parents who did not support mother tongue medium of instruction that mother tongue did not add any value to the academic performance of the learners and teaching in English prepared the pupils better for excelling in examinations and consequently getting good jobs. Many teachers 64 (91.42%) preferred to teach in English and Kiswahili. It was recommended that the government invests more in mother tongue medium instructional materials and ensures the rural schools are adequately staffed with teachers who speak the language of the catchment area.

74. LAL/G/06/13

A MORPHOPHONEMIC CONSTRAINT-BASED ANALYSIS OF ENGLISH WORDS NATIVIZED IN DHOLUO LANGUAGE

OKELO George Ouma with Supervisors Dr. Bob Mbori , PhD and Dr. Teresa Okoth , PhD

ABSTRACT

This study is a morphophonemic constraint-based analysis of English words nativized in Dholuo. The infiltration of English words into Dholuo lexical inventory has led to the adoption and subsequent nativization of English words by the native Dholuo speakers. During nativization, the loanwords undergo a number of phonological processes which enable the borrowed word to be fully nativized in agreement with Dholuo phonotactic structure. The main focus of this study was to investigate the phonological processes used by the recipient system, Dholuo, to handle phonologically alien words from English. The study identified these phonological processes with a further ultimate obligation to investigate not only how they affect the phonotactics of the loanwords but also how they affect the morphophonemic of the loanwords. The mechanism used by Dholuo language in the phonological modification of loanwords has been explained within the framework of Optimality Theory, a linguistic model which proposes that

observed forms of language arise from the interaction between conflicting constraints. It is through the interaction of markedness and faithfulness constraints that the output forms – the nativized words – are realized. The researcher used participant observation and document analysis to collect a corpus of 200 words in Kisumu County from ten semantic fields: transport and information technology, business, administration, health, environment and agriculture, food and clothing, religion, education, sports and recreation, and household appliances and utensils. The study then purposefully sampled 75 words for analysis. Both qualitative and quantitative methods are used to analyze the data. The analyses have revealed that in dealing with disallowed codas and consonant clusters, three main strategies: insertion, deletion and feature change are used in order to satisfy high-ranked markedness constraints in Dholuo. The study also revealed that Dholuo alters the phonotactics of the borrowed words through foreign phoneme integration, vowel accommodation, consonant accommodation and consonant strengthening. The study has shown that the phonological processes change the morphophonemics of the loanwords through suffixation and homograph plurals. The findings of this research not only have implications on the growth and development of Dholuo but also break the ground for more studies on different linguistic elements in Dholuo using the Optimality Theory.

75. EDK/G/02/08

UCHANGANUZI WA MATUMIZI YA VIRAI VITENZI KATIKA INSHA MIONGONI MWA WANAFUNZI WA KIDATO CHA TATU KAUNTI NDOGO YA NAVAKHOLO, KENYA

CHITERI Indakwa Charles with Supervisors Prof. Kenneth Inyani Simala, PhD and Dkt. Susan C. Choge, PhD

ABSTRACT

The use of verb phrase is an important aspect of grammar in analyzing the sentence structure as in form three syllabuses. The statement of the problem is drawn from Kiswahili paper 2 (102/2) national examiner's report. This report states that candidates are in great danger of not performing well since they made a lot of errors in verb phrase use. Despite the complaints, no tangible research has been carried out to establish the truth of the matter. The objectives of the study aimed at classifying of the verb phrase use, classification of verb phrase structure in the learner's written speech composition and analyzing errors made by students in their written speech work. Research questions involved identification of the use of verb phrase errors in learner's written speech work, classification of verb phrase in student written speech and discussion of the source of errors in students' use of verb phrase. The justification of this study was the need to establish sources of errors as demonstrated in the students' use of verb phrase. This was because students found difficulties in the use of verbal phrase despite form three students having been taught verb phrase use. The research scope involved form three students in Navakholo Sub-county, Kakamega County in Kenya. The study was guided by phrase structure theory (Noam Chomsky). This theory classifies and arranges elements of a sentence into different parts. It also showed how the elements of a sentence relate from the highest to the least. The study adopted a descriptive survey design and literary research and field research methods were used to collect data. The sample size comprised of 110 out of 360 essays. The essays were selected for the study using stratification, random and purposive sampling techniques. Speech writing, phrase structure analysis techniques were employed to get the relevant data by use of statistical package for social sciences (SPSS). Data was presented using charts, tables, graphs, percentages and explanations. The findings of the study revealed that form three learners used verb phrase structures in their written speech composition. They however, made several errors in the use of verb phrase. Based on the findings of this

study, it was recommended that proper methods and techniques be employed to help learners alleviate errors in the use of verb phrase for effective communication within and outside the classroom. The importance of this study was to improve communication both within and outside the classroom environment by sealing the gap that existed in the research in verbal phrases in Kiswahili. The study also contributed to some extend literal findings in Kiswahili syntax. It also contributed to analysis of verbal phrases in form three speech-writing.

76. EDK/G/26/08

USAWIRI WA UTANGAMANO WA KITAIFA NCHINI KENYA KATIKA TAMTHILIA TEULE ZA KISWAHILI

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and Ms. Rukia Salim

IKISIRI

Mada ya utafiti huu ni, *Usawiri wa ufungamano wa kitaifa nchini Kenya katika tamthilia teule za Kiswahili*. Utafiti huu ulichunguza usawiri wa utangamano wa kitaifa katika tamthilia teule za Kiswahili za shule za upili nchini Kenya. Mbali na utangamano wa kitaifa kuwa mojawapo ya malengo makuu ya elimu nchini Kenya, kumekuwa na vita wakati wa, na baada ya chaguzi za kitaifa. Utafiti huu ulilenga kuchunguza uzingatifu wa suala la utangamano wa kitaifa. Ulifanywa katika kaunti ndogo ya Bungoma ya Kati katika kaunti ya Bungoma. Madhumuni yake yalikuwa kubainisha iwapo tamthilia zimevisawiri vipengele vya suala la utangamano wa kitaifa kichanya au kiwazi, iwapo walimu wanafahamu jinsi suala la utangamano wa kitaifa lilishughulikiwa katika tamthilia na kubainisha iwapo wanafunzi hufunzwa na kulielewa suala la utangamano wa kitaifa. Utafiti huu ulikuwa wa mkondo wa maelezo. Uliongozwa na nadharia ya mfumo iliyoasisiwa na Bertalanffy (1968) na kuendelezwa na Ayot na Patel (1992) na Mukasa (2001). Sampuli lengwa zilikuwa tamthilia teule za shule za upili zilizotahiniwa katika kidato cha nne kuanzia mwaka wa 1989 hadi mwaka wa 2014, walimu pamoja na wanafunzi waliosoma tamthilia teule za Kiswahili. Umuhimu wa utafiti huu ni kuwa, matokeo yake yanatazamiwa kuwafanya watunzi na wateuzi, watunge na kuteua tamthilia zinazosheheni masuala muhimu kama vile utangamano wa kitaifa ili nchi ya Kenya iendelee kuwa na mshikamano mwema. Matokeo pia yanatarajiwa kuwazindua wahakiki na walimu ili wafunze tamthilia kwa kuliangazia suala la utangamano wa kitaifa. Mbinu ambazo zilitumiwa ni uchanganuzi wa tamthilia, kujaza hojaji na usaili. Data za utafiti zilitokana na sampuli zilizoteuliwa kwa awamu mbili kimakusudi na mbinu sahili ya uteuzi wa bahati nasibu. Nyenzo zilizotumiwa wakati wa kukusanya data zilikuwa kama zifuatazo: kiongozi cha uchanganuzi wa tamthilia, hojaji na dodoso. Data zilichanganuliwa kwa njia ya dafaa, asilimia, na maelezo kwa njia ya mijadala. Utafiti huu ulibainisha kuwa tamthilia teule za Kiswahili zilihusisha vipengele muhimu vya utangamano wa kitaifa ambavyo vilisawiriwa kwa uwazi na kwa mwelekeo hasi. Walimu hufunza vipengele vya utangamano wa kitaifa kama maudhui tu, bila kuvihusisha na maana na umuhimu wa utangamano wa kitaifa. Wanafunzi nao hawakutambua maana ya dhana ya utangamano wa kitaifa ingawa waling'amua vipengele vya utangamano wa kitaifa kwa vile walikuwa wamevisoma kama maudhui katika tamthilia teule walipokuwa wakiichambua. Aidha kupitia kwa nadharia ya mfumo iligunduliwa kuwa utangamano wa kitaifa kama mojawapo ya malengo makuu ya elimu haukujumuishwa wakati wa kufunza tamthilia teule za Kiswahili. Hii huenda ikawa mojawapo ya sababu kuu ya migogoro hasa wakati wa, na baada ya chaguzi kuu nchini. Mwisho, mapendekezo na mapengo ya utafiti huu yatachangia matatizo ya kufanyiwa tafiti madhubuti na wataalamu wengine.

77. ECI/G/07/12

THE RELATIONSHIP OF TEACHER MOTIVATION AND STUDENTS PERFORMANCE IN SCIENCE IN PRIMARY SCHOOLS OF BUTERE SUB-COUNTY KENYA

MUKABANE Rosemary Achando with Supervisors Prof. Sandra Harper, PhD and Mr. Stephen Buluma

ABSTRACT

There has been a disturbing trend of poor grades in the science subject in primary schools of Butere Sub-county of Kakamega County. Yet no study has been done to ascertain the course of this trend in performance in science subject at primary level. The study sought to assess the relationship of teacher motivation and student performance in science in primary schools in Butere Sub-County of Kakamega County as a solution to the problem. The specific objectives of the study were; to determine the level of motivation of teachers in Primary Schools of Butere Sub-County. To determine factors in schools that raises or lowers teacher motivation in Primary Schools of Butere Sub-County. The third objective sough to determine the influence of teacher motivation on students' academic performance in Science subject. The study was anchored on Herzberg's Theory of Motivation developed in 1959. Herzberg's theory states that satisfaction and dissatisfaction at work nearly always arises from different factors, and is not simply opposing reactions to the same factors, as had always previously been believed. Herzberg wrote that the factors which motivate people at work are different and not simply the opposite of the factors which cause dissatisfaction. In this context, satisfaction is the sense of fulfillment or gratification that teachers can draw from their profession. The cross-sectional survey design was used to collect data from 230 respondents using questionnaires and interview schedules. Target populations were teachers, head teachers and School Management Committee Chairmen. Sampling techniques used in the study were Simple random and Purposive sampling. On validity of the instruments, the research used content validity where experts were used to ascertain the validity of the data collection instruments. Test retest method was used to ascertain the reliability of data collection instrument. The researcher analyzed the study data using the Statistical Package for the Social Sciences (SPSS) version 20.0 and presented findings in form of frequency tables, percentages and other measures of dispersion and variability. Study findings established statistically significant negative relationship between the levels of motivation of all primary teachers and how it contributes to academic achievement of students Butere Sub-County. Findings revealed a statistically significant negative relationship between schools based factors affecting motivation of teachers who teach science in primary school on academic achievement in science Butere Sub-county. Lastly findings in third objective established a statistically significant negative relationship between factors particular to science teachers that influence teachers' motivation and pupil's academic achievement Butere sub-County. It is expected that the output from this study will be of strategic relevance to policy makers in the ministry of education interested in reviewing the current educational policies that concern science teacher motivation in primary schools. Moreover, the knowledge gained from this study could be used by primary school heads to enhance science teacher motivation for better teaching of pupils.

78. ECI/G/05/08

FACTORS INFLUENCING THE IMPLEMENTATION OF THE INTEGRATED ENGLISH LANGUAGE SYLLABUS IN MUMIAS SUB-COUNTY, KENYA

OGOLA Samuel Odhiambo with Supervisors Dr. Bob J. O. Mbori, PhD and Mr. Buluma Stephen

79.   34. CCJ/G/20/11

SUBSTANCE ABUSE AND ITS INFLUENCE ON OFFENDING AMONG INMATES AT SHIMO LA TEWA BORSTAL INSTITUTION

KARIUKI Ndumia Alexander with Supervisors Dr. Wycliffe Oboka, PhD and Partrick Kariaga

FACULTY OF SCIENCE

80. SEB/G/04/13

INVASIVE SUCCESS OF PSIDIUM GUAJAVA L. , IN KAKAMEGA TROPICAL RAINFOREST, WESTERN KENYA

KAWAWA Rashid Calvince with Supervisors Dr. Francis N. Muyekho, PhD and Prof. John A. F. Obiri, PhD

ABSTRACT

Psidiumguajava L. is an invasive species from Southern Mexico occurring in Kakamega tropical rainforest in Western Kenya. It has displaced many local species in Kakamega rainforest where it occupies large patches of the forest areas. The forest provides several ecological services such as serving as water reservoirs, reducing sediment loads in rivers, regulating rainfall patterns, acting as carbon sink, supporting livelihoods through provisions of food, medicine and timber for construction. The forest can only sustain the provision of these ecological services when it has a stable biodiversity. The decline and loss of biodiversity in Kakamega tropical rainforest has been associated with deforestation, land degradation, climate change effects and spread of invasive alien species. *P. guajava* changes habitats, alters forest's ecological integrity, ecosystem functions and services by crowding out and replacing native species thus causing huge ecological imbalance. Despite growing concern over the negative effects of plant invasion on various scales and in particular *P. guajava* in Kakamega rainforest, limited studies have been done on its invasiveness in this forest. The main objective of this research was to determine the factors responsible for the invasive success of *P. guajava* in Kakamega tropical rainforest. This was achieved through determination of its temporal and spatial distribution, investigation of its allelopathic property on native species and determination of its soil seed bank.Questionnaires were used to collect data on temporal distributions while for spatial distribution ecological survey was done. Forallelopathy investigation, seeds of four native plant (*M. lutea,D. mespiliformis*, *C. africana* and *C. megalorcapus)* species were subjected to different concentration of *P. guajava* leaves extracts in a randomised block design with three replications to test for the extracts impact on their germination, shoot and root length elongation. In soil seed bank, soil samples collected from 0-5cm, 5-10cm and 10-15cm floors of the three types of disturbed (high, moderate and low) forest locations were put in germination pots in a greenhouse and the seeds in them allowed to germinate. Data obtained was analysed using SPSS statistical software package (SPSS version 22.0), where ANOVA and Kruscal Wallis Test were used to compare means. In terms of temporal distribution, most respondents (29%) believed that *P. guajava*successfully invade the forest in 1981. Southern Kakamega forest had a higher density(1596 trees/ha) of *P. guajava*plants than the Northern part(1156 trees/ha). Spatial distribution of *P. guajava*was inversely correlated with the distribution of other species in both the North (r_s=-0.652) and the South (r_s=-0.608). Allelochemicals inherent in *P. guajava*inhibited germination, growth and survival of some tested native plants. This inhibitory effect increased with increase in concentration and was most severe at 20% concentration. *M. lutea* and *D. mespiliformis* exhibited significant resistance. *P. guajava* had a rich soil seed bank. Soil samples collected from the upper layer (0-5cm) of the forest floor from the Southern and Northern parts of the forest successfully regenerated 60% and 53% seedlings respectively. Rate of germination of seeds in the deeper layer (10-15cm) explains why *P. guajava* is able to regenerate even after its seeds in the forest floor are exposed to harsh treatments such as fire. The study demonstrated that *P. guajava* is a successful invasive species in Kakamega rainforest. This success was largely due to its allelopathic potential and its rich soil seed bank. Forest managers should consider planting native species

which showed resistant to *P. guajava* invasiveness as a strategy for its control.*M. lutea* which exhibited great resistance to *P. guajava* inhibition is one such candidate among others that needs to be investigated and planted.

81. SEB/G/01/13

STATUS OF POPULATION STRUCTURE, SIZE AND DISTRIBUTION OF PRUNUS AFRICANA IN NORTH AND SOUTH NANDI FORESTS

KOROS Hillary Kimutai with Supervisors Dr. Martha M. Konje , PhD and Dr. Itambo Malombe

ABSTRACT

The International Union for Conservation of Nature (IUCN) documented the conservation status of *Prunus africana* (Hook. F.) Kalkmanas vulnerable and showed potential distributions of the species. However, this information is at large scale and does not provide local information on the species. The study aimed at highlighting the status of *P. africana* population, ecological association with other species, uses and conservation threats in North and South Nandi forests. Stratified Random Sampling based on disturbance gradient, assuming higher impacts near forest edges was used. Belt transects of two km by 400 m were established and *P. africana* individuals used as reference point for establishing of five Permanent Sampling Plots (PSP) along each transect to determine the status of *P. africana* population, structure, size and distribution. The PSP was further subdivided into 20 m by 20 m subplots for detailed sampling to examine the ecological association of *P. africana* with other plant species and conservation threats. Semi structured questionnaires were used to interview the local community within 1 km buffer zone around South Nandi Forest to determine their uses and conservation measures of *P. africana*. PAleontological STatistics (PAST)(Version 4.3) was used for descriptive and inferential statistics and statistical significance levels reported at $p < 0.05$ and 95% confidence level. Modeled potential distribution and mapping of *P. africana* distribution was done using Maximum Entropy Modeling MaxEnt (version 3.3.3k) and Arc GIS (version 10) respectively. Ecological association of *P. africana* with other species was analyzed using Plymouth Routines In Multivariate Ecological Research (PRIMER) (Version 5). Data from questionnaires were analysed using Statistical Package for Social Sciences (SPSS) (version 20). The study established that the density of *P. africana* was two trees/ha. The Diameter at Breast Height (DBH) class size distribution of *P. africana* assumed a 'j' shaped distribution with low representation in the younger DBH class size. Other woody species had an inverse "j" shaped distribution. There was statistically significant difference in DBH variance (F-test $p<0.05$) and mean DBH (T test $p<0.05$) between the South and North Nandi forests. The modeled distribution showed higher density of *P. africana* towards the North Eastern part of South Nandi forest around Kobujoi area. The most utilized part of *P. africana* by local community is the stem whereas they use the tree for multi-purpose functions including medicine for humans and animals, firewood, timber and charcoal. The key forest threats were overgrazing, firewood collection, logging and charcoal burning. The study concluded that *P. africana* regeneration is high but faced with poor survival rates especially due to overgrazing. The study recommends both *in-situ* and *ex-situ* conservation measures which includes control of overgrazing, creation of awareness on the importance of *P. africana* to the locals, encouraging planting of the tree on farms and establishment or support of the local existing nurseries for propagation of this multipurpose tree.

PROPERTIES OF A CRYSTALLINE ENERGY BRANCH FOR HARD-SPHERE ASSEMBLY OF FERMIONS

ACHIENG Atieno Josphine with Supervisors Prof. Thomas W. Sakwa, PhD

and Prof. K.M. Khanna, PhD

TIME SERIES MODEL OF RAINFALL PATTERN OF UASIN GISHU COUNTY

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ABSTRACT

Climate change is a significant and lasting change in the statistical distribution of weather patterns over periods of time. Global climate started changing noticeably in the 2nd half of the 20th century and has continued into the 21st century as a result of global warming. Kenya has experienced extreme weather patterns than any other African country between 1980-2008 due to climate change. This has resulted into major droughts and floods notable being seven severe droughts between 1991-2008 and the worst elnino in 1997-1998. The essence of this study was to develop a time series model that best describes the rainfall pattern of UasinGishu county from the general ARIMA family and generate the values (p,d,q)(P,D,Q)s.The model developed is used to predict extreme weather patterns in UasinGishucounty. ARIMA modeling is done in three stages; model identification, parameter estimation and diagnostic checking. In the model development, identification of the model is carried out using autocorrelation functions and partial autocorrelation functions. Estimation of the model parameters is done by the method of Maximum Likelihood Estimation (MLE). To check on the appropriateness of the estimated model parameters, the Akaike Information Criteria (AIC) was used. For diagnostic checking of the fitted model, the Ljung-Box test is used. The model that best fits the Kapsoya rainfall data was SARIMA (0,0,0)(,0,1,2)12. This model is used to forecast average expected monthly rainfall statistics for two years.Heavy rains occur at an approximate interval of 38-40 months while droughts occur at intervals of 6-8 years. For verification and data fitting to the model, a computer software R is employed. The data used is real rainfall data from kapsoya meteorological station inUasinGishucounty. For future analysis, we recommend the use of multiple ARIMA models, multivariate time series models, and the use of the univariate ARIMA model we have developed to improve on the accuracy of the prediction done.

ZERO DIVISOR GRAPHS OF SELECTED RINGS IN WHICH THE PRODUCT OF ANY TWO ZERO DIVISORS LIES IN THE COEFFICIENT SUB RING

*INGADO Daisy Binayo with Supervisors Dr. Maurice Owino Oduor
and Dr. Achilles Nyongesa Simiyu, PhD*

ABSTRACT

Rings in which the product of any two zero divisors lies in the coefficient subring have been studied in the past. Expositions on the structures of their groups of units exist in literature. However, the precise structure of the zero divisors is not fully settled. In this study, we have considered selected classes of commutative rings in which the product of any two zero divisors lies in the coefficient subring. The three types of zero divisor graphs of these classes have been investigated using graph theoretical properties. Some graphs have been drawn using the TIKZ software. It has been observed that the

diameter of the total graph, the diameter of the zero divisor graph and the diameter of the zero divisor graph determined by the equivalence classes of the rings considered in this thesis is either 0, 1 or 2 depending on the different invariants of the rings. It has also been noted that the girth of the considered rings is either 3 or 1. The results obtained in this thesis deepen the understanding of the properties of such rings, contributing significantly towards the existing knowledge on attempts to classify finite rings.

85. SES/G/04/12

MARKOVIAN MODEL OF RAINFALL PATTERN WITH APPLICATION TO BUNGOMA COUNTY RAINFALL DATA

NANG'UNDA Lucy Makokha with Supervisors Prof. Kennedy L. Nyongesa, PhD and Prof. Adu A. M. Wasike, PhD

ABSTRACT

In this study we model the occurrence and length of wet, medium wet and dry spells by Markov chain that describes the rainfall pattern of Bungoma County. This is achieved by Markov chain theory and estimation of probabilities of the chain by MLE. Also computed is the distribution of the length of each spell; wet, medium wet and dry from which the central moments of the rainfall pattern are computed. The model developed is applied to rainfall data from Bungoma meteorological department. A three by three transition matrix is obtained and used to predict the weather pattern of the study area. It is observed that prediction can be certain at the twelfth year as the matrix show a stationary distribution. The three states of the chain are recurrent, non-null and aperiodic hence the chain is egordic.

Keywords: Markov Chain, Wet spell, Medium wet spell, Dry spell, Prediction, Stationary distribution.

86. SEA/G/04/14

MODELING THE IMPACT OF DELAY IN MEDIA COVERAGE ON THE DYNAMICS OF EBOLA IN A LOGISTICALLY GROWING POPULATION

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ABSTRACT

Ebola Virus Disease (EVD) also known as Ebola hemorrhagic fever (EHF) is a viral hemorrhagic fever of humans and other primates caused by a Ribonucleic Acid (RNA) virus of the family filoviridae and genus Ebolavirus. It is transmitted by direct human to human contact via body fluids or indirect contact with contaminated surfaces. The 2014 West Africa Ebola outbreak not only spread nationally but also internationally. Due to its transmission mode the disease spreads so fast and has a high mortality rate of up to 90%. The use of media in awareness campaigns is critical in controlling the spread of highly infectious diseases like Ebola. Delay in media communication on outbreaks and spread of the disease can lead to very high proportions of infections in a population, leading to hospitalization and or death. Mathematical models formulated so far to study the dynamics of Ebola have not considered the effect of delay in media communication on Ebola outbreak. In this thesis we have formulated a mathematical model based on a system of Ordinary Differential Equations (ODEs) with time delay incorporated in a non-linear incidence infection term, for a logistically growing population. The well-posedness of the model is established by showing that its solutions are positive and bounded. The existences of the steady states of the model are determined and the basic reproduction number derived using the next generation matrix approach. The disease free equilibrium is shown to be globally stable using a technique by Castillo Chavez and

the endemic equilibrium is shown to be locally asymptotically stable using Rouche's theorem and exhibits a hopf bifurcation at the equilibrium point. Sensitivity analysis of the parameters in the basic reproduction number done using the normalized forward sensitivity index shows that the rate of infection increases with increased contact rate between the infective and the susceptible. Numerical simulation of the model carried out using MATLAB software shows that delay in media coverage does not affect the disease free state where as in the presence of infection the delay in media reporting leads to repeated occurrence of the disease. The obtained findings are significant in the sense that awareness campaigns during outbreaks, effectively done by means of modern communication channels such as radio, television, mobile phones and social media ensure that individuals take precautionary measures as well as encourage people with symptoms to seek immediate medical attention and also improve the level of preparedness of the health care personnel.

87. SIT/G/13/11
A FRAMEWORK FOR MOBILE PAYMENT ADOPTION IN KENYAN SECONDARY SCHOOLS

KHANDA Zedekia Jackson with Supervisors Dr. Gilbert B. Mugeni, Ph.D. and Mr. Waliaro M. Apollo

ABSTRACT

Mobile Payment innovations continue to be developed that make it possible for a consumer or business to use mobile device technology to conveniently make payments without movement. Despite many experts' predictions of a good future, mobile payment acceptance is still rated with low percentages in many sectors. For instance some Kenyan institutions of learning including universities, colleges and schools make payments remotely using mobile payment services. However many still prefer traditional form of payment such as cheques, cash and money orders. The focus of this study was to develop an adoption framework for mobile payment in Kenyan secondary schools by determining mobile payment mechanisms used in Kenyan secondary schools and determining adoption factors that are specific for mobile payment context. The study employed quantitative research strategy to achieve its objectives. It was carried out across selected secondary schools in Bungoma County. Quantitative data was collected using questionnaires to address the objectives of this study. Data collected from respondents focused on mobile payment services, applications, procedures, mobile money platforms and adoption determinant factors. Analysis was done using statistical tools including means, standard deviation, frequencies, charts, percentages and one sample t-test. Mobile payment mechanisms, ease of use, usefulness, management support, policy and security were found to be M-payment determinant factors while referents influence was not. Expert validation was used to validate the developed framework, where the researcher collected views from a group of experts through questionnaires. School managers may be assisted by the developed mobile payment adoption framework while deciding on adopting mobile payment services for their schools. The ministry of education may be guided by the same framework to formulate policies regarding adoption and use of mobile payment in Kenyan secondary schools. Since mobile payment service providers are in business, the output of this study may be useful in enabling them expand their markets if they manage to convince secondary schools adopt mobile payment services.

88. SIT/G/04/11

A MODEL FOR MOBILE LEARNING READINESS IN KENYAN UNIVERSITIES: CASE STUDY OF MASENO UNIVERSITY

OGAMBA Stanley Mogaka with Supervisors Dr. Gilbert B. Mugeni, Ph.D. Dr. Anselemo I. Peters, Ph.D.

89. SIT/G/19/11

EVALUATION OF THE LEARNABILITY PRINCIPLES OF MOBILE WIRELESS INFORMATION SYSTEMS APPLICATION SOFTWARE FOR CHILDREN IN NAIROBI COUNTY KENYA

KIPCHIRCHIR Bethuel Okelo with Supervisors Dr. Samuel Mbugua , PhD and Dr. Simon Karume

ABSTRACT

Mobile-wireless gadgets are becoming increasingly important in Kenya, not just as a means of social communication, but also as a medium of learning, entertainment and instruction. This shift partly exploits the learnability principles of automated information systems which signifies how quickly a new user can begin efficient and error-free interaction with a system. The learnability principles were originally formulated for computer-based applications intended for adults but currently, children are increasingly becoming the end users. A gap existed in research on the effects of learnability on school-aged children in Kenya. Against this backdrop, this study aimed at improving children's learnability of application software in mobile-wireless IS. The research's objectives were to gather information on the learnability characteristics of children of different age groups, evaluate the existing learnability principles and how it could be extended to the current learnability principles to suit children in urban areas. The research further explored the degree to which the mobile-wireless information systems' applications software learnability principles are applicable to children in Nairobi County. The research design was experimental. The study site was Nairobi County and the research participants were children ranging between the ages of 8 to 19 years. Data collection involved questionnaires and the use of tests. The research data was recorded and analyzed by Morae 3.3.3 a learnability software that assisted the researcher in planning and administering the questionnaires creating tables, graphs and recording the whole testing process that eventually helped in gaining some insights, inducing themes and finally coming to a conclusion and thus offering recommendations to the relevant people this being the software vendors. Major findings indicated that children between the ages of 8 to about 14 years require engageability to improve their learning to use new application software (video games included) this being and important factor in their learnability. This does not mean that other users of a different age do not require this principle but the degree to which it affects them could be different. As for the older children (15 to 19 years), the findings indicated that they strongly require discoverability as a principle to improve their learnability of new application software, this doesn't mean that adults or children of different ages do not require this principle but the degree to which could vary. The researcher further discussed how the discoverability principle could be implemented such as: multi layered interfaces for novice users' basically primary functionalities and later on for expert with secondary functionalities with other features and so on. The results of the research are meant for the application software vendors to use during development of the application software designed for children. The discoverability principle is important to children especially if they are using a new software or a new functionality in a software they have ever used. This is a major contribution to Kenya with the current government planning on giving young children computers as part of facilitation in their education as we are advancing in the information/technology age.

90. SIT/G/40/12

*ENHANCED MODEL TO MEASURE INFORMATION SYSTEMS' USER SATISFACTION
IN KENYAN UNIVERSITIES*

Perez Nelima with Supervisors Dr. Mbugua Samuel , PhD and Mr. Juma Kilwake

91. SIT/G/15/10

*A FRAMEWORK FOR INFORMATION SECURITY FOR
BLUETOOTH ENABLED PHONES*

*Chrispus Kimingichi Wanjala with Supervisors Dr. Mbugua Samuel, PhD
and Mr. Juma Kilwake*

ABSTRACT

As the widespread use and acceptance of Bluetooth continues concerns are being raised related to security vulnerabilities and privacy issues inherent in the use of this technology. Inadequate device resources and lack of user awareness has compounded this issue where the emphasis on design constraints, functionality and ease of use sometimes outweigh security concerns. Bluetooth piconet employs security procedures such as authentication, authorization and optional encryption. Despite all of these defense mechanisms being in place, the device has shown to have some security risks. The devices communicating in the wild forms various sizes of ad hoc networks called piconets and scatternets where varying number of devices can be entering and leaving the network at any time hence making it difficult for it to maintain good security. The research objectives were to determine vulnerability of Bluetooth security architecture technology, the security risksthese vulnerabilities poses to the users' information and lastly developed an information security framework to secure information stored in Bluetooth-enabled phones.The research design was based on multi-case study where two cases were selected. Questionnaires and interview were used in data collection. Both qualitative and quantitative approaches were used in data analysis. Descriptive statisticalmethod was used for data analysis. This was done using the Statistical package for Social sciences (SPSS).The key findings from the study were that to improve security of information stored in Bluetooth-enabled phones, application layer security should be employed to provide additional security measures not provided in the current authentication and authorization process. Secondly the E0 encryption algorithm currently used for encryption is too weak and therefore the AES algorithm should be used due to their efficiency and reliability. Lastly it was found out that most users have no knowledge on how to configure these devices thus manufactures of these devices should provide users with user documentation that explains the use and device configurations. These findings lead to the development of Information security framework for Bluetooth-enabled phones

92. SCH/G/07/12

*ENVIRONMENTAL LEVELS OF SELECTED PHARMACEUTICALS (LAKE VICTORIA
CATCHMENT AREAS, KENYA) AND THEIR ADOPTION ONTO NATURAL
ZEOLITE AND WATER HYACINTH*

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and Dr. Lilechi D. Baraza, PhD*

ABSTRACT

Pharmaceutical compounds are increasingly being detected in aquatic systems worldwide. Their occurrence in water and exposure to non-target organisms has been associated with chronic toxicity, endocrine disruption, development of bacteria resistant strains and congenital anomalies. Conventional wastewater treatment plants

are not designed to effectively remove these pollutants. Alternative w*ater treatment appro*aches are still critically needed. Adsorption process is the widely used method for pharmaceutical removal from water since it is eco-friendly, cost effective and relatively simple. This study determined five pharmaceutical residue levels in water and sludge from wastewater treatment plants in Kisumu, Bungoma, Mumias, Webuye and Kakamega towns. The pharmaceuticals included caffeine, ciprofloxacin, tramadol, metoprolol and hydrochlorothiazide. Water samples were extracted by solid phase extraction and concentrated using the rotary evaporator ready for High Performance Liquid chromatography for qualitative and quantitative analysis. Sludge samples were extracted using the sediment method and analyzed using Ultra-High Performance Liquid Chromatography hyphenated to a mass spectrometer. Caffeine and ciprofloxacin were detected in all the wastewaters and sludge of the sampling sites while tramadol, metoprolol and hydroclorothiazide were below the limit of quantification in some sites. Thereafter, a cost effective method of sequestrating ciprofloxacin and caffeine from aqueous solutions by use of water hyacinth (Eichhornia crassipes) biochar and natural zeolite, which are locally available was done. The isothermal behavior, adsorption kinetics, mechanisms and thermodynamic parameters were investigated in batch mode and residue analysis done using UltraViolet/Visible (UV/VIS) spectroscopy. Langmuir and Freundlich models described the equilibrium adsorption data with regression values greater than 0.9. The kinetics data obeyed the pseudo-second-order kinetic law while intraparticle pore diffusion was not the rate controlling step. The computed thermodynamic parameters, namely change in Gibb's *free ene*rgy (ΔG), change in enthalpy (ΔH) and change in entropy (ΔS) indicated that the adsorption processes were spontaneous and exothermic with the exception of ciprofloxacin's adsorption onto natural zeolite which tended to non-spontaneity with increasing temperatures. Room temperature was most appropriate for the adsorption system. pH dependence studies depicted multi-mechanistic adsorption for both compounds notably including electrostatic attraction and is hypothesized to involve hydrophobic interactions and hydrogen bonding. Ciprofloxacin was a better adsorbate to water hyacinth with 80.4 % maximum adsorption while caffeine had a higher affinity to natural zeolite with 76.8 % maximum adsorption. Water hyacinth biochar was found to be a better adsorbent with adsorption capacities ranging between 76.4% (caffeine) to 80.4 % (ciprofloxacin) while natural zeolite adsorption capacities ranged between 61.8 % (ciprofloxacin) to 76.8% (caffeine). The findings demonstrate that water hyacinth biochar and natural zeolite present excellent low cost and environmentally benign adsorbents for mitigation of pharmaceuticals from water.

Key words: Pharmaceuticals, adsorption, water hyacinth biochar, natural zeolite, wastewater treatment.

93. SCH/G/2/12
LEVELS OF SELECTED PHARMACEUTICALS IN WASTEWATER TREATMENT PLANTS WITHIN LAKE VICTORIA REGION OF KENYA, AND THEIR ELECTROCHEMICAL DEGRADATION

SIFUNA Fred Wanyonyi with Supervisors Dr. Francis Orata, PhD and Dr. Veronica A. Okello, PhD

ABSTRACT

Pharmaceutically active compounds (PhACs) are present in various environmental matrices including treated drinking water and wastewater effluents. These pharmaceuticals may pose great potential risk to humans or living organisms due to enhanced drug resistance as a result of continuous exposure of drugs to non-target organisms. The efficiency of the wastewater treatments plants (WWTPs) in Western

Kenya in removing these pharmaceuticals from water has not been well documented. Conventional wastewater treatment technologies have been demonstrated to be less efficient in the removal of most pharmaceutical compounds and endocrine disruptors from wastewater systems before releasing the respective industrial effluents to various domestic water drainage systems. It is therefore important to evaluate alternative water treatment technologies that are; more effective, safe, green and sustainable. Occurrences of pharmaceuticals in various environmental matrices have been reported all over the world especially in developed countries, however very limited studies have been carried out in developing countries. Lake Victoria basin faces a major ecological challenge due to the influx of chemical contaminants from domestic, hospital and industrial effluents. In this study, levels of acetaminophen, propranolol, carbamazepine, diclofenac and sulfamethoxazole in wastewater and sludge from selected Waste Water Treatment Plants (WWTPs) and hospital effluents in Lake Victoria basin, Kenya are presented. Samples were collected from various hospital effluents and WWTPs in five towns, namely, Bungoma, Kakamega, Kisumu, Eldoret and Mumias. The concentrations of PhACs were found to range from 0.3µg/L to 10.3µg/L and 0.5 ng/g to 48.7 ng/g in wastewater and sludge respectively. In this study, the use of electrochemical (EC) method as an alternative wastewater treatment technology is presented. Electrochemical method of degradation of these pharmaceutical ingredients was studied by the use of Carbon and Platinum (Pt) electrode systems. Extraction was carried out using solid phase extraction (SPE) methodology. The concentrations of diclofenac (DCF) and sulfamethoxazole (SMX) in various wastewater samples were monitored using high performance liquid chromatography - mass spectrometry (HPLC/MS) after clean up and pre-concentration by SPE. The data collected implies that while insufficiently treated wastewater contributes to surface water contamination, human activities also contribute appreciably to the pharmaceutical load. The PhACs suitability for electrochemical oxidation were tested by cyclic voltammetry (CV) technique performed in the potential range -1.5 to +1.5 V versus Ag/AgCl which confirmed the electro-activity of the selected PhACs. Efficiency of the EC degradation methodology was monitored using UV/VIS and HPLC. 0.1 M Na_2SO_4 supporting electrolyte was found to be more effective for mineralization of SMX and DCF, with efficiency of 15 % to 30 % more than the 0.1 M phosphate buffer supporting electrolyte on the Pt and Carbon electrodes. Comparing the overall electrode degradation performance studies on DCF and SMX under similar experimental conditions, Pt electrode showed higher degradation efficiency as compared to the carbon electrode for both 0.1M Na_2SO_4 and 0.1 M Potassium Phosphate buffer supporting electrolytes. The SMX and DCF degradation kinetics best fitted the second-order reaction, with rate constants ranging between 0.000389 to 0.006 $mol^2L^{-2}min^{-1}$ and correlation coefficient (R^2) above 0.987. The second-order degradation kinetics indicated that the rate determining step in the degradation could be a chemical process, thus suggesting the active involvement of electrolyte radical species in the degradation of SMX and DCF. Results obtained from real field wastewater sample showed more than 98 % removal of the PhACs from the wastewater by electrochemical degradation.

94. CWR/G/08/12

SIMULATION OF PRESSURE AND WATER QUALITY WITHIN KIMILILI WATER SUPPLY SYSTEM USING EPANET

BWIRE Christopher with Supervisors Dr. Njenga Mburu, PhD and Prof. Eng. Richard Onchiri, PhD

ABSTRACT

Water Supply system is a system of engineered hydrologic and hydraulic components

which provide water supply for domestic use, industrial purposes, firefighting and so on. The system comprises of intake structures, treatment units, storage tanks and distribution network. A well designed water supply system is meant to operate optimally such that consumers have access to portable water of sufficient pressure and quality at all times. However during operations of water supply systems, cases of pressure drops, leakages and contamination occur. Computation of flows and pressures in a complex network has been of great challenge and interest for those involved with design, construction and maintenance of public water distribution systems. The main challenge is the lack of a simple tool to accurately predict zones of low pressures and areas where quality is compromised. This study set out to simulate the water quality and pressure variations in the distribution system of Kimilili water supply, in Bungoma County. The Kimilili water supply system comprises intake works on River Kibisi in Kapsokwony Town where raw water gravitates via twin 150 mm diameter steel/ UPVC pipes covering approximately 3 km to the treatment works. The treatment plant is located at Kamtiong Centre where a volume of 2,200 m3/day is treated and distributed to serve Kimilili town and the adjoining areas of Bituyu, Lutonyi, Misikhu and Lugulu. Hydraulic Simulation was carried out using EPANET 2.0 software. The EPANET software, developed by the USA Environmental Protection Agency was adopted because it is for general public and educational use and it is available free on-line. The pressure, leaks and water quality variations from the treatment works to the consumer points were investigated. Flow measurement was carried out using ultrasonic flow meter while pressures were obtained using a pressure logger. The Kimilili water supply system was selected as it is typical of water supply systems that have a serious problem of zonal pressure variations, leakages and water quality concerns. It was observed that the values obtained from simulations using the EPANET software were higher than actual field measurements. This is attributed to the aging nature of the pipelines. It was found that within the network, pressure varies due to factors such as faulty air valves, very small sizes of branched pipelines, non-utilization of break pressure tank among others. As a result of simulation, pressure was found to be highest at areas like Bahayi and Sirende due to non utilization of break pressure tank located along the pipeline route at Bituyu. Water quality was observed to vary and generally reduced with the distance away from the treatment plant.15 Water quality parameters were also analyzed and compared to the requirements of Kenya Bureau of Standards. It is recommended that a dedicated distribution line be laid from the elevated backwash tank to serve areas with inadequate pressure, replacement of faulty air valves, smaller branch pipes with appropriate sizes based on demand and the removal of the bypass at the break pressure tank. The application and use of EPANET by water companies in understanding pressure and water quality changes can ensure water of adequate quality and pressure gets to the consumers.

95. CWR/G/04/12

EFFECTS OF LAND USE CHANGES ON RUNOFF AND SEDIMENT YIELD IN THE UPPER RIVER NZOIA CATCHMENT

MALOBA Joab Joseck with Supervisors Dr. Njenga Mburu, PhD and Dr. Alex Khaemba, PhD

ABSTRACT

River Nzoia has three water towers namely Nandi hills, Cherengani Hills and Mount Elgon. With increased anthropogenic activities in Nzoia river catchments, land cover has continuously been altered. This scenario has resulted into increased quantity of physical parameters in runoff among them, sediment load and high turbidity during rainy season. Past studies have in most cases focused on runoff and little on sediment load

and more so future perspective has not been adequately covered. This study focuses on effect of land use changes on runoff and sediment loads in upper river Nzoia catchment. Arc GIS 10.1 Software was used as a platform for spatial data capture, storage, retrieval and analysis during the study. Digital Elevation Model (DEM), Spatial Soil Data, sediment loads and meteorological data for the year 2000 to 2010 were the main input into the Soil Water Assessment Tool (SWAT 2012) model. Supervised Land classes were processed from satellite images for the year 2000 and 2010 using ENVI 4.7 software and formed part of the input requirements into the SWAT model. The upper river catchment where study focussed has an area of 10, 859 km^2 compared to total River Nzoia catchment with and area of 12,903 km^2. It had 27 sub watershed, and 82 Hydrologic Response Units. Past studies have focussed more on runoff and little study has been done to establish the trends in current and future sediment loads. The sediment load during period of study rose to as high as 4,870 tons/months measured at Webuye River Gauge Station in the year 2010 compared to 860tons/month in the year 2001. The study revealed that 51% of rainfall received at the start of the study period converted to surface runoff compared to 44% at the start of period implying reduction in base flow and ground water recharge volumes. This is as a result of destruction of 3.1% forests, 2.2% wetland, 15.3% tea, 5.5% sugarcane changed to human settlement. Ground Water Delay which is the lag between the time water exits the soil profile and enters shallow aquifer was 31 days compared to 450 days for healthy catchments. In conclusion man's activities have put pressure on land causing alterations in its cover and use. Based on historical spatial-temporal data, the study predicted future land-use change for the year 2020 and 2030 using a hybrid Cellular Automata-Markov model integrated into GIS software. From the results of the model, a prediction for the year 2030 shows that the ratio of runoff to total flow will be at 0.85. This is approximated at 66.7% increase from the value that was observed in the year 2010. REVAP from shallow aquifer of the catchment is expected to increase by 22.9% as per the year 2030. In this study, an assumption is that the average annual rain for the basin shall be above 1066mm. On the other hand lateral flow and return flow is projected to drop by 72.3% and 82.9% respectively. The study revealed that by alteration of the land cover, increased sediment load is observed, base flow reduced and ground water recharge diminished. This research is of importance in policy formulation on how to protect the river catchments today and in future so as to avail water to dwellers economically and in a sustainable way, maintaining quality environmental flows in the same river with low loads.

Key words: GIS, runoff, sediment loads,

96. CWR/G/03/12

WATER DEMAND DETERMINANTS AND FORECASTING FOR NZOIA CLUSTER SERVICES AREA

MUNIALO Patrick Wanyonyi with Supervisors Dr. Caroline K. Onyancha, PhD and Prof. Basil Tito Iro Ong'or, PhD

ABSTRACT

Forecasting water demand is critical for design and operations management. The problem of underlying study is locally limited empirical evidence in Kenya for water demand prediction and supply reliability. Water demand in Kenya is based on experience and appropriated practices in developed countries , rather than local empirical evidence. In the face of limited knowledge, per capita use statistics adapted from developed countries are applied to estimate water consumption in Kenya, and this has failed to depict accurately water use patterns. At the same time, there is the unknown component of suppressed consumption induced scarcity and water quality problems. Almost certainly, this will modify and disrupt the water demand and design baseline. Finally it

is crucial to establish time varying water consumption patterns and the critical demand values. Correct prediction of these factors determines the extent to which a network can satisfy critical demand and maintain economic efficiency. The aim of this study was to determine spatial characteristics of water demand, its determinants and forecast in the NZOWASCO Service Area. The specific objectives were:- to examine water use characteristics spatial to category of users, to establish a relationship between varying trends linked to income, price, population and other water demand related factors and to develop and adopt a mathematical model for system design and operations management. To achieve this objective, a survey of water usage for NZOWASCO area in towns in Bungoma (Webuye and Bungoma towns and their environs) and Trans Nzoia (Kitale town and its environs) counties was done. Out of the sample size of 26,238 population a sample size of 515 consumers was chosen across the five categories of consumers namely; domestic, commercial, industrial, institutional and low income consumers. Out of 515 population, the Primary data was collected in the field by use of structured questionnaire, whereas Secondary data was collected fromNZOWASCO company records. The study concludedthat there was a strong relationship between water demand, pricing and level of income especially for domestic and low income consumers. Similarly for commercial, Industrial and institutional consumers there was a strong relationship in demand, pricing and population size. This research also concluded that the elasticity of price is negative, implying that there was reduction in demand with increase of price. The study established that over 85% of the domestic consumers preferred tap water, 37% of low income consumers, being the majority in this category access tap water through yard tap, water kiosk or through vendors. At least 84% of commercial, industrial and institutional consumers accessed tap water.The study further concluded that the four major factors influencing the choice of water source among domestic and low income consumers were:- water quality , availability , cost and distance. Water quality, reliability, availability, cost and distance were major factors influencing the choice of water sources across all categories. The primary data was used to develop the mathematical model. The secondary data was used for sensitivity tests and validation of the model. The results of the model were presented in various forms and compared with actual data for a period of 2005 and 2014. The model was able to determine historical water demand and water forecasts for all category of consumers (domestic and low income, industrial, commercial and institutional consumers). The model generated values were very close (over 90% close) to actual data for historical water demand and forecasting. The mathematical water demand model developed in this research forecasts water demand for Nzowasco cluster region from 6 million m3 in 2014 to 18 million m3 in 2030.

97. CDM/G/17/07

CONTRIBUTION OF PRODUCTION INDUSTRIES TO DISASTER PREPAREDNESS IN MUMIAS AND THIKA TOWN, KENYA

IMBOBA Khabetsa N. Immaculate with Supervisors Dr. Stanely Omuterema, Ph.D. and Dr. Edmond Were Ph.D.

ABSTRACT

Forecasting water demand is critical for design and operations management. The problem of underlying study is locally limited empirical evidence in Kenya for water demand prediction and supply reliability. Water demand in Kenya is based on experience and appropriated practices in developed countries , rather than local empirical evidence. In the face of limited knowledge, per capita use statistics adapted from developed countries are applied to estimate water consumption in Kenya, and this has failed to depict accurately water use patterns. At the same time, there is the unknown component

of suppressed consumption induced scarcity and water quality problems. Almost certainly, this will modify and disrupt the water demand and design baseline. Finally it is crucial to establish time varying water consumption patterns and the critical demand values. Correct prediction of these factors determines the extent to which a network can satisfy critical demand and maintain economic efficiency. The aim of this study was to determine spatial characteristics of water demand, its determinants and forecast in the NZOWASCO Service Area. The specific objectives were:- to examine water use characteristics spatial to category of users, to establish a relationship between varying trends linked to income, price, population and other water demand related factors and to develop and adopt a mathematical model for system design and operations management. To achieve this objective, a survey of water usage for NZOWASCO area in towns in Bungoma (Webuye and Bungoma towns and their environs) and Trans Nzoia (Kitale town and its environs) counties was done. Out of the sample size of 26,238 population a sample size of 515 consumers was chosen across the five categories of consumers namely; domestic, commercial, industrial, institutional and low income consumers. Out of 515 population, the Primary data was collected in the field by use of structured questionnaire, whereas Secondary data was collected fromNZOWASCO company records. The study concludedthat there was a strong relationship between water demand, pricing and level of income especially for domestic and low income consumers. Similarly for commercial, Industrial and institutional consumers there was a strong relationship in demand, pricing and population size. This research also concluded that the elasticity of price is negative, implying that there was reduction in demand with increase of price. The study established that over 85% of the domestic consumers preferred tap water, 37% of low income consumers, being the majority in this category access tap water through yard tap, water kiosk or through vendors. At least 84% of commercial, industrial and institutional consumers accessed tap water.The study further concluded that the four major factors influencing the choice of water source among domestic and low income consumers were:- water quality , availability , cost and distance. Water quality, reliability, availability, cost and distance were major factors influencing the choice of water sources across all categories. The primary data was used to develop the mathematical model. The secondary data was used for sensitivity tests and validation of the model. The results of the model were presented in various forms and compared with actual data for a period of 2005 and 2014. The model was able to determine historical water demand and water forecasts for all category of consumers (domestic and low income, industrial, commercial and institutional consumers). The model generated values were very close (over 90% close) to actual data for historical water demand and forecasting. The mathematical water demand model developed in this research forecasts water demand for Nzowasco cluster region from 6 million m3 in 2014 to 18 million m3 in 2030.

98. CDM/G/10/07

FIRE HAZARDS INFLUENCING VULNERABILITY IN KIBERA INFORMAL SETTLEMENT, NAIROBI COUNTY, KENYA

KOOME Agnes Enid K. with Supervisors Prof. Jacob W. Wakhungu, PhD and Dr. Stanley O. Omuterema, PhD

99. CDM/G/11/11

IMPACT OF INTER-AGENCY LOGISTICS PLANNING TO MANAGEMENT OF RELIEF FOOD AID IN TURKANA COUNTY, KENYA

MUDEKHERE Stephen Muchaki with Supervisors Dr. Stanley O. Omuterema , PhD and Dr. Edmond Were Ph.D

ABSTRACT

The management of relief food by all the stakeholders such as the relief agencies, the government and the beneficiaries has proved a challenge specifically at the local level in the Turkana County. Many relevant stakeholders have collectively made efforts in applying a coordinated approach to address the challenges but the logistics related problems still persist. This study, therefore, seeks to assess the impact of the inter-agency logistics planning on the management of relief food aid in Turkana County. The specific objectives are to examine the significance, evaluate the effects, and assess the challenges of inter-agency logistics planning on the management of relief food in Turkana County in Kenya. The significance of this study is to contribute to the formulation of food distribution project designs and policies for better management of relief food as well as adding to the theoretical body of knowledge in the area project management. The study applied a cross-sectional survey, correlation and evaluation research designs targeting key informants from food distribution officers of the targeted agencies, the household heads and chiefs, assistant chiefs, security agencies and members of the public. Probability sampling was used to collect data from household heads while non-probability sampling techniques were used to collect data from key informants. The data were mainly collected using interview guides and questionnaires. Focus group discussions guidelines were also used to get data from community interest groups that included representatives of the elders and local administrators, the youth and the women. The data collected from the questionnaires were coded and entered into the computer data bank using the Software Package for Social Scientists (SPSS). The analysis of data was done using both descriptive and inferential statistical analyses. Inferential statistical analysis was used in testing the effectiveness of interagency logistic planning on the management of relief food aid using chi-square with a significance level of 0.05. The major findings from this study were that there is a marked significance of several aspects of inter-agency logistics planning on management of relief food aid in Turkana County. Security (X^2(4, N=39) = 122.873, P=0.000), Procurement (X2(4, N=39) = 82.821, P=0.001), warehousing (X^2(4, N=39) = 75.372, P=0.000) and transport plans (X^2(4, N=39) = 78.931, P=0.000, Cramer's V=0.439) that are done on inter-agency platform affect the management of food stocks their movement and distribution to beneficiaries in that the logistics operations are more effective and efficient. The study concluded there was positive effect of interagency logistic planning on management of relief food in Turkana County. This research recommends that there should be a more deliberate effort to establish coordination structures that would include representatives of NGOs, government line ministries, local administration and community special groups with an aim of establishing a platform on which procurement, warehousing, transport, security and needs assessments can be planned.

100. CDM/G/23/04

POST-CONFLICT PARENTING STRATEGIES INFLUENCING PRIMARY SCHOOL PUPILS' ACADEMIC ACHIEVEMENTS IN SIGOWET AND NYAKACH SUB COUNTIES, KENYA

NYONGESA Wafula Herbert with Supervisors Prof. Jacob W. Wakhungu, PhD and Dr. Samuel N. Maragia, PhD

Abstract

Whenever there are ethnic conflicts in the country, parenting is affected and so is pupils' education. Thus, the role that post-conflict parenting plays in pupils' academic achievements ought to be investigated. The present study examined the influence of post- conflict parenting on primary school pupils' academic achievements in Sigowet and Nyakach sub counties of Kenya. The study set out three specific objectives. The

objectives were to: (i) determine pupils demographic characteristics and parental socio economic status in the post-conflict period; (ii) determine the extent to which post-conflict parenting influences pupils' academic achievements; and (iii) evaluate strategies that can enhance post conflict parenting and pupils' academic achievements. The study was guided by Burton's (1990) human needs theory on conflict and Mowder's (2005) Parental Development Theory. The correlational research design was adopted. The study site was the two neighboring sub counties of Sigowet in Kericho County and Nyakach in Kisumu County. The study population comprised primary school pupils, parents, teachers, education officials, CBOs/FBOs, NGOs and community leaders. Both multistage and purposive sampling techniques were utilized to get the samples. A sample size of 200 pupils and 200 parents of the pupils was utilized. Pupils were picked from standard four, seven and eight. The study collected primary data by use of questionnaires, focus group discussions, key informant interviews and observation checklists. It also utilized secondary data that included school reports, government and NGO reports and archives in data collection. The research used both descriptive and inferential statistics in data analysis and interpretation. The findings associated post-conflict parental strategies such as instilling discipline to the child, provision of basic needs like food, purchasing learning materials, paying school fees and monitoring child safety with pupil's academic performance. The conclusion is that post-conflict parenting had a significant impact on pupils' academic performance in primary schools in Sigowet and Nyakach sub counties of Kenya. There is still need to do more to mitigate the effect of conflict on parenting and pupils' academic performance in the post-conflict period by; strengthening peace and security programs, provision of water to the local communities, setting up rehabilitation centers, establishing youth and women empowerment programs and provision of support services to the vulnerable groups. This study is expected to fill the research gap in the area of disaster management and humanitarian assistance. The study is also expected to benefit the communities in the affected region, the government, policy makers, the Ministry of Education and NGOs in formulation of policies relating to education in post-conflict situations.

101.   CDM/G/06/09

CEREBRAL PALSY AND ITS INFLUENCE ON PSYCHOSOCIAL WELLBEING OF FAMILIES IN LANG'ATA SUB-COUNTY, NAIROBI KENYA

OLUCHIRI Judith O. J. with supervisors Dr. Samuel N. Maragia, PhD and Dr. Wycliffe Oboka, PhD

ABSTRACT

Cerebral Palsy is among the leading causes of disability that place a set of extra demands on the family system; most of these demands lasting for a long time. Many of these demands have been reported to cut across the type of cerebral palsy condition, age of the person with disability and type of the family and community in which the family lives. The specific objectives of the study were to establish the influence of caring for children with cerebral palsy on the social wellbeing of their families in Lang'ata Sub-county, to investigate the influence of caring for children with cerebral palsy on the psychological wellbeing of their families in Lang'ata Sub-county and to assess the support and management systems that need to be put in place to assist families parenting children with cerebral palsy in Lang'ata Sub-county. The target population for the study was mainly the caregivers of children with cerebral palsy. The research design adopted for this study was descriptive survey. The researcher focused on psychological and social challenges facing families of children with cerebral palsy. The design was ideal because the researcher was able to identify the attributes of the population under study by collecting relevant data. The study involved the collection of data and analysis

with a focus on the current challenges facing the families of children with cerebral palsy. The study utilized a sample of 96 respondents. The sample was selected using snowballing and purposive sampling methods. Data collection for the study was done using questionnaires, observation, and Focus Group Discussions. Expert judgment was used to determine the validity of the research instruments. Pilot study was carried out to establish clarity and relevance of the items. A total of 10 participants were engaged in the pilot study. Test retest method was used to determine reliability of the instruments. Tables, pie charts and graphs were used to present the collected data for ease of understanding. The data was entered into a statistical package for the social sciences (SPSS) version 19.0. Findings indicated that most respondents (95.83%) had one person in the household with cerebral palsy condition, 3.13% indicated 2 people while 1.04% indicated three people. The mean number of people with cerebral palsy condition was 1.05 according to the study findings.. The study findings also indicated that most 68(61.2%) of the respondents felt that caring for a child with cerebral palsy had an influence on their relationship with their spouse. This was especially common with the separated and single respondents. The study further showed that 34(35.4%) of the caregivers have high stress, 49(51%) moderate stress and 13(13.5%) are suffering from low stress. Furthermore, study findings revealed that (59.72%) of the respondents did not receive assistance from the government and other well wishers while 40.28% indicated that they received assistance from the government. The study concluded that caring for a child with cerebral palsy influence the social well-being of the caregiver. This was evident because caring for children with cerebral palsy greatly influenced relationship with relatives and brought about a negative impact on the psychological wellbeing of the caregivers. The study recommended that the general public should be sensitized on the needs of children living with cerebral palsy. It also recommend the setting up of programmes that economically empower families caring for children with cerebral palsy.

102.   CDS/G/06/10

THE ROLE OF PUBLIC AWARENESS CAMPAIGNS ON FIRE DISASTER RISK REDUCTION IN NAIROBI COUNTY KENYA

ALAI Kennedy Ouko with supervisors Dr. Stanley Omuterema, Ph.D. and Dr. Joseph Gweyi, Ph.D.

ABSTRACT

Fire as a disaster is a major problem facing both urban and rural communities. The problem is even worse in the informal settlements of the major urban areas like Nairobi County. These urban settings have challenges of access roads to houses and business premises located in caused by poor urban planning. Public awareness about fire disaster is a vital element in any comprehensive strategy for disaster risk reduction. In order to create a culture of prevention, there needs to be a great degree of public participation and popular understanding of disasters. The main objective of this study was to assess public awareness campaigns and fire disaster risk reduction plans and investigate the perception of households on awareness campaigns in the informal settlements in Nairobi County. The specific objectives were; to evaluate fire disaster risk plans for preparedness in Nairobi County, establish the perceptions of households on public awareness campaigns on Fire Disaster Risks and Fire Disaster Risk Reduction programmes in Nairobi County. The research employed a descriptive research design to carry out the study in order to establish the relationships between the variables of interest. Exploratory research designs were used too in the study. Quantitative and qualitative research designs were used to conduct the research. Households were sampled through simple random sampling whose target was the informal settlement.

Purposeful research technique was used through the selection of key informants who were interviewed by face to face interview. 110 households sampled households were administered with questionnaires. Several indicators like safe keeping of combustibles, testing of smoke detectors, inspection of firefighting equipment, well labeled smoking zones, among others as reflected in the questionnaires gave an in-depth understanding of the variables of interest. Tables and graphs were used to present the collected data for ease of understanding. The data was entered into a statistical package for the social sciences (SPSS). Findings revealed that most respondents (89.6%) indicated that fire disaster risk plan for preparedness and awareness campaigns were important. Also, the respondents indicated with a mean of 4.78 that the effectiveness of public awareness campaigns and disaster risk reduction programmes were important in combating fire disasters. However, 58.4% rated high the importance of preparedness in the improvement of response. On the other hand 46.2% indicated that preparedness and awareness campaigns to a great extent would improve efficiency in fire disaster response. At the same time 89.0% indicated the implementation of better preparedness would reduce fire risks. Similarly 83.3% indicated that firefighting plans that adopted preparedness and preventive initiatives were effective in Nairobi County. Most respondents agreed with awareness initiatives both at household and institutional level except for allowing children to play near fire and lighting of cigarettes in fuel flammable areas. Fire escape plans were the most adopted fire awareness initiative as a fire disaster risk reduction measure. Cognizant of the problem, the findings of the study revealed that public awareness campaigns, risk reduction plans and fire disaster risk reduction are important in Nairobi County. The study recommends the need to scale up public awareness campaigns to reach more people. This will be achieved by diversifying the approaches including targeting specific groups depending on their vulnerability and exposure to fire hazards. Emphasis should also be placed on participation in fire drill exercises, handling of candles at homes and schools, use of flammable fluids (fuel) to light fire and handling of combustibles in cooking areas as public awareness initiatives.

103.   CDS/G/12/11

INFLUENCE OF DOMESTIC WATER AND SELECTED ANTHROPOGENIC ACTIVITIES ON QUALITY OF CATTLE MILK IN KAKAMEGA COUNTY.

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ABSTRACT

Water is among the most vital components of the physical and social environment and a major concern in developing countries. Kakamega Central has experienced a drastic growth in population leading to increase in demand for many natural resources. Mankind has continued to pollute water resources while ignoring the impact on the environment and the impact a polluted environment has on general health and well-being. Research has shown that information on effect of water quality on dairy milk is sparse. This research therefore seeks to bring out the effect of water quality on dairy cattle milk. The study was carried out on 30 dairy farmers in Kakamega Central Sub County who were issued with questionnaires and also interviewed on their production practices. Purposive sampling was used in selecting dairy farmers, key informants and in sample collection. Water and different feed samples given to dairy animals were collected as well as the milk produced from thirty farmers. The milk and water samples were deep frozen while awaiting the chemical analyses. They were finally transported to Bora-Biotech and KEBS in Nairobi for lab analysis of heavy metals, aflatoxins, Ecoli, salmonella and fecal coli forms. Heavy metals were analyzed by use of Atomic absorption spectroscopy while salmonella and aflatoxins were detected using Enzyme

linked immunosorbent assay (ELISA) method. The results established that water from mining areas of River isiukhu, River Lusumu and storm water contained heavy metals; Mercury (0.03mg/l), copper (0.23mg/l), lead(0.06mg/l),Ecoli (185MPN) with levels that were above the acceptable KEBS limits. However, tap, rain and bore-hole water were found safe for animal consumption as the values were within the KEBS/NEMA standards of (Mercury 0.01, lead 0.05, copper 0.1 and Ecoli 0.0 mg/l). The study also established that mining, sewage, storm water and waste disposal practices affect the quality of water for dairy production. The feed samples from compost pits, storm water channels and sewage areas had heavy metals, Ecoli and aflatoxins with levels that were above the KEBS standards and this was also detected in milk samples. The study pointed out that 83% of the dairy farmers in Kakamega County do not value the type of water given to their dairy animals and the places where their animals were fed. The study finally established that there was no significant (P>0.05) difference in levels of heavy metals and aflatoxin found in the environment and those found in milk. The research therefore recommends proper waste and storm water management practices and the need for farmers to be trained and educated on issues of water quality for dairy production as the current practices in Kakamega County have not minimized the issues of environmental contamination. Further research should also be done along the entire dairy value chain to include milk traders, processors and feed manufacturers.

104.   CDR/G/08/10

CROSS BORDER IMMIGRATION MANAGEMENT STRATEGIES CONTRIBUTING TO HUMAN TRAFFICKING BETWEEN KENYA AND UGANDA

KETOYO Fiona Ajema with Supervisors Prof. Pontian G. Okoth, PhD and Dr. Edmond Were, PhD

105.   CDS/G/200/13

THE ROLE OF URBAN AGRICULTURE IN ENHANCING NUTRITION SECURITY AMONG HOUSEHOLDS IN EMBAKASI SUB-COUNTY, KENYA

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ABSTRACT

In an effort to ensure that their nutritional needs are satisfied, urban dwellers have gradually embraced the practice of urban agriculture. Nutrition security is a multidimensional concept that encompasses aspects like dietary diversification, nutritional standards, micronutrient availability, protein quality and food safety. There is an increasing tendency for urban households to consume foods with a greater energy density but potentially fewer micronutrients, thus leading to the 'double burden' of malnutrition whereby overweight and obesity co exist with under nutrition. Previous studies have indicated that there is insufficient proof to confirm that urban agricultural production improves the nutrition conditions of the populations that practises urban farming. This study therefore sought to investigate the contribution made by urban agriculture in achieving nutrition security by examining the impact of the practice on household dietary diversity. The overall objective of the study was to investigate the role of urban agriculture in enhancing nutrition security among households in Embakasi Sub County, Kenya. The specific objectives of the study were: (i) to establish the nature of farming in Embakasi Sub County, Kenya (ii) to examine dietary diversity achieved through urban agriculture in the study area (iii) to evaluate the challenges faced by the urban farming households in Embakasi Sub County and the solutions put in practise to resolve them. The target population for the study constituted of households located in Embakasi, Nairobi County. Cross sectional survey, correlational and evaluation research

designs were applied to achieve the objectives of the study. Embakasi Sub County is divided into five constituencies each with its own set of wards. Stratified random sampling was used to sample the household population based on the administrative partitions that exist. Out of a target population 286,494 households in the area, a sample of 400 households was used. Questionnaires, document content analyses, focus group discussion and key informant interview were used to collect the required data. To analyze the data obtained, Chi-square testing and descriptive statistics were applied. From the sampled population, a proportion of 59.5% of the study respondents practice farming. According to the Chi-square analysis results, a relationship does exist between the source of food and the food group range that the respondents consumed. This relationship favors the market as compared to the farm source of food. Out of 1,584 responses relating to the source of foods, 1427 responses were obtained indicating the market as the source of food items the respondents had consumed over the last 24 hours. Across the range of different food groups consumed by the population, grain was the most popular for both groups of respondents with 598 respondents purchasing it from the market and 47 obtaining it from their farms. The inhabitants reared up to eight different types of livestock and twenty one types of crops for food and market and this they said could be enhanced primarily by addressing the disease outbreak challenge they faced. In an effort to alleviate the problem, the farmers prefer to seek advice from fellow farmers and agricultural specialists to get help on how to deal with the outbreaks. This study illustrated how urban agriculture has yet to be given sufficient recognition as a means to the nutritional wellbeing of the urban population and as a driver of sustainable development.

106.   CDR/16/09

CHINA'S FOREIGN ECONOMIC POLICY INFLUENCING DEVELOPMENT OF ROADS IN KENYA, 1985-2015

WEBI Enock Wanyonyi with Supervisors Prof. Pontian G. Okoth , PhD and Dr. Edmond Maloba Were, Ph.D.

ABSTRACT

In the early post-colonial period, Chinese infrastructure construction in Africa was motivated by a foreign policy of ideological cold-war considerations, including support for freedom and Panafricanism. However, the end of the bi-polar global order and the rise of China as an emerging economic power subsequently led to a significant swing in its engagement with Africa. China has adopted a more commercial foreign policy. One of China's foreign economic principles is equality and mutual benefit. This is evidenced by China's increased investments on development of road infrastructure in Kenya. Literature reveals that although this principle is believed to assist in achieving sustainable development, China's soft power is also seen as the new imperial power with a colonialist project that will perpetuate Kenya's underdevelopment through trade agreements. The general objective of this study was to examine the contribution of China's foreign economic policy to development of roads infrastructure in Kenya from the year 1985 to 2015. The independent variable in this study is China's foreign economic policy and the dependent variable is development of roads infrastructure in Kenya. The researcher examined the nature and impact of China's mutual development principle on development of roads infrastructure in Kenya. The socio-economic contribution of Chinese principle of transfer of values and technology to development of roads infrastructure in Kenya was assessed. The study further evaluated challenges of China's foreign economic policy on development of roads infrastructure in Kenya. A conceptual framework of modernization, dependency and realism theories was employed to guide the study. This study was carried out in Kenya. A descriptive survey research design

was used. This design enabled the researcher to collect quantitative data that could be analyzed descriptively. It also helped in obtaining inferential statistics on percentages of respondents who agreed or did not agree with statements on the questionnaire about each objective. The study population comprised of 143 respondents in Kenya. This encompassed individuals from relevant state offices and Chinese corporations engaged in roads infrastructure development in Kenya. The study used purposive sampling to obtain relevant institutions and officers. In order to ensure accurate representation, stratified random sampling was used to divide the institutions into different strata. Simple random sampling was used to obtain the required number of supervisors and site workers from respective Chinese firms. Interviews and questionnaires were used for data collection. Both qualitative and quantitative analyses were used. Data were presented in graphs, tables and pie-charts and later interpreted into meaningful information. The study has concluded that China's foreign economic policy is beneficial to Kenya. Among other recommendations, the author proposes that Kenyans should take advantage of the recently reduced export tariffs offered to them by China as a remedy for China's condition that Kenya provides a market for its goods in exchange for roads infrastructure developments. China should also offer more aid to mitigate the deficit and curtail Chinese exports to Kenya to reduce the imbalance as practiced by Japan. Both governments should also ensure capacity building by embracing modern technology in Kenyan learning institutions. Finally Kenyans should also hold their government to account for its alleged secret trade agreements with China. This will ensure accountability hence sustainability of China's principle of mutual development.

107.   CPC/G/05/14

ARTISANAL GOLD MINING CONFLICT AND ITS INFLUENCE ON THE SOCIO-ECONOMIC LIVES OF THE PEOPLE OF IKOLOMANI SUB-COUNT, KAKAMEGA COUNTY KENYA

MACHARIAH Lilian Wanjiku with Supervisors Prof. Chrispinous Iteyo, Ph.D. and Dr. Ruth Simiyu, Ph.D.

Abstract

Gold mining is a significant sector in the world economy and in at least 34 African Countries. Ikolomani gold mines are found in Kakamega County. Many countries worldwide have had conflicts resulting from artisanal gold mining. Most artisanal gold miners are from socially and economically marginalized communities and turn to mining in order to escape extreme poverty, unemployment and landlessness. Sometimes the gold is present, but in low and unexpected quantities especially considering the depth of the mines. The low quantity of gold is used for sustaining their lives. As a result of this, there are many conflicts from artisanal gold mining. The general objective of this study was to examine the extent to which artisanal gold mining contributes to conflicts in Ikolomani sub-county, Kakamega County-Kenya. Specific objectives were to: Examine the nature of conflicts that result from artisanal gold mining; examine effects of the conflicts resulting from artisanal gold mining to the socio-economic lives of the people; evaluate the strategies applied in resolving conflicts resulting from artisanal gold mining in Ikolomani-Sub County, Kakamega County, Kenya. This study adopted the theory of cumulative and cyclical interdependence as its framework. The theory looks at individuals and their community as caught in a spiral web of opportunity and problems, hence, individuals and community resources are mutually dependent. The study employed descriptive and evaluation research designs.This study adopted stratified random sampling for sub-locations, proportionate random sampling, and simple random sampling for miners, purposive sampling for village elders and assistant-chiefs and purposive and convenience sampling for officials from NEMA and department of

geology and mines. There are 1050 miners in the selected sub-locations where 10% were selected for the study. The study population constituted the 105 miners, 6 village elders, 3 assistant chiefs, 2 officials from the department of geology and mines and 2 from NEMA. Data collection methods included primary sources which were, Focus Group Discussions, Observations Checklists, Interviews Schedules and Questionnaires. Secondary Sources which were relevant documents and reports were used. Qualitative data from focus group discussions and interview guides was analysed using thematic narratives. Quantitative data was analysed using SPSS and MS Excel to give measures of central tendency, frequencies and percentages. Inferential statistics were used specifically the Chi Square to give the association among the variables. The study found out that 14% of the conflicts are caused by land, 20% are caused by boundaries related issues, 18% by lack of effective training while 27% are caused by the low returns from gold. The study found out that 44% of the conflicts are manifested in form of quarrels, 34% through physical fights, and 12% in form of insults while 2% are manifested in form of vengeance. The study found out that there are different types of conflicts that occur between and among miners and locals (40%), mining companies and miners (28%), government and miners (15%), government and mining companies (11%) and among dealers (6%). The study also established that gold mining affected the socio-economic lives of the people more negatively than positively. The conflicts cause poor financial management (14%), poor health conditions (16%), school dropout (18%), physical and emotional injuries (27%), and environmental degradation (21%). The existing methods of resolving conflicts are local leaders (34%), the police (23%), miners' bylaws (32%), and department of mines and geology (5%), and traditional specialists (6%). The conflicts can be effectively resolved if the government implements policies, enhances income, improves trade regulations and empowers the youth. The study recommends that policies should be implemented by the government in the exploring sector in Ikolomani Sub-County which will improve the working relationship among different stakeholders in the gold fields. There is need to improve on the economic amenities in Ikolomani by the government and investor by forging economic partnerships.

108.   CDC/G/015/12

INFLUENCE OF INTELLIGENCE LED POLICING ON THE MANAGEMENT OF DOMESTIC CRIMES IN KAKAMEGA COUNTY, KENYA

MABIA Julius Harambee with Supervisors Prof. Crispinous Iteyo, PhD and Dr. Edmond Were, PhD

ABSTRACT

In Kenya, domestic crimes increase has not been met with adequate prevention involving Intelligence-Led Policing unlike other kind of crime such as drug trafficking and terrorism where intelligence policing has been deployed immensely. Kakamega County has recorded an increasing number of domestic crimes in the past decade (Kakamega County Police Headquarters, 2014) which threatens socio-economic development in the County. The overall objective of the study was to examine the practice of intelligence led policing with a particular focus on the management of domestic crimes in Kakamega County. The specific objectives were to: examine the nature of intelligence led policing, assess the effectiveness of intelligence-led policing in the management of domestic crimes, and determine the challenges that intelligence-led policing encounter. The study was guided by rational choice and social control theories. The study employed a descriptive survey design and the target population consisted of household heads, police officers, private security firms, chiefs and assistant county commissioners in Kakamega County. Purposively sampling techniques was used to select OCPD, DCIO, OCS, private security firms, assistant county commissioners, chiefs while random

sampling technique was used to select junior police officers and household heads. In the total, the sample respondents were 293. Primary data was collected through interviews, questionnaires while secondary data was collected from books, internet, journals and newspapers. Validity was determined using content validity while reliability was done using test retest method. Data was analysed using descriptive and inferential statistic and it was presented in form of tables and charts. The findings revealed that Intelligence-Led Policing in Kakamega County was characterized by criminal informer, targeting of criminals unlike particular crime and holistic investigation of crimes using results-oriented tactics and strategies. The study recommends that government needs to commit more resources toward Intelligence-Led Policing so that police officers can be trained, equipment and technology can be procured. Further, there is need for police officers to come up with realistic performance indicator through the use of Intelligence-Led Policing products.

Key words: Intelligence-led policing, Domestic crime and Crime Management

109. CDC/G/06/12

CONFLICT ANTICIPATION AS A PEACE MONITORING STRATEGY EMPLOYED IN POST CONFLICT MANAGEMENT WITHIN MOUNT ELGON AND CHEPTAIS SUB-COUNTIES

LIDAVA Mourine K. with Supervisors Prof. Pontian Godfrey Okoth, PhD

Abstract

Whereas conflict anticipation as peace monitoring strategy is one of the tools for conflict management in post-conflict situations, it has not been widely embraced with its efficacy confronted by social, economic, political, bureaucratic, diplomatic and environmental challenges. There is a further differentiation in its application between state and non-state actors at the grass roots level. The evaluation of conflict anticipation in post-conflict scenarios is essential to analyze its effectiveness and accountability. This study sourced conflict anticipation and post-conflict management in Mt. Elgon and Cheptais Sub-Counties. It purposively attempted to assess conflict anticipation as employed in post conflict management in Mt Elgon and Cheptais subcounties. The specific objectives were to examine the nature of conflict anticipation as a peace monitoring strategy, to evaluate the effectiveness of conflict anticipation and finally examine the challenges facing the implementation of conflict anticipation in post-conflict Mt. Elgon and Cheptais Sub Counties. The Independent variable was "Conflict Anticipation" and the Dependant variable was "Post Conflict Management". The research was guided by theories of change and the Vasquez Territoriality Thesis theory. The study employed explorative and survey research designs like questionnaires and interviews administered to the sample population. The study population consisted of target population from Mt Elgon and Cheptais where occurred conflicts are solved through conflict anticipation. Probability and non-probability sampling were used. Purposive sampling was used to acquire data from respondents with special knowledge on the subject. The study sample of 350 respondents consisted of 3 Peace Committees, one Peace Monitor and 10 Peace Advocates, 11 Administrators, 10 Non Governmental Organizations working in peace-building projects, 7 senior police officers and 300 households. Stratified Sampling was used to get a sample size from the households and data was collected using primary sources (questionnaires, interviews, and FGDs administered to respondents to collect data on their experiences with conflict anticipation). Secondary sources sourced included study of annual reports of ministries and organizations, books, policies and plans covering conflict anticipation activities earlier verified and documented. Validity and reliability of instruments was done and validated through a pilot study conducted in Burnt Forest, Nakuru County where Peace

monitoring is implemented. Data analysis was done through inferential (Chi-square, regression and T-Test) and descriptive statistics using frequencies, percentages tables and pie charts. Presentation of results was through the use of pictograms, graphs, charts and maps. The study findings revealed that 92.31% of the respondents were in one way or the other affected by the 2007/8 PEV and the SLDF/MDF uprising with political leaders involved at 8.53% with police least at 0.64%. The violence was due to political marginalization, historical land injustices and ethnic hatred. The study found a significantly small mean among the responses at 1.07 and a standard deviation of 0.56 showing respondents agreeing Conflict Anticipation as an effective strategy. A one sample independent t-test for equality of means indicated lack of statistically significant (t=1.044, P > 0.05, df= 2.36) with a further critical value of t (1.68) is greater than the calculated value of t (1.044) which also confirms its effectiveness. A multinomial Logistic Regression analysis indicated that inadequate resources as the leading challenge at 69%. Other challenges were fear, illiteracy, and unwillingness to provide information, culture and gender stereotypes. The overall conclusion was that Conflict Anticipation is an effective Peace Monitoring Strategy and thus it should be recognized institutionalized and adopted as a working strategy in Post Conflict contexts especially in areas of long-term intractable conflicts with intermittent violence.

110. CDP/G/08/07

PREVALENCE OF WATERBORNE DISEASES IN RELATION TO DOMESTIC WATER SUPPLY AND SANITATION SYSTEMS IN MBEERE, EMBU COUNTY, KENYA

NJIRU Kamau Peter with Supervisors Dr. Stanley Omuterema, PhD and Dr. Lilechi D. Baraza, PhD

ABSTRACT

Waterborne diseases are major threats in developing countries including Kenya. This study was aimed to establish the prevalence of waterborne diseases in relation to domestic water supply and sanitation systems. Specifically, the study sought to determine the relationship between prevalence of waterborne diseases and domestic water supply systems, determine the relationship between prevalence of waterborne diseases and sanitation systems and also establish how significantly the domestic water supply or sanitation contributed uniquely to the prevalence of waterborne diseases. The study covered Mbeere North of Embu County with accessible population of 7,985 households obtained from 12 locations and which was used as sample frame. A sample size of 367 was used. Systematic random sampling was used. Secondary data constituted waterborne diseases reported cases from health facilities, and population statistics. Primary data included water samples for biological testing, data acquired using interview administered questionnaires and spatial data gathered using Geographical Positioning System (GPS). Secondary morbidity data was analyzed using Microsoft office excels 2007 and that of the primary household data was analyzed using statistical package for social sciences (SPSS). SPSS was used to generate descriptive statistics, establish correlation among the variables and to test the hypothesis. The quantitative data was analyzed using descriptive statistics. Pearson product moment correlation coefficient (r) was used to show both direction and the strength of the relationships. In addressing the objectives, the study found a link between waterborne diseases infection with domestic water supply source (r = 0.176, p < 0.05), link between waterborne diseases infection with type of excreta disposal method(r = 0.348, p < 0.05), link between waterborne diseases infection and those who washed vegetables before cooking(r = 0.477, p = < 0.05) and link between waterborne diseases infection and those who washed fruits before eating(r = 0.433, p < 0.05) respectively. From hypothesis testing, chi-square test for independence indicated a strong significant association between those who have

ever been infected with intestinal worms and the source of domestic water, x2 (1, n = 267) = 102.483, p <0.05, phi = 0.620, thus rejected null hypothesis. Chi-square test for independence indicated a strong significant association between those who had ever been infected with intestinal worms and method used for of excreta disposal, x2 (1, n = 267) = 45.231, p < 0.05, phi = 0.412, thus rejected null hypothesis. To test the null hypothesis that there was no significant difference in prevalence of waterborne diseases in relation to domestic water supply and sanitation systems standard multiple regression model was used by assuming multiple of R in the population equal zero. In the model R square was 0.127 with p< 0.05 indicating a relationship thus rejected the null hypothesis. In conclusion, this study showed that both lack of potable and adequate water and poor sanitation significantly contributed to the prevalence of waterborne diseases in the study area. The study however established that sanitation including hygiene contributed more to the prevalence of waterborne diseases than domestic water supply. The study recommended capacity building to promote household water treatment methods, capacity building on sanitation and hygiene practices focusing on the importance of using clean toilets, and appropriate domestic solid waste disposal methods and also issues relating to health, domestic water supply, sanitation, and hygiene awareness creation to the community should be integrated.

111.   ECO/G/05/10

FARM HOUSEHOLD SAVING AND ITS DETERMINANTS IN TRANS NZOIA COUNTY, KENYA

BORTER Robert Psakit with Supervisors Prof. John Byaruhanga, PhD and Dr. Wekesa Wesonga, PhD

Abstract

Funds available for investments are either from credits acquired from financial institutions or from household savings. Although some research has shown that rural households in Sub-Saharan Africa save, little is known about the factors that influence saving and asset accumulation among them. Low investment in Kenya is easily attributable to decreased savings. The study aimed at developing a broader understanding of the savings habits and practice of farm households in Trans-Nzoia County by providing an appropriate answer to the question: what are the determinants of farm household saving. The study was organized round three objectives: to determine how much savings, on average, farm households actually undertake in a year, to ascertain their forms of saving and to evaluate the determinants of saving, consistent with the Kenya Vision 2030's explicit concern for rural sector participation in mobilizing savings for investment. The study was conducted through primary survey with 140 households, drawing a sample from Kinyoro (70) and Saboti (70) Divisions of Trans Nzoia County, where cross-sectional primary data was obtained using structured questionnaires. Through the use of Ordinary Least Squares (OLS) in the Statistical Package for the Social Sciences (SPSS), household saving function was estimated. The function was found to be: S= -16,517 + 0.080 I 16,358YS 4,757HS + 1,160AGE - 14,816GH. The study found out that Income, Level of Education of the household and household sizes were the most significant determinants of saving. Age and gender of the household head had effects on the level of savings but not significant at 5% level. What was surprising, though, was the negative effect of education giving an impression that the more educated household heads are, the less they save and also the positive relationship between age and saving, implying that older people save even more. To enhance household saving, Policies to promote income growth, lowering cost of education and family planning are recommended.

112.   ECO/G/03/10

STRUCTURE CONDUCT AND PERFORMANCE OF RETAIL MARKET FOR METAL PRODUCTS IN KAKAMEGS COUNTY, KENYA

TSUMA Mathews Chalanga with Supervisors Prof. John Byaruhanga, PhD and Dr. Consolata Ngala, PhD

Abstract

As demand for metal products increases due to their multi-use in various sectors such as construction, transport, machinery, energy and defence, there is a need to understand the market dynamics of these products. Faced with international trade dynamics and facing stiff competition as well as serving localized markets presents an opportunity to explore how the market for metal products responds to the challenges and whether market potentials exist within the study area to attract investors. The overall objective of the study was to analyse the Structure, Conduct and Performance of the market for metal products in Kakamega County in a bid to determine the forces driving competition. The specific objectives of the study were: to analyse the structure of the retail market for metal products in Kakamega County; investigate the effect of market concentration on profitability in the retail market for metal products in Kakamega County; examine the conduct of the retail market for metal products in Kakamega County and to examine the effect of advertising on profitability in the market for metal products in Kakamega County, Kenya. For each objective, research hypotheses were formulated and tested. Descriptive survey and causal designs were employed due to their suitability in detailing the market conditions and in hypothesis testing. Questionnaires were used as research tools to collect primary data for the study. The target population was enterprises dealing in metal products in Kakamega County. A list of 701 registered metal- dealing enterprises served as the sampling frame. Cochran 1963 formula was used to compute the sample size of 249 enterprises used for the study Systematic random sampling was used to identify the respondents. The data was analyzed using Statistical Package for Social Sciences (SPSS) version 19 and R statistical software. The results show that the retail market for metal products industry in Kakamega County is not concentrated, because the industrial concentration ratios are below the threshold levels of (Herfindahl-Hirschman Index (HHI) less than 1000, four firm market concentration ratio (CR_4) of less than 75% and Gini Coefficient (GC) close to zero). The results show an average CR_4 of 26.86%, HHI of 299 and a GC of 0.0446, thus indicating effective competition. The results also indicate that there is no significant effect of market concentration on profitability in the market for metal products. Further, the results indicate that conduct in the retail market for metal products was influenced mainly by product promotion (displaying and giving discounts) and business networks while prices were determined through a mix of strategies including vertical coordination and collusion. Finally, the results revealed that there is no significant effect of advertising on profitabilty of the retail market for metal products in Kakamega County. The research recommends that there is need for improvement in the business environment through legal and institutional instruments focusing on enhancing enterprise capitalization, firm size, product innovation and effective business management for the metal products market in Kakamega County, Kenya.

113.   MBA/G/18/12

STOCK SPLITS AND PERFORMANCE OF FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE , KENYA

KORIR Sammy Kipruto with Supervisors Mr. Albert Onyango Odhiambo and Mr. Peter Wawire

ABSTRACT

Theories have been put forward in an attempt to explain why firms split their stock. Some of the common reasons that have been explained are; to achieve optimal prices that can be within range and affordable, to achieve an optimal liquidity position and to signal management's confidence in the future stock price. The researcher therefore, examined the effects of stock splits on firm performance at the Nairobi Securities Exchange and contributed to the existing theories and hypotheses of stock splits. Exogenous factors such as earnings, interest rates, dividend policy, stock split policy and the economy were assumed to be constant for the short window period under the study. The target population included all listed firms that have carried out a split between the years 2004 to 2013 effectively adopting the census sampling technique and the data. The data was obtained was read by the researcher to select only relevant data for the study. The objectives of the study were to determine whether stock split events have a significant effect on shares turnover and firm security returns at the Nairobi Securities Exchange, Kenya. Standard event study methodology was adopted because of the behavior of firms' dependent variable after the event announcement. The changes in stock prices over a window period of twenty one (21) days was considered appropriate due to the reliability of a short horizon in corporate policy decisions, and at the same time to avoid confounding effects of the long horizons. The event window consisted of ten (10) days before and after the stock split event date, with one (1) day being the event date. The firm security returns and the trading activity ratio models were used to analyze the research data. The mean (μ) difference of the trading activity ratios and firm security returns were tested for significance using the student - statistic at 95% confidence level. The results found that the trading activity improved few days before and after the event announcement. The improvement was attributed to the reduction of share prices following the stock split announcement. The improvement was found to be consistent with the liquidity hypothesis where firms broaden their shareholder base to encourage high share turnover hence improve on firm liquidity. It was also found that seven out of nine firms had their student - statistic significant at 95% confidence level suggesting that stock split exercise had some effect on the trading activity for splitting firms. The finding was found to be consistent with the efficient market hypothesis where market absorbs quickly the available information on stock splits. On the other hand, firms that had reflected significant trading activity ratio mean (μ) difference were found to mirror insignificant firm security returns mean (μ) difference though on an improving trend confirming stock market reacts to stock split announcements. The improvement implied that firm security returns in the long run may result to a positive firm performance. The improving trend supports the trading range hypothesis where firms lower their share prices to allow more trading aimed at improving firm liquidity. Generally, from the results it was concluded that stock split announcements have an effect on the firm performance and the regulators are therefore advised to formulate ways of encouraging firms to undergo stock split as it helps improve the trading activity and firm liquidity.

114.   MBA/G/10/11

FIRM CHARACTERISTICS AND CAPITAL STRUCTURE AT THE NAIROBI SECURITIES EXCHANGE KENYA

MUSINA Nobert Oduodi with Supervisors Dr. Consolata O. Ngala, PhD and Mr. Damianus O. Okaka

ABSTRACT

Capital structure decision is one of the most important decisions undertaken by any business organization for maximization of shareholders wealth and sustained growth.

A wrong decision in the selection of debt and equity securities may lead firms into dilution of ownership, financial distress and eventual bankruptcy. However, the determination of which factor at firm, industry and country level reliably predict firm capital structure is not an easy task because it involves a lot of policy issues and these explains why it's imperative to examine various factors that determine firms financing decisions. On the basis of the above, the main objective of the study was to examine the effect of firm characteristics on capital structure for non-financial firms listed at NSE while the specific objectives of the study was to; determine the relative effect of firm characteristics on capital structure; determine the effect of firm size, age and corporate governance on capital structure; establish the effect of organizational factors on the relationship between firm characteristics and capital structure. The study was conducted using explanatory research design. All the non-financial firms listed at NSE with full data for the period between 2007 and 2012 were selected purposively. The final sample size after considering the missing data consisted of 33 firms, constructed from 40 nonfinancial companies quoted on the NSE. Document analysis guide was used to collect secondary data from firm's annual financial reports. The validity of the research instrument was tested by availing it to the selected experienced researchers in the department of Accounting and Finance of MMUST who advised the researcher on how to improve the research instrument before commencing data collection. The reliability of the research instrument used to extract data from published financial statement was tested by vouching due to the fact that it has been audited by an independent researcher. Secondary data was analyzed using descriptive statistics such as means, minimum, maximum, and standard deviation. Multiple regressions analysis was used to establish the association among the key study variables and the results were presented in tables. The results of data analysis reveal that firm, industry and country level factors significantly influences capital structure. Non-financial firms were found to be significantly different from Agricultural firms except Telecommunication and Technology, Manufacturing, Construction and Allied firms. It was also established that firm size, age and corporate governance had a significant moderating effect at 95% confidence level on the relationship between firm characteristics and capital structure in Kenya. The study reported that firm characteristics accounts for 23.9% of variations in total leverage. These reveals that the use of total leverage to support non-financial firms operations in Kenya are generally low. It also confirms that Kenyan listed non-financial firms lack enthusiasm for debt financing. Therefore, the study recommends that the Kenya government through the capital market authority should institute measures which encourage firms to balance their use of debt and equity as a way of cushioning them from risk of financial distress during difficult economic times. Policies that promote the growth of the bond and stock markets should also be encouraged. The study further found that majority of variation in capital structure is due to firm industry hence recommend that finance managers while designing firm financing policy should focus most of their attention on industry characteristics such as nature of operation and economic condition that might impact on firm performance in an industry set up. Moreover, the findings of this study forms a basis for future research in this area by interested researchers / parties.

115.   MBA/G/08/12
EFFECTS OF BUDGETARY CONTROL ON FINANCIAL PERFORMANCE IN PUBLIC POST PRIMARY INSTITUTIONS OF LEARNING IN KENYA

NYONGESA Andrew Shitanda with Supervisors Mr. Albert Odhiambo and Dr. Ngoze Moses L., PhD

ABSTRACT

Budgetary control is part of the internal checks and balances system that ensures that there is effective and efficient utilization of limited financial resources. It has been found out that most institutions of learning have continually experienced resource mismanagement which has affected service delivery. Weaknesses in financial performance in public institutions of learning have impacted negatively in the effort to achieve social objective. There is need for policy framework that would stem wastage of funds. This study researched to find out the effect of budgetary control on financial performance in public post primary institutions of learning in western Kenya. The objectives of the study were; to establish the effect of budgetary process on financial performance of public post primary institutions of learning; to determine the effect of income sources on financial performance of public post primary institutions of learning , to establish the effect of variance analysis on financial performance in public post primary institutions of learning and to find out the effect of institutional factors on the relationship between budgetary control and financial performance of public post primary institutions of learning. This study was conducted in institutions of learning in Vihiga, Kakamega, Bungoma, and Busia Counties. The target population was 797 respondents and sample size of 109 respondents.Descriptive research design was used in the study. Primary data was collected. A questionnaire, whose content validity was checked through an expertise opinion and reliability through cronbach's Alpha method, was used to gather information. Data was analyzed and presented using simple linear regression and partial correlation. SPSS version 20 was used to analyze data. The study attained a Cronbach's Alpha of coefficient was 0.863 for all items, which was way above the recommended 0.7 in social sciences. In the first objective, the study established that budgetary process had a statistically significant effect on financial performance in public post primary institutions of learning; the value of beta was 0.522. In the second objective, the study found out that budgetary income sources had a significant effect on financial performance of public post primary institutions of learning; beta value being 0.65. In the third objective, the study established that budgetary variance analysis had a significant effect on financial performance with a beta value of 0.502. In the last objective, the study found out that institutional factors had a statistically significant moderating effect on the relationship between budgetary control and performance of public post primary institutions of learning, where $\beta1=0.679$, $\beta2=0.620$, $\beta3=0.676$. From the findings budgetary control has a positive effect on the financial performance in public institutions of learning in Kenya. Public institutions of learning management shall use the findings of the study in designing proper budgetary policies and examining the financial performance. The academicians shall also find the study useful in adding to the existing literature on budgetary control and financial performance.

116.   MBA/G/08/13

NATIONAL GOVERNMENT CONSTITUENCY DEVELOPMENT FUND AND PROJECT IMPLEMENTATION IN BUTERE SUB-COUNTY, KENYA

OPIYO James with Supervisors Odhiambo ALBERT and Dr. Charles Tibbs, PhD

117.   MBA/G/02/11

FINANCIAL LEVERAGE AND PERFORMANCE OF NON- FINANCIAL COMPANIES IN NAIROBI SECURITIES EXCHANGE KENYA

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ABSTRACT

Financial leverage ratios indicate the mix of funds provided by owners and lenders.

Finance managers basic motive is to achieve the main aim of investing which is earning profit. The use of debt in the place of equity can improve shareholder earnings, when the firm earns a rate of return on the total capital employed higher than interest rate on borrowed funds, but leverage can work in the opposite direction as well, hence the study of the relationship between firm value and capital structure. This study evaluated the relationship between financial leverage and performance of non-financial companies at the Nairobi Securities Exchange, Kenya. The study specifically examined the relationship of leverage measures of long term debt-to-equity ratio; short term debt-to-equity ratio; total debt-to-equity ratioand financial performance measures of Return on Assets (ROA) calculated from financial statements. It also looked at the relationship between organizational factors on Leverage- performance. The study useda sample size of all 41 non-financial firms listed after omitting firms in the financial services sector because their capital structures are regulated by the central bank. There were a total of 61 firms at the NSE.The study was anchored on a conceptual framework. It relied on Secondary data for 6-year study period (2007-2012) and validated by piloting the study.Regression analysis model was used to investigate the relationship of financial leverage on dependent variables. The finding of the study reveal insignificant relationship between debt to equity ratio and financial performance with R^2=6 % with a Beta equal to -.13. The results reveal insignificant relationship between Long-term debt-to-equityratios with R = 2.8% with a Beta equal to -.36.The results also reveal in-significant relationship between Total debt to equity ratio and financial performance with R = 2% with a Beta equal to -.17.The result shows that when organizational factors and economic conditions are controlled on the relationship between financial leverage and firm performance LTD/E and firm size suppresses the relationship while STD/E expand the relationship with performance. Both organizational factors and economic conditions affect the relationship between financial leverage and ROA since their coefficients were significant. 0.038≤0.05. In conclusion, it is clear that there is insignificantrelationship between Financial Leverage and financial performance of Non-Financial Companies listed in the NairobiSecurities Exchange and focus should be on economic conditions of GDP and inflation and organizational factors

118.   MBA/G/23/09

OPERATIONAL RISK MANAGEMENT PRACTICES AND ITS EFFECTS ON PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES IN KAKAMEGA TOWN, KENYA

WANEKEYA James Ong'ayi with Supervisors Prof. John Byaruhanga, PhD and Fredrick Kiongera

ABSTRACT

Risk management has been identified as a vital process in the business institutions despite being less developed within the small business sector. Generally, it has been observed that most Small and Medium Enterprises do not survive to their fifth birthday and that most of them are greatly affected by operational risk. This study sought to investigate the effects of Operational Risk Management practices on performance of Small and Medium Enterprises in the face of Organizational Factors. A cross- sectional survey design was adopted to establish the relationship between the key study variables. Questionnaires were used to collect primary data from Small and Medium Enterprises using Stratified random sampling method. A range of secondary data sources served as the key bibliographic tools for identifying relevant work for review. To ensure that content and construct validity was achieved on the construction of questionnaires; the study involved the experts in designing the questionnaire. Cronbach's Alpha Coefficient of 0.89 was attained implying that the research instruments were reliable.

Correlation analysis was used to test the strength of the relationship between the study variables. Simple and multivariate regression analysis was used to test the effect of the Operational Risk Management practices on the performance of Small and Medium Enterprises. In addition, first order partial correlation was used to test the moderating effect of Organizational factors on the relationship between operational risk management practices and performance of Small and Medium Enterprises. The results indicated that there was a statistically significant positive effect of Operational Risk Management practices on the performance of Small and Medium Enterprises (overall beta value of 0.621 and significant). Further, there was a statistically significant positive correlation recorded on the effect of organizational factors on the performance of Small and Medium Enterprises (overall beta value= 0.704). The results also revealed a statistically positive moderating effect of Organizational Factors on the relationship between Operational Risk Management practices on the performance of Small and Medium Enterprises (rxy.z1 = 0.776, p=0.000, rxy.z2 =0.773,p= 0.000) . The Study therefore recommends change of Government policy on Small and Medium Enterprises by creating a conducive environment under which they will operate because there is a positive effect of Regulatory Compliance on their performance among other practices. Also small businesses are encouraged to employ Operational Risk Management Practices and also work on the Organizational factors because they have a statistically moderating effect on the relationship between Operational Risk Management Practices and performance.

119. MBA/G/20/11
EFFECT OF FINANCIAL INTERMEDIARIES ON THE PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES IN KAKAMEGA TOWN, KENYA

WAWERU Grace Mumbi with Supervisors Dr. Moses Poipoi, PhD and Mr. Wawira Peter

ABSTRACT

Financial intermediation is one of the most important activities to any business enterprise globally. The primary objective of any business enterprise in its existence being profit and wealth maximization. In view of this, the roles of financial intermediaries are of great importance to emerging economies like Kenya. The general objective of this study was to determine the effect of financial intermediaries on the performance of SME's in Kakamega Town, Kenya. Specifically, the study determined the effect of liquidity on the performance of SME's, determined the effect of risk diversification on the performance of SME's, determined the effect of pool saving on the performance SME's and determined the moderating effect of organizational factors on the relationship between role of financial intermediaries and performance of SME's. The study adopted a descriptive survey research design. The target population comprised of 4,149 SME's from which 415 SME's were randomly selected from the stratified groups. The study used both primary and secondary data collection instruments. Primary instruments included the use of questionnaires and interview schedules. Secondary instruments involved information from the SME's and financial institutions. A pilot study to test reliability and validity of the research instruments was carried out in Bungoma County which is a neighboring county. The results of pilot study enabled some modifications of the research instruments where necessary after discussions with the supervisors. Reliability of the instruments was tested through use of Cronbach's Alpha coefficient of at least 0.70 which was acceptable implying that the instruments were reliable while the test -retest method was used to test validity. Descriptive statistics such as frequency, percentages, means and standard deviation were used to summarize the data and establish characteristics of the study population. Inferential statistics such as simple linear regression and correlation analysis were used to determine the relationship between the independent and dependent

variable. The findings were presented using tables and charts. The study established that liquidity, risk diversification and pool savings have positive effect on the performance of SME's. The results showed that 56.7% of small and medium enterprise performance can be explained by liquidity. 48.6% of small and medium enterprise performance can be explained by risk diversification and 53.4% of SMEs performance can be explained by pool savings. It was therefore concluded liquidity greatly affected the performance of SMEs. The study thus recommends that organizations should aggressively engage in ensuring their business have enough cash cover, engage in different types of business to spread their risk, to actively engage in pool savings and to analysis the organizations factors since they have a positive moderating effect on the relationship between role of financial intermediaries and performance of SME's. The outcome of this study will contribute to the existing pool of knowledge on embracing financial intermediaries by SME's in enhancing their performance. To the management and policy makers, in decision regarding the regulation of Financial Intermediaries. Moreover, the findings of this study form a framework for further research in Kenya and the world in general by interested parties.

120.   MBA/G/25/11
ALTERNATIVE FINANCING AND FINANCIAL PERFORMANCE OF SAVINGS AND CREDIT COOPERATIVE SOCIETIES IN KAKAMEGA COUNTY, KENYA

YOGO Odhiambo George with Supervisors Mr. Fredrick N. Kiongera and Mr. Damianus O. Okaka

121.   HR/G/07/12
EFFECT OF STAFF DEVELOPMENT PRACTICES ON EMPLOYEE PERFORMANCE IN COMMERCIAL BANKS IN KAKAMEGA COUNTY, KENYA

ITEYO Priscilla Nzula with Supervisors Dr. Robert K. W. Egessa, PhD and Dr. Willis Otuya, PhD

ABSTRACT

Human resource factor plays a key role in the success of any business enterprise. As a result, training of the employee is crucial for any business that wants to have a competitive advantage in the market place. However, the challenge is on how to handle staff development while sustaining high employee performance as well as curbing the high staff turnover rate in the present complex and dynamic labour force. This is the challenge faced by human resource managers, especially in crafting sustainable competitive strategy of how to contribute to organization performance as well as staff development. It's against this backdrop that this study was conceived to look at the effects of staff development practices on employee performance in Commercial Banks in Kakamega County in Kenya. To achieve this, the study soughedto evaluate the effects of training methods on employee performance in Commercial Banks in Kakamega County Kenya; the succession plan on employee performance; the effects of delegation of duties on employee performance and to establish the moderating effect of organizational factors on the relationship between the staff development practices and employee performance in the Commercial banks in Kakamega County Kenya. This study was guided by a conceptual framework developed from Staff development and employee performance theories. The study employed correlation research design to examine the relationship between staff development practices and employee performance in commercial banks in Kakamega County. The study population was 210 bank employees in the selected study area who were in three categories namely, bank managers, supervisors and tellers. The sample size was 150 employees. Both primary and secondary data was collected. Structured questionnaires were used to collect data

during the research. Data was analysed using descriptive and inferential statistics with the aid of Statistical Package for Social Sciences (SPSS). The study found out that staff development practices have a significant effect on employee performance. The study rejected the null hypothesis and concluded that staff development practices be emphasized. The study also concluded that organizational factors moderate the relationship between the staff development practices and the employee performance in the commercial banks in Kakamega County, Kenya

122.   BHR/G/08/06
EFFECT OF CONFLICT RESOLUTION, TECHNIQUES ON THE PERFORMANCE OF BANKS AND FINANCIAL INSTITUTIONS IN KAKAMEGA CENTRAL SUB-COUNTY

WANYAMA N. Rebecca with Supervisors Dr. Willis Otuya, PhD and Prof. O. M. J. Nandi, PhD

ABSTRACT

Human resource managers are consequently faced with challenges of managing change leading to sprouting of a variety of conflicts within organizations. Challenges facing human resource managers require their specialized training to facilitate handling of the emerging issues in workplaces. Therefore the purpose for this study was to establish the effect of conflict resolution techniques on organization performance in banks and financial institutions in Kakamega Central District. The specific objective was: To establish the effect of non-defensive and respectful reactions as a tool of conflict resolution on organization performance. The study adopted both quantitative and qualitative research designs employing descriptive survey method. Six banking and financial institution comprising of a population of 140 respondents was targeted. Simple random sampling was used to select the banks and financial institution and a sample of 42 respondents. The data collected was analyzed quantitatively using statistical package for social sciences (SPSS) program version 22. Data from questionnaires was analyzed using descriptive statistical technique then represented using tables and graphs.

123.   BHR/G/25/07
TRAINING AND ORGANIZATIONAL PERFORMANCE IN THE SUGAR INDUSTRY IN SOUTH NYANZA ZONE OF KENYA

NG'ANG'A Joseph Mwaniki with Supervisors Mr. Dishon Wanjere and Dr. Robert K.W. Egessa, PhD

ABSTRACT

Training as an investment is a means of attracting and retaining human capital as well as getting better returns from those investments. These returns are expected to improve on performance, output, capacity and innovation which should result to improvement of the skill base and increasing levels of knowledge and competence of employees. Sugar companies in Kenya face rapid and stiff competition due to ever rapid changing market environments. The general objective of the study was to establish the influence of training on overall organizational performance of sugar industry in the South Nyanza Zone of Kenya. The specific objectives were: to establish the influence of conceptual training on organizational performance of sugar industry; to investigate the influence of technical training on organizational performance of sugar industry and to find out the influence of training social skills obtained from training on organizational performance of sugar industry in the South Nyanza Zone of Kenya. The conceptual framework for the study comprised of training as an independent variable while organizational performance as the dependent variable. The literature was reviewed under the following headings: concept of training and development of employees in organizations and its indicators

as well as organizational performance and its indicators. In addition, the summary and research gap in the literature review were identified. This study used descriptive survey design. The population of the study was the management staff in the respective industries which constituted 278 management staff at Sony Sugar Company Limited, 104 management staff at Transmara Sugar Company and 115 management staff of Sukari Sugar Company translating to 597 management staff. The sample size comprised of 80 management staff from Sony, 54 management staff from Transmara and 57 management staff from Sukari Sugar Kenya Limited translating to 191 respondents. This study employed stratified random sampling in which the population was first divided into three different industries namely: Sony, Transmara and Sukari Sugar Company; thereafter respondents were drawn in proportion to their original numbers in the population using simple random sampling technique. The study used questionnaires as the main data collection instruments. The questionnaires that were used in this research consisted of structured and unstructured questions. Quantitative data was analyzed by use of descriptive statistics which include the mean, median, standard deviation and percentages as well as inferential statistics such multiple regressions. The data were presented in the form of frequency tables, percentages and reports. The study found out that there was a positive linear relationship between training and organizational performance. Hypothesis 1 postulated that there is no significant relationship between conceptual training and organizational performance of sugar industry in the South Nyanza Zone of Kenya. These findings showed that conceptual training had coefficients of estimate which was significant basing on $\beta1=0.0889$ (p-value= 0.0001 which is more than $\alpha=0.05$) which led to the rejection of the null hypothesis and conclude that there was significant relationship between conceptual training and organizational performance of sugar industry. Hypothesis 2 postulated that there is no significant relationship between technical training and organizational performance of sugar industry in the South Nyanza Zone of Kenya. It was found out that technical training had coefficients of estimate which was significant basing on $\beta2=0.0853$ (p-value= 0.0001 which is more than $\alpha=0.05$) which led to the rejection of the null hypothesis and concluded that there is significant relationship between technical training and organizational performance of sugar industry. Hypothesis 3 postulated that there is no significant relationship between social skills training and organizational performance of sugar industry in the South Nyanza Zone of Kenya. Findings showed that social skills training had coefficients of estimate which was significant basing on $\beta3=0.0954$ (p-value= 0.00000 which is more than $\alpha=0.05$) which led to the rejection of the null hypothesis and concluded that there was significant relationship between social skills training and organizational performance of sugar industry in the South Nyanza Zone of Kenya. The overall conclusion was that conceptual, technical and social skills training are conducted in the sugar companies with more emphasis on social skills compared to the others. Technical training was found to be the least offered in the companies. Based on the findings of this study, it was recommended that a sound training philosophy should be established to encompass all the three types of training with emphasis on technical and conceptual training as much as social skills training. However, the study faced some limitations of non-exhaustive variables, relying on self reported data from the sugar companies. These indicate that future researchers may give more insight into the dependent variables by use of actual data to get the contribution of training. The findings of the study may form a basis for improving the overall organizational performance of sugar industry in Kenya through training. The findings may assist stakeholders in unearthing the biggest challenge for the management of any organization is to develop human resource development strategies which include amongst others, to acquire skilled personnel, develop them and have schemes that retain employees in an organization.

INFLUENCE OF THE INTERNATIONAL LABOUR ORGANIZATION'S HIV AIDS CODE OF PRACTICE ON PRIVATE SECTOR ORGANIZATIONAL POLICIES AND PROGRAMMES IN BUNGOMA COUNTY

OCHARO Kebira with Supervisors Mr. C. Getanda and Prof. S. N. Mutsotso, PhD

ABSTRACT

HIV and AIDS is one of those Human Resource Management issues that have emerged. Instructive it is that the epidemic will manifest itself at the workplace in a variety of ways, among them; disruption of production, increased absenteeism, discrimination in employment, worsening of gender irregularities, increased incidence of child Labour, depleted human capital, legal actions in nature of unfair Labour practices and liabilities resultant upon unfair dismissals. Abreast of the above-mentioned premises and in discharging one of its functions namely formulation of International Labor Standards, the International Labor Organization produced a code of practice on HIV/AIDS, whose purpose is to provide guidance to policy markers, employers and workers organizations (trade unions) for formulation and implementation of appropriate work policy, prevention and care programmes. The study therefore sought to establish whether the ILO Code of practice, has influenced private sector employers in Bungoma County, in the formulation and implementation of policies and programmes on HIV/ AIDS. The objectives of the study were; assess the extent to which private sector employers are guided by the ILO code of practice on HIV/AIDS in formulating and implementing work policies, assess the influence of the code on private sector organizational policies prevention and care programmes, and finally to assess the level of recognition among private sector employers and employees alike on HIV and AIDS as a work place issue. The study employed a descriptive survey type of research design which was carried out on twenty two selected orgSanizations, drawn from the transport, catering, banking, education, information technology, social services and commerce sectors. The respondents comprised of operational staff and managers of the organizations. Stratified random sampling was used to select the sample of the study. Data was collected using a questionnaire. Data analysis and interpretation was based on descriptive statistics. The research data was analyzed using the Statistical Package for Social Studies, and were presented in terms of percentages, tables charts and graphs. The overall conclusion was that whereas the employers recognized HIV/ AIDS as a workplace issue, organizational policies, prevention and care programmes in their organizations have not been influenced by the provisions of the ILO Code of practice on HIV and AIDS at the place of work. The study was an important contribution to the reservoir of knowledge that will help

Human resource managers, students, employees, employers and also offer useful data for policy formulation.

INDIGENOUS KNOWLEDGE PRACTICES ALONG THE TRADITIONAL VEGETABLE VALUE CHAIN IN VIHIGA SUB-COUNTY VIHIGA COUNTY KENYA

MUSANGA Flora Akanwa with Supervisors Dr. Phillip Wandahwa, PhD and Dr. A. N. Chesambu, PhD

ABSTRACT

Indigenous knowledge is an integral part of the development process of local communities. The knowledge is applied in many areas including agriculture. Limited research has been done on indigenous knowledge practices used along the traditional

vegetable value chain and many are currently at risk of extinction. This study was designed to establish the indigenous knowledge practices used along the traditional vegetable value chain in Vihiga County. The study identified existing indigenous knowledge practices along the value chain, assessed their level of utilization, determined their limitations and made recommendations. The study adopted a sociological survey design on a sample size of 105 farmers from a target population of 2110 farmers. Multi-stage and purposive sampling techniques were used to select two locations from which four sub-locations were identified for the study. Purposive sampling was used to identify four sub-locations which mainly grow traditional vegetables. Farmers in the four sub-locations were subjected to simple random sampling. Questionnaires were administered and the data analyzed using the Statistical Package for Social Sciences for descriptive and inferential statistics. The logit model was used to establish the relationship between the study variables. The role of indigenous knowledge was analyzed at pre-production, production and post-production levels of the value chain. The results show that indigenous knowledge is predominantly used along the traditional vegetable value chain. At pre-production, 58% of the farmers predict on-set of rains using indigenous knowledge and 90% of farmers prefer local seed varieties for planting over improved varieties. At production level of value chain, 96% of the farmers broadcast the seed while 76% use ash to control pests and diseases. At post-production level, utilization involves boiling (74%), cooking in lye solution (24%), while preservation and storage entails drying (41%) and salting (26%). Logit analysis results show that age, gender, level of education and size of household had a significant influence on use of indigenous knowledge. Females, older farmers, large households and farmers with basic education use more indigenous knowledge along the traditional vegetable value chain. The study revealed that 72% of indigenous knowledge is passed on by word of mouth, practice and observation through the generations. The creeping of the elite culture in society and lack of documentation are the major limitations to the dissemination of indigenous practices. Documentation of existing indigenous knowledge practices along the traditional vegetable value chain is important in order to conserve them for future generations. The study recommends promotion and recognition of farmer innovation to enhance integration with modern techniques. The study also recommends that policy makers formulate policies with emphasis on farmer training since farmers learn better from each other which will also entrench dissemination of indigenous knowledge practices.

126.   SAI/G/03/10

ADOPTION OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN ARTIFICIAL INSEMINATION FOR DAIRY FARMING IN THE GREATER LUGARI SUB-COUNTY OF KAKAMEGA COUNTY, KENYA

WAMALWA Julita Khainja with Supervisors Prof. Jacob W. Wakhungu, PhD and Dr. Nyongesa W. Humphrey PhD

ABSTRACT

Kenya is one of the countries in sub-Saharan Africa that the challenge of lack of adequate ICT infrastructure has hampered provision of efficient and affordable AI services. The problem addressed in this study was that over the last two decades various reforms in the livestock sub-sector have been initiated to spur economic growth. Among them were the privatization of AI services, but there is still persistent decline in AI uptake.. Therefore a study was done with the objectives of establishing ICT tools and their purpose of use and determined the level of ICT application among AI providers and Dairy farmers in greater Lugari Sub-County of Kakamega County. A total of 400 respondents were involved in the study representing only one field of dairy-based industry namely

Artificial Insemination. The study was conducted in Matete, Lugari and Likuyani sub-counties. An evaluation research design was adopted in this study. Multi-stage random sampling method was used to select households, while purposive sampling was used to select key informants from stakeholder organizations. Data was collected using pre-tested structured questionnaires administered to 400 household dairy farms, face to face interview with 12 AI providers, 32 FGDs and 4 farmers self help groups. The collected data was analyzed using descriptive statistics. From the study it was found that the most commonly used ICT tools are mobile phone, radio, television (72%) and internet(10%) and 87% of the farming households own a mobile phone. The most used mobile phone application was calling (50%) and SMS messaging (25%) while few respondents among dairy farmers use mobile phones for internet (7%). Among the obstacles faced by dairy farmers and AI service providers to use ICT were that they do not have skills in using ICT and lack of time to use the ICT coupled with poor infrastructure

Key words: ICT tools, Dairy farmers, Artificial insemination

127. SAI/G/09/03

THE ROLE OF INFORMATION COMMUNICATION TECHNOLOGIES IN SUGARCANE PRODUCTION BY FARMERS OF BUNGOMA COUNTY, KENYA

WEPUKHULU Eliud Walimbwa with Supervisors Dr. Alice C. Ndiema, Ph.D. and Prof. Jacob Wakhungu , PhD

ABSTRACT

The management of relief food by all the stakeholders such as the relief agencies, the government and the beneficiaries has proved a challenge specifically at the local level in the Turkana County. Many relevant stakeholders have collectively made efforts in applying a coordinated approach to address the challenges but the logistics related problems still persist. This study, therefore, seeks to assess the impact of the inter-agency logistics planning on the management of relief food aid in Turkana County. The specific objectives are to examine the significance, evaluate the effects, and assess the challenges of inter-agency logistics planning on the management of relief food in Turkana County in Kenya. The significance of this study is to contribute to the formulation of food distribution project designs and policies for better management of relief food as well as adding to the theoretical body of knowledge in the area project management. The study applied a cross-sectional survey, correlation and evaluation research designs targeting key informants from food distribution officers of the targeted agencies, the household heads and chiefs, assistant chiefs, security agencies and members of the public. Probability sampling was used to collect data from household heads while non-probability sampling techniques were used to collect data from key informants. The data were mainly collected using interview guides and questionnaires. Focus group discussions guidelines were also used to get data from community interest groups that included representatives of the elders and local administrators, the youth and the women. The data collected from the questionnaires were coded and entered into the computer data bank using the Software Package for Social Scientists (SPSS). The analysis of data was done using both descriptive and inferential statistical analyses. Inferential statistical analysis was used in testing the effectiveness of interagency logistic planning on the management of relief food aid using chi-square with a significance level of 0.05. The major findings from this study were that there is a marked significance of several aspects of inter-agency logistics planning on management of relief food aid in Turkana County. Security (X^2(4, N=39) = 122.873, P=0.000), Procurement (X2(4, N=39) = 82.821, P=0.001), warehousing (X^2(4, N=39) = 75.372, P=0.000) and transport plans (X^2(4, N=39) = 78.931, P=0.000, Cramer's V=0.439) that are done on inter-agency platform affect the management of food stocks their movement and distribution to beneficiaries in that the logistics operations are more effective and efficient. The study concluded there was positive effect of interagency logistic planning on management of relief food in Turkana County. This research recommends that there should be a more deliberate

effort to establish coordination structures that would include representatives of NGOs, government line ministries, local administration and community special groups with an aim of establishing a platform on which procurement, warehousing, transport, security and needs assessments can be planned.

128. **MBA/G/52/**N THE CORPORATE PERFORMANCE OF KENYA POWER IN WESTERN KENYA

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ABSTRACT

Kenya Power is a state commercial corporation in Kenya. The ethicality of its business processes or lack of it informs the basis of this thesis. The study sets out to explore the effect of ethical business practices on the performance of Kenya Power in Western Kenya. The specific objectives of this study are: to establish the effect of ethical businesspractices on corporate performance of Kenya Power in Western Kenya; to determine the effect of organizational factors on corporate performance of Kenya Power in Western Kenya; to examine the effect of organizational factors on the relationship between ethical business practices and corporate performance of Kenya Power in Western Kenya. The study adopted a survey research design. The target areas were Kakamega, Mbale, Bungoma and Webuye Branches of Kenya Power. It targeted customers, contractors and employees within this region. Simple random sampling method was used to select a sample of 375 respondents. These respondents were further stratified into;225 customers, 60 contractors and 90 employees. Data was collected through administration of self-structured questionnaires to the selected respondents. Analysis was done with the aid of Statistical Package for Social Sciences (SPSS).Data collected was processed and analyzed using descriptive and inferential statistics. The descriptive statistics included frequencies, means and percentages.Descriptive statistics included mean, standard deviation and frequency distribution, while inferential statistics used included a one-way Analysis of Variance (ANOVA) at 95% confidence and a 0.05% significance level. The study also employed the use of document analysis to collect, collate and summarize quantitative and qualitative data by use of questionnaires from the respondents. To ensure that the research instruments were reliable, Cronbach's Alpha applied. The study carried out a reliability test of 65 items that was found to be 0.865. It was thus, way above the recommended 0.7 in social sciences. Karl Pearson Correlation Coefficient and regression analysis indicated the relationship between ethical busines spractices and corporate performance of Kenya Power. The results thereof were presented in frequency tables and cross tabulation tables. The outcome of the research indicated a positive statistically significant linear correlation between ethical business practices and corporate performance of Kenya Power. The results also indicated that there exists a moderating effect of organizational factors on the relationship between ethical business practices and corporate performance at Kenya Power. It is thus expected that this study will be quite helpful in providing useful information and ethical guidance to business managers at Kenya Power in particular and in Kenya, on the need to observe high ethical conduct and upholding high business values in their transactions. From the findings, it is expected that the outcomes of this study will contribute further to the existing body of knowledge on ethical business practises, business ethics and values and on general management of ethics in both public and private organizations and their attendant affects on performance. These findings also form a future framework for further research and a basis of reference in the field of academia by academicians and any other interested parties.

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