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## The 24th Annual Research Conference Abstract Booklet

University of Gondar, Ethiopia

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# UNIVERSITY OF GONDAR

## THE 25<sup>th</sup> STAFF AND STUDENTS ANNUAL RESEARCH CONFERENCE

JUNE 19-20, 2015

***MAIN THEME:*** INTEGRATED APPROACH TO RESEARCH,  
TECHNOLOGY TRANSFER, AND COMMUNITY SERVICES FOR  
SUSTAINABLE SOCIO-ECONOMIC TRANSFORMATION

## ABSTRACT BOOKLET

GONDAR

ETHIOPIA



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## **Preface**

The 25<sup>th</sup> Annual Staff-Student Research Conference of the University of Gondar will be held on June 19 and 20, 2015 at the Science Amba Auditorium. This year's conference is special in that the year marks the Silver Jubilee of the Annual Staff and Student Research Conference. Drawing on the experiences we have accumulated for the past 25 years, we vow to strive to realize the development and transformation of the country through research and community services.

Staff, postgraduate and senior undergraduate students of the University, invited guests, and speakers will participate in the conference. The annual conference of the University is meant to share experiences in research among junior and senior, staff, students, and invited guests. It is also meant to motivate students and young faculty to engage in research and also to initiate and strengthen interdisciplinary collaborations. The findings of the studies and the resulting recommendations are expected to be used in solving the diverse societal problems we have been facing.

Research activities at the University of Gondar are primarily aimed at solving societal problems. In line with this, the institution has developed prioritized research thematic areas to fundamentally shift the research paradigm at the University level. The identified research thematic areas are expected to enable most studies to solve community problems through development orientated community services, technology transfer, and skill and knowledge generation.

It is worthy of note that our University is located in a unique topographic setting in Ethiopia which enables its faculty and students to look into the diverse societal problems which need the fruits of inquisitive minds. This has recently been witnessed by the huge number of research proposals submitted to the University by faculty, and by the large number of research abstracts submitted for presentation in the University and elsewhere.

The office of Vice President for Research and Community Services of the University of Gondar would like to thank all those who have been involved in the realization of this grand research conference.

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## **1. INTRODUCTION**

Conducting creditable research and rendering subsequent community services in the area of health has been one of the core tasks of the University of Gondar (UoG) since its inception as Gondar Public Health College and Training Center in 1954. Research at the University has been done by both students and staff. Besides, supporting research activities on campus, the university manages nine research centers off campus. Formerly, the academic staff were expected to devote one fourth (25%) of their working time on research and related tasks. These days, however, the academic staffs are required to dedicate 55% of their working time to research and community services of which 40% should belong to scientific research. In addition, students carry out research in partial fulfillment of the requirements for their degrees. Each year, research which is conducted by students and staff is presented at the Annual Staff and Students' Research Conference of the University. Furthermore, research at the University has been conducted in collaboration with various national and international institutions. Interestingly, the research outputs of many of the scholars of the University have been published in different reputable journals. Moreover, to disseminate the research outputs of the University, three journals are actively working for some years and two journals which are ongoing to be launched shortly.

### **1.1 Purpose Statement, Vision and Values of office of Vice President for Research and Community Services (VPRCS) of UoG**

#### **Purpose Statement of VRCS**

The office of Vice President for Research and Community Services is enthusiastic in facilitating problem based research undertakings and the delivery of creditable community services based on the needs of the society and disseminates research outputs.

## **Vision of VPRCS**

The vision of VPRCS office is aspiring to see the University of Gondar as a prominent institution renowned for its research and community services in the nation.

## **Values of the office of VPRCS**

**Quality at all:** we greatly endorse the undertaking of quality researches and community services.

**Teamwork:** by its nature the organizational structure of VPRCS highly demands team work, i.e., the activity of one is related directly or indirectly with the other. Therefore, we decidedly promote teamwork.

**Care for partners:** Our goals will be achieved in close collaboration with our partners. Thus, we greatly value our partners.

**Committed to ethics:** Compliance to legal, social and professional ethics and norms is crucial for our development and goodwill.

**Creativity and Innovation:** Introducing new working conditions and generating valuable knowledge and technology are the backbones for the success of the Core Process.

**Proudly community servant:** Serving the community with all paramount efforts will enhance both the living condition of the community and moral satisfaction of the employees in the Office.

## **1.2 Research thematic Areas of University of Gondar**

**Theme 1: Infectious Diseases**

**Theme 2: Maternal and Child Health**

**Theme 3: Nutrition Related Issues**

**Theme 4: Environmental and Occupational Health and Safety/ Other Public Health Issues**

**Theme 5: Farm and Wild Animals Health**

**Theme 6: Veterinary Public Health**

**Theme 7: Animal Production and Productivity; Socio-economic and Institutional Issues**

**Theme 8: Water, Energy, Environment Management and Development Issues**

**Theme 9: Information, Communication and Construction Technology**

**Theme10: Designing, Manufacturing, Industrial Automation, and Quality Control**

**Theme 11: Science and the Society**

**Theme 12: Crop Production and Protection**

**Theme 13: Rural Development and Agricultural Extension**

**Theme 14: Livelihoods and Development**

**Theme 15: Tourism, Hospitality and Resource Management**

**Theme 16: Business, Finance and Marketing**

**Theme 17: Socio- cultural and Socio Economic Development Issues**

**Theme 18: Psychosocial Issues and Mental Health**

**Theme 19: Legal System, Judiciary and Human Rights**

**Theme 20: Quality of Education**

### **1.3 Research proposals submitted and granted in the year 2014/15**

<b>College/Faculty/School</b>	<b>RESEARCH PROPOSALS SUBMITTED AND GRANTED IN 2014/15</b>	
	<i>Submitted</i>	<i>Granted</i>
College of Medicine and Health Sciences /CMHS/	103	52
College of Business and Economics /CBE/	46	20
College of Natural and Computational Sciences /CNCS/	36	15
College of Social Sciences and the Humanities /CSSH/	82	39
Faculty of Veterinary Medicine /FVM/	20	16
Faculty of Agriculture /FoA/	28	16
School of Technology /SoT/	8	3
School of Law /SoL/	15	14
School of Education /SoE/	8	7
PhD Students	36	36
<b>TOTAL</b>	<b>346</b>	<b>218</b>



#### 1.4. Research Trends in the University of Gondar

The Ministry of Finance and Economic Development is supporting the prioritized and societal problem solving researches by allocating the budget. The support from the Ministry is increasing from year to year.

Currently, the prioritized and problem solving research in different categories: Thematic, Tran disciplinary, and Innovative are more than 218 with Birrr 10.847 million.

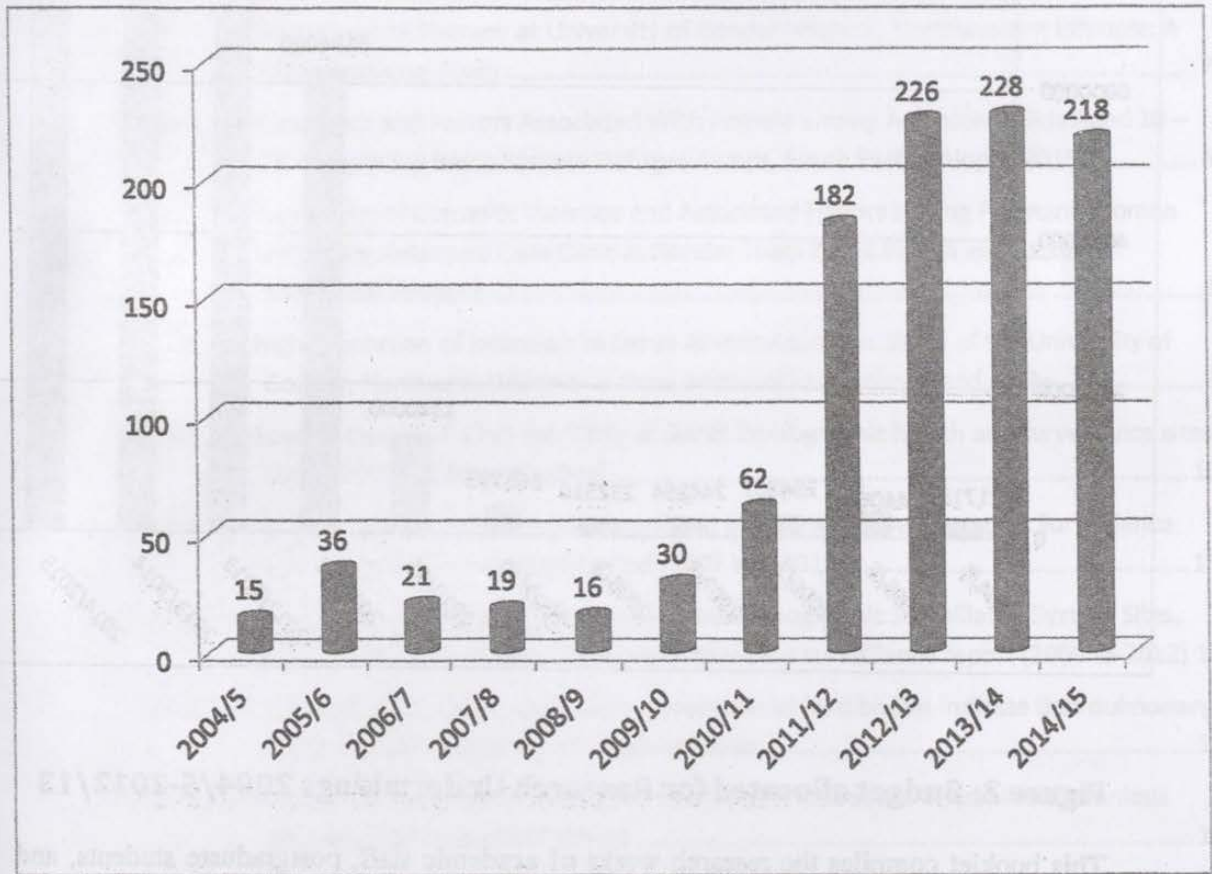
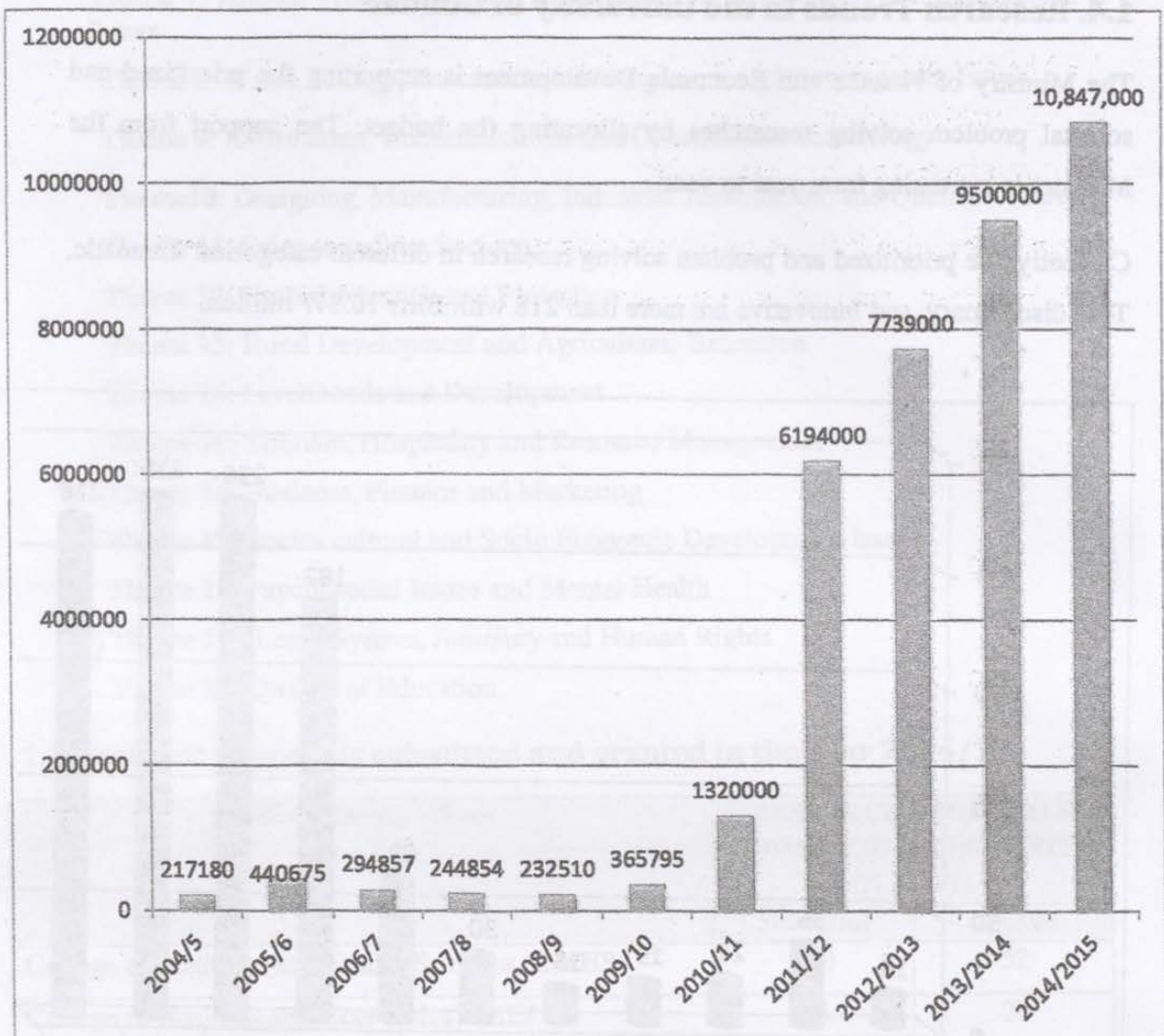


Figure 1: Research Undertakings 2004/5-2014/15



**Figure 2: Budget allocated for Research Undertakings 2004/5-2012/13**

This booklet compiles the research works of academic staff, postgraduate students, and other researchers who submitted abstracts from various universities and institutions to be considered for presentation on the 25<sup>th</sup> staff and students' annual research conference of the University of Gondar.

## ABSTRACTS FROM COLLEGE OF MEDICINE AND HEALTH SCIENCES (CMHS)

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**CMHS\_A1: Expression of Vascular endothelial growth factor (VEGF) mRNA, VEGF receptor 2 (Flk-1) mRNA, and of VEGF co-receptor neuropilin (Nrp)-1 mRNA in brain tissue of aging Tg2576 mice by *in situ* hybridization**

*Abebe Muche, Marina Bigf<sup>2</sup>, Thomas Arendt<sup>2</sup>, Reinhard Schliebs<sup>2</sup>*

**Abstract**

Vascular endothelial growth factor (VEGF) has been characterized as a heparin binding angiogenic growth factor displaying high specificity for endothelial cells. It is profoundly accumulated and co-localized with amyloid beta (A $\beta$ ) plaques in the brain of Alzheimer's disease patients. In order to examine the effect of A $\beta$  plaques on the expression level of VEGF mRNA and its receptors, brain tissue of both transgenic Tg2576 and wild type mice at ages ranging from 13 to 22 months was subjected to *in situ* hybridization followed by densitometric assessment using computer-assisted image analysis. Strong expression of VEGF mRNA, fetal liver kinase (Flk)-1 mRNA, and neuropilin (Nrp)-1 mRNA in the piriform, entorhinal, somatosensory, frontal cortex and hippocampal formation of both transgenic and non-transgenic mice brain was detected. Developmentally, only expression of VEGF mRNA was increased with age in the entorhinal, and somatosensory cortex of wild type mice. In 20-month-old transgenic Tg2576 mice, up-regulation of VEGF mRNA, Flk-1 mRNA, and Nrp-1 mRNA transcripts was observed in the entorhinal cortex compared to age-matched wild type mice. Our data suggest up-regulation of VEGF mRNA, Flk-1 mRNA and Nrp-1 mRNA, at least in the entorhinal cortex at ages when A $\beta$  deposition in Tg2576 is typically increasing.

**Key words:** Beta amyloid plaques, VEGF mRNA, Flk-1 mRNA, Nrp-1 mRNA, transgenic mouse brain

**CMHS\_A2: Depression, Psychological Distress, Anxiety and Associated Factors among Prison Inmates Found In North West of Amhara Regional State, Ethiopia**

*Abel Fekadu, Berihun Assefa, Teresa kisi, Nigussie Yizaw, Telake Azale*

**Abstract**

**Background:** Mental illness is more common among the prison population than the community is. Criminal offenders with mental disorders who do not undergo adequate treatment may enter in a cycle of recidivism regarding both the mental disorders and the criminal offenses. However, the attention given to mental health is very low across the globe in general and for prisoners in particular. Therefore, this study is aimed to assess the prevalence of anxiety and associated factors among prisoners in prisons of North West, Amhara regional state.

**Methods:** Institutional based cross sectional study was employed from February to March 2015 by taking a sample size of 700 prisoners. Multistage simple random sampling method was employed to select three prisons from 10 prisons found in the North West region. Generalized Anxiety Disorder 7-item (GAD-7) was used to assess prisoner's anxiety. The receiver-operator characteristic (ROC) curve was used to estimate the cutoff point with high sensitivity and high

specificity. Data were checked, coded and entered by using Epi Info version 7 and imported to SPSS version 20 for further cleaning and univariate analysis. The cleaned data were exported to R version 3.2.0 to fit Bi variable and multivariable logistic regression model to identify associated factors. Odds ratio with its 95% confidence interval was used as measure of association. Akaike's Information's Criterion (AIC) was used to check model fitness.

**Result:** six hundred forty nine prisoners give complete response giving a response rate of 93%. The overall prevalence of Anxiety was found to be 36.1% (95%CI: 32.7, 39.9), 83.4% (80.6, 86.0). The odds of Anxiety is 2.49(95% CI: 1.38, 4.55) times higher among prisoners who were lead happy life before they become prisoner and it is 0.38 (95%CI: 0.15, 0.92) times lower among current smokers.

**Conclusion:** The prevalence of anxiety was found to be very higher among prisoners in North West of Amhara regional state. Therefore, exclusive intervention is crucial for these neglected citizens by focusing on the identified risk factors.

**Key ward:** Anxiety, Prisoners, Amhara regional state, Ethiopia,

### CMHS\_A3: Pattern of Utilization of Traditional Medicine among HIV/AIDS Patients on Antiretroviral Therapy at University of Gondar Hospital, Northwestern Ethiopia: A Cross-Sectional Study

Abyot Endale Gurmu, Wondwesen Tilahun, Zerihun Assefa, Wondimagegn Ahmed, Yabibal Berie, Tariku Tesfaye, Fitsum Sebsibe Teni, Abebe Mulalem, Zewdneh Shewamen

#### Abstract

**Objective:** to assess the pattern of utilization of traditional, complementary and alternative medicine (TCAM) among HIV/AIDS patients on ART in at a university hospital.

**Materials and methods:** a cross-sectional study was conducted by interviewing HIV patients who were getting ART treatment at the ART clinic during the study period. Data on socio-demographic profile, clinical and TCAM utilization of the patients was collected by principal investigators. Respondent's CD4 count, HIV staging and ART regimen were collected from individual patient record. The data collected was analyzed descriptively using SPSS version 20.

**Results:** The survey of all the 300 patients interviewed during the study period was complete and included in the analysis. 43.7% of respondents were found to use TCAM along with ART medication. The leading forms of TCAM practiced by the patients were spiritual therapy and herbal therapy with 56.49%, 36.64%), respectively. The most frequently used herbal products included *Nigella sativa* (black mustard) (22.92%) and *Moringa oleifera/stenopetala* tea (20.83%). Most of the patients (73.30%) using TCAM reported improvement in their conditions.

**Conclusions:** TCAM modalities utilization among HIV patients on ART was common and that a variety of sources and types were being used in the treatment process alongside ART. Further research is needed to identify CAM therapies that may be used as adjunct treatments in patients with HIV/AIDS.

**Key words:** Traditional, complementary and alternative medicine, HIV/AIDS, ART, University of Gondar Hospital

**CMHS\_A4: Prevalence and Factors Associated With Anemia among Adolescent Girls Aged 10 – 19 Years In Aw Barre Somalia Refugee Camps, South East, Ethiopia, 2015**

*Melaku Tadege, C/Phone #: 0910120543, E-Mail: [meltad24@gmail.com](mailto:meltad24@gmail.com)*

**Abstract**

**Introduction:** Adolescent girls in developing countries suffer from many social, economic and health problems. They are also vulnerable for both macro and micro nutrient deficiency including Anemia. Anemia is prevalent in these populations because they have increased requirement, decreased intake and increased loss of hematopoietic nutrients. Deficiency of this nutrient is severing in adolescents living in refugee camps.

**Objective:** The objective of this study was to determine the prevalence and factors associated with anemia among adolescent girls aged 10 – 19 years in Aw Barre Somalia refugee camps, South East, Ethiopia, 2015.

**Methods:** A cross-sectional study design was employed. Study participants were recruited by using simple random sampling technique. Structured and pre-tested questionnaire were used for data collection. By prick a finger after applying aseptic technique and gently pressed the finger to take 50µml of blood drop on a HemoCuvettes. The blood samples were tested by using HemoCue Hb 301 and the existence of anemia was established if hemoglobin level was <12.5gm/dl after adjustment altitude. EPI INFO version 7.0 was used for data entry and finally exported to SPSS version 20.0 for further analysis. Descriptive statistics were carried out then bivariate and multivariable logistic regressions were used to explore significant variables. Variables having P - Value ≤ 0.05 were considered as statistically significant.

**Result:** About 437 refugee adolescent girls were participating in this study with a response rate of 96.89%. The overall prevalence of anemic was 22%, 95%CI (17.6, 26.1). In this study, late adolescents were 2.05 (95% CI, (1.12, 3.73)) times at higher risk as compared to early adolescents and those who stay ≥ 8yrs in camp were 3.12 (95% CI, (1.16, 8.39)) times higher when related to those stay < 8yrs. Adolescent girls having inadequate intake of egg were 6.67 (95%CI, (1.15, 38.75)) times higher as compared to those who took frequently, this is similarly 12.66 (95%CI, (2.90, 55.27)) times among meat and meat products for development of anemia.

**Conclusion:** The prevalence of anemia among adolescent refugee girls is moderate public health problem. Education and awareness on adolescent nutrition and mobilization of small scale poultry farming activity in refugee camp is important for anemia prevention.

**Keywords:** Anemia, adolescent girls, refugee camps, Ethiopia



**CMHS\_A5: Prevalence of Domestic Violence and Associated Factors among Pregnant Women Attending Antenatal Care Clinic in Gondar Town Public Health Institutions, Northwest Ethiopia.**

*Berhanu Boru Biftu (Msc), Berihun Assefa Dachew (Asst.Professor), Bewket Tadesse Tiruneh (Msc)*

**Abstract**

**Introduction:** Globally, violence against women is recognized as a serious public health concern and human rights violation. The changes associated with being pregnancy in physical, social and sexual issues influence relationships and result in conflict and possible violence that affect the health of both the mother and the unborn child (such as preterm, still birth, high risk for exposure to HIV, and low birth weight).

**Objective:** To assess the prevalence of domestic violence and associated factors among pregnant women having ANC follow up in Gondar town public health institutions, Northwest Ethiopia.

**Methods:** Institution based quantitative cross-sectional study was conducted among 418 pregnant mothers in Gondar town. After proportional allocation of the study subjects to each health institutions, they were selected by systematic random sampling technique. Violence against pregnant women's was assessed using WHO multi-country study questionnaire. Binary logistic regression analysis and adjusted odds ratio with 95% confidence interval were used to identify the associated factors.

**Results:** A total of 418 participants were participated in this study with a 99.1% response rate. Overall, the prevalence of domestic violence was found to be 25.4%. As to the different form of domestic violence; 24.5%, 8.1% and 2.4% of pregnant mothers reported emotional, physical and sexual violence, respectively. Primary educational status (AOR=4.59, CI:1.496,14.070), rural residency (AOR=5.53, CI:2.311,13.249), unplanned pregnancy (AOR = 4.34, CI: 2.345, 8.020), ANC (AOR = 5.41, CI: 1.493,19.696) and use of any substance (AOR = 7.54, CI:1.042,11.214) were factors statistically significant with domestic violence at p-value <0.05.

**Conclusion:** More than a quarter of the study participants had experienced domestic violence. Strengthening the educational status of the women on different issues in their life such as to have planned pregnancy and on time ANC care was suggested particularly for those coming from rural residence.

**Key words:** Domestic Violence, associated Factors, Pregnant Women, Northwest Ethiopia

**CMHS\_A6: High Proportion of Intention to Leave Among Academic Staffs of the University of Gondar, Northwest Ethiopia: A cross-sectional Institution Based study**  
*Berihun Assefa Dachew<sup>\*1</sup>, Anteneh Messele Birhanu<sup>2</sup>, Berhanu Boru Biftu<sup>2</sup>, Bewket Tadesse*

**Abstract**

**Background:** Teachers' turnover is a critical issue for school administrators and educators. However, there is no study in Ethiopia that determines intent to leave among university staffs. This study aimed to assess intention to leave and associated factors among academic staffs of University of Gondar, Northwest Ethiopia.

**Methods:** Institution based, cross-sectional study was conducted from April 14-20 /2014. A total of 332 academic staffs were selected in the study using simple random sampling method. The questionnaire was coded and entered to EPI INFO version 3.5.3 then exported to SPSS version 20 for analysis. Data were collected using pretested and structured self-administered questionnaire. Bivariate and multivariate logistic regression model was fitted to identify factors associated with intention to leave. An adjusted odds ratio with 95% confidence interval was computed to determine the level of significance.

**Results:** The proportion of intent to leave in the profession was found to be 66%. Being male (AOR: 2.2; 95% CI 1.2, 4.5), teaching experience of more than 10 years (AOR: 4.6; 95% CI 1.5, 6.5), Job position (AOR: 2.8; 95% CI 1.27, 6.3), dissatisfaction with pay and benefit (AOR: 1.8; 95% CI 1.08, 3.16) and dissatisfaction with autonomy and professional opportunities (AOR: 4.0; 95% CI 1.94, 8.2) were factors significantly associated with intention to leave.

**Conclusion and recommendation:** Intention to leave among academic staffs was found to be high. Strategies which focus on increasing autonomy and professional opportunity, gratifying pay and benefit and retention of senior academic staff were recommended.

**Key words:** Academic staffs, Intention to leave, University of Gondar, Ethiopia

#### CMHS\_A7: Specific causes of adult mortality at Dabat Demographic health and surveillance sites Using Verbal Autopsy Method.

*Yizaw Kebede, Gashaw Andarge, Tesfahun Melesse, Abebaw Gebeyehu, Tadesse Awoke, Kassahun Alemu, Solomon Mekonnen, Mamo Wubshet, Mezgebu Yitayal, Zemene Tigabu, Meseret Zelalem, Mihrete Kokeb, Temesgen Azmeraw*

#### Abstract

**Background:** In countries where registration of vital events is lacking and the proportion of people who die at home without medical care is high, verbal autopsy is used to determine and estimate causes of death.

**Methods:** A total of 1082 deaths from Dabat Research Center surveillance sites, northwest Ethiopia, were eligible for verbal autopsy for the years 2007 to 2013. Trained physicians interpreted the collected verbal autopsy data, and assigned causes of death according to the international classification of diseases (ICD-10). We did analysis of specific as well as broad causes of death (i.e. non-communicable diseases, communicable diseases and external causes of death) by place, time and person using Stata version 12.0. We performed logistic regression to identify predictors of top three diseases which cause the death (Tuberculosis, HIV/AIDS Meningitis) using odds ratio with 95% confidence interval and a p-value of 0.05.

**Result:** Overall, from 2007-2013, the main causes of deaths were communicable diseases (47.97%), non-communicable diseases (34.84%), and external causes (10.44%). Over these years the main specific causes of death were Tuberculosis (20.81%), HIV/AIDS (7.38%) and Meningitis (6.85%). Overall there was increasing trends of deaths due to non-communicable diseases where as deaths due to communicable showed decreasing trend (Mantel-Haenzel chi-square test,  $p < 0.01$ ). Being male (AOR=0.72; 95% CI:0.56, 0.94), rural resident (AOR=1.53; 95% CI: 1.13, 2.06), age group 25-49 years (AOR=1.60; 95% CI:1.03; 2.50) and 12 and above in

educational status (AOR=3.38; 95% CI:1.12, 10.12) were significantly associated with cause of death due to communicable diseases as compared to their counter parts. Whereas rural resident (AOR=0.59; 95% CI: 0.42, 0.80) and older age, = >50 years (AOR=1.81; 95% CI: 1.11, 2.97) were significantly associated with death due to non-communicable diseases as compared to their counter parts.

**Conclusion:** Tuberculosis, HIV/AIDS and Meningitis were the commonest causes of death among adults. Death due to *non-communicable diseases* was shown an increasing trend. Being male, rural resident and age group 25-49 years were significantly associated with cause of death due to communicable diseases, whereas being and rural resident and older age, = >50 years, were significantly associated with cause of death due to non-communicable diseases. Public health interventions should target on Tuberculosis, HIV/AIDS, meningitis as well as non-communicable diseases.

**Keywords:** Mortality, Childhood, Verbal autopsy, Dabat, DHSS, Ethiopia

### CMHS\_A8: Specific Causes of Childhood Mortality at Dabat Health Demographic Surveillance Site Using Verbal Autopsy Method (2007 and 2013)

*Yizaw Kebede, Gashaw Andarge, Tesfahun Melesse, Abebaw Gebeyehu, Tadesse Awoke, Kassahun Alemu, Solomon Mekonnen, Mamo Wubshet, Mezgebu Yitayal, Zemene Tigabu, Meseret Zelalem, Mihrete Kokeb, Temesgen Azmera*

#### Abstract

**Background:** Childhood mortality is one of the major public health problems in Ethiopia. For the implementation of efficient public health systems, knowledge of specific causes of deaths and spatial patterns of mortality is significant.

**Objective:** The aim of the study was to identify causes of death of under five children using verbal autopsy method.

**Methods:** Data from the Dabat Demographic health surveillance site from the year between 2007 and 2013 were included in the analysis. The Verbal Autopsy (VA) method to identify causes of death among the population. The death occurrence continuously reported by key-informants. VA interviews conducted on close relatives of the deceased within one to three months after a death considering culturally appropriate mourning period. The cause of death assigned by physicians based on International Classification of Disease (ICD) 10 using the information from the filled VA questionnaire. Trained data clerks will enter completed questionnaires into Household Registration System (HRS2.1) database. The analysis was done using Stata version 12 software.

**Result:** Of the total deaths between 2007 and 2013, 728(87.6%) lived in rural areas, 473(56.9%) were males, 251(30.2%) of age at death were still births, followed by post neonates 181(21.78%). The highest deaths occurred in the year 2009, 174(20.9). Of the total deaths, 708(85.2%) died in home. The top specific cause of death was still birth, 149 (17.9%) followed by bacterial sepsis of newborn, 146(17.6). Bacterial sepsis for newborn, 131(18.0%), still births, 125(17.2%) and acute respiratory infections, 103(14.1%) were the leading causes of deaths in urban children. Still births, 149(59.4%), birth asphyxia and perinatal respiratory disorders, 50(19.9%), and prematurity, 27(10.8%) were the top three leading causes of still births death. bacterial sepsis of

newborn, 55(61.8%), prematurity, 19(21.4%), and birth asphyxia and perinatal respiratory disorders, 5(5.6%) were the top three leading causes of early neonate. bacterial sepsis of newborn, 51(62.2%), neonatal pneumonia, 11(13.4%), and birth asphyxia and perinatal respiratory disorders, 4(4.9%) were the top three leading causes neonate deaths. acute lower respiratory infections, 71(39.2%), Intestinal infectious diseases, 32(10.5 %), bacterial sepsis of newborn, 19(10.5), and meningitis, 11(6.0%) were the top four leading cause of death of post neonate. Acute lower respiratory infections, 45(19.7%), meningitis, 42(18.4%), intestinal infectious diseases, 30(13.2%), severe malnutrition were the top leading causes of children in the age between one and four.

**Conclusion:** The verbal autopsy (VA) can be used to see differentials of disease burden over time. Changes in the pattern and level of mortality reported by the DHSS may lead to further investigation of the situation.

**Keywords:** Mortality, Childhood, Verbal autopsy, Dabat, DHSS, Ethiopia

### CMHS\_A9: Population Dynamics in Dabat Health and Demographic Surveillance System Sites, Dabat District, Northwest Ethiopia: A four-year surveillance report (2009 to 2012)

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#### Abstract

**Introduction:** The Dabat HDSS was launched by the Gondar College of Medical Sciences in 1996. The main reasons for establishing the surveillance system were to produce demographic and health related evidence in Dabat district and build capacity of the college staff in managing surveillance systems including managing and analyzing longitudinal data. The objective of this report is to describe the population dynamics in Dabat Health and Demographic Surveillance System sites.

**Methods:** Data for this population based surveillance system has been collected months. This report includes the analysis of the follow up data from January 01, 2009 to December 31, 2012. Data was entered using HRS2 and analyzed by STATA **Results:** The population counts were 45369 in 2009, 45815 in 2010, 46178 in 2011, and 47253 in 2012. The CBR ranged from 25.2 in 2011 to 30.0 births/1000 population in 2009. Similarly, TFR ranged from 3.6 in 2011 to 4.4 in 2009. The CDRs were 7.6 in 2009, 7.8 in 2010, 5.3 in 2011, and 6.6 per 1000 population in 2012. IMR decreased from 74.2 in 2009 to 60.0 per 1000 live births in 2012. In the same manner, U5MR decreased from 92.5 in 2009 to 75.8 per 1000 live births in 2012. The net-migration rates were negative in all the surveillance years.

**Conclusion:** While the decreases in fertility rates were not remarkable there were substantial reductions in childhood mortality rates. The District Health Office and the health institutions in

the area with other stakeholders need to maximize their curative, preventive, and promotive health services to significantly reduce the fertility and mortality rates.

**Keywords:** Population Dynamics, Surveillance, Dabat, Northwest Ethiopia

**CMHS\_A10: Expired nitric oxide and sputum mycobacterial lipid bodies indicate that pulmonary NO is a double edged sword in tuberculosis.**

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**Abstract**

**Background:** The variable occurrence of lipid body rich (fat) and poorly replicating (lazy) *Mycobacterium tuberculosis* bacilli in sputum necessitates an explanation of the environmental signals responsible for these phenotypes. Lipid body rich and poorly replicating *Mycobacterium tuberculosis* bacilli occur at different frequencies in sputum. In vitro, NO stimulates lipid body (LB) accumulation in *M. tuberculosis* via the dormancy-associated regulon [DosR (DevR)]. We hypothesized that the percentage of lipid body-positive acid fast bacilli (%LB+AFB) in sputum correlates with fractional expired NO (FeNO) and that greater LB responses to NO might be associated with poorer responses to chemotherapy.

**Methods:** In Gondar, Ethiopia, 73 patients with smear positive tuberculosis were recruited and assessed for sputum %LB+AFB, FeNO and HIV status. Weight gain was determined at 7 months in 9 patients as a measure of treatment response.

**Results:** %LB+AFB in patients' sputum significantly associated with Log<sub>10</sub>FeNO concentration ( $p < 0.001$ ) with a linear relationship ( $r^2 = 0.209$ ,  $p < 0.001$ ). Weight gain showed a negative linear association with %LB+AFB at both 2 ( $r^2 = 0.196$ ) and 7 months ( $r^2 = 0.445$ ) of treatment. Stronger correlations of Log<sub>10</sub>FeNO concentration with %LB+AFB were apparent after stratification for HIV status with a shallower negative gradient for HIV positives.

**Conclusions:** *M. tuberculosis* LB frequencies in sputum are significantly associated with patient FeNO levels in a manner consistent with bacterial DosR activation by NO in the lung. DosR activation is associated with antibiotic tolerance and may compromise treatment response while bactericidal effects of NO should be beneficial. We suggest that NO is a double-edged sword enabling mycobacterial clearance at high levels but provoking antibiotic tolerance when sub-lethal.

**Keywords:** Tuberculosis; expired NO; mycobacterial lipid bodies; DosR regulon, treatment response.

## CMHS\_A11: Use of Pentamidine As Secondary Prophylaxis to Prevent Visceral Leishmaniasis Relapse in HIV Infected Patients

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### Abstract

**Background:** Visceral leishmaniasis (VL) has become an important opportunistic infection in persons with HIV-infection in VL-endemic areas. The co-infection leads to profound immunosuppression and an annual VL recurrence in 67% of the patients. This study assessed the effectiveness, safety and feasibility of monthly pentamidine infusions to prevent recurrence of VL in HIV co-infected patients.

**Methods:** A single-arm, open-label trial was conducted at two leishmaniasis treatment centers in northwest Ethiopia. HIV-infected patients with a VL episode were included after parasitological cure. Monthly infusions of 4mg/kg pentamidine-isethionate diluted in normal-saline were started for 12months. All received antiretroviral therapy (ART). Time-to-relapse or death was the primary end point.

**Results:** Seventy-four patients were included. The probability of relapse-free survival at 6months and at 12months was 79% and 71% respectively. Renal failure, a possible drug-related serious adverse event, occurred in two patients with severe pneumonia. Forty-one patients completed the regimen taking at least 11 of the 12 doses. Main reasons to discontinue were: 15 relapsed, five died and seven became lost to follow-up. More patients failed among those with a CD4+cell count  $\leq 50$ cells/ $\mu$ l, 5/7 (71.4%) than those with counts above 200 cells/ $\mu$ l, 2/12 (16.7%), ( $p=0.005$ ).

**Conclusion:** Pentamidine secondary prophylaxis led to a 29% failure rate within one year, much lower than reported in historical controls (50%-100%). Patients with low CD4+cell counts are at increased risk of relapse despite effective initial VL treatment, ART and secondary prophylaxis. VL should be detected and treated early enough in patients with HIV infection before profound immune deficiency installs.

**Key words:** Visceral leishmaniasis, pentamidine, HIV, prophylaxis, developing countries, non-commercial research

## CMHS\_A12: Evaluation of Poisoning Cases and Its Management in North Gondar Zone, North West Ethiopia

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## Abstract

**Introduction:** Poisoning is a public health challenge in low and middle income countries. Advances in technology and social development have led to an extensive use of medicines and chemical substances in these countries, hence increasing the prevalence of poisoning. Success in the management of a poisoning case depends on a number of factors including the availability of trained personnel, availability of support information and the understanding of local context. There is paucity of evidence from Ethiopia showing the causes and management of reported cases of poisoning in healthcare facilities.

**Objective:** To evaluate retrospectively Poisoning Cases and its management in North Gondar Zone, North West Ethiopia.

**Methods:** A retrospective study of all the patients of poisoning cases, admitted and managed in the intensive care unit of three hospitals, during September 2010 to December 2014, was conducted. Data would be collected by review of files of patient who were admitted due to poisoning and data was analyzed using SPSS 20.

**Result:** Poisoning cases in these three hospitals were 344 from a total of 48619 patients attended emergency department; accounting for about 0.71% of emergency room admissions. The majority of these patients belong to the age group of 15-24 years (53.4%). Among these 58.13% were females and 41.87% males. Regarding their residence 64.7% were urban and 29.1% were rural. Modes of poisoning were suicidal in 20.1% of cases; accidental in 9.6% and 70.9% was unknown. From these patients coming to the hospital 63.3 % was conscious and 14.4% was unconscious. Regarding types of poisoning 33.9% 29.7% and 5.9% was Organophosphates, chemical and drugs respectively. Liquid, solid and gases were the common dosage forms of poisons: it accounts 54.5%, 20.9% and 5.6% respectively. Regarding routes of administration 81.9%, 5.6%, 0.3% was taken orally, inhalational and skin contact respectively. Home was the most one act as a source of poisons it accounts 19.2%: the other 3.4%, 2 % was from hotel and shop respectively. Most professionals' uses decontamination methods (74%) to manage the case and 21.5 use atropine for the treatment of organophosphate poisoning cases. The mortality rate were very low, its only 0.3%.

**Conclusion:** Poisoning with suicidal intention is becoming a serious health problem particularly in adults. Pesticides (malathion) and bleaching agents (organochlorine locally called Berekina) are commonly used toxicants. The way to manage of poisoning cases are seems to be justifiable in some cases. However, much is to be done to improve the recording of patient-related information and record-keeping processes especially in Debarq district hospital since all documents are not seems to be done by professionals.

**Keywords:** Poisoning; Management; Antidote

## CMHS\_A13: We All Have Choices To Optimal Health Through Wellness; What Is Life Style Medicine?

*Mulugeta Bayisa*

### **Abstract**

#### **Introduction**

Chronic diseases are the leading causes of disability and death worldwide. In 2002, the world's health organization agreed that the burden of chronic diseases worldwide was escalating. It was even predicted that the global burden of disease will rise to 60% and this will also contribute to 73% of all deaths by the year 2020. The shocking scenario is, 80% of the deaths attributed to these diseases occur in developing countries. The increasing prevalence of chronic diseases and already existing communicable diseases in countries like Ethiopia will damp the socio-economic development and can result in major crisis. More than all, it reduces the quality of life of individuals and it will rob our innate freedom of living and enjoying a fulfilled life.

A growing body of scientific evidences shows that over half of what affects our health is our lifestyle choices we make daily. The way we live our life largely determines the level of health with which we get to experience. Logically, healthy living choices we make depend on our consciousness about our own health and that comes slowly.

Do we have a choice to a conscious and optimal health? Yes, because modelling wellness and lifestyle medicine as our means to living is considered to be a best way to optimizing our health and wellbeing. Our health is dynamic, because it is always changing. As we choose to live healthy and our life styles change, so does our health. Wellness then is the search for enhanced quality of life, personal growth, and potential through positive lifestyle behaviors and attitudes. If we take responsibility for our own health and well-being, we can improve our health on a daily basis. Certain factors influence our state of wellness, including nutrition, physical activity, stress-coping methods, relationships, and career success.

Lifestyle medicine is the use of lifestyle interventions in the treatment and management of diseases. Scientific evidences has demonstrated that lifestyle intervention is an essential component in the prevention and treatment of chronic diseases that can be as effective as medication, but without the risks and unwanted side-effects. Besides the habits of healthy living and wellness practice can pass down to the next generation and be considered as a part of family dynamics which will eventually create a healthy and productive future!

**Objective:** to motivate individuals and health care professionals and others in devoting a substantial segment of their time, resources, and creative energies toward understanding and developing a culture of health and practice wellness.

**Method:** A review of articles and fact sheets from American journals of wellness and Health Promotion, Pedro (physiotherapy evidence data base), Google scholar, and WHO websites. The articles were blended and wellness and lifestyle medicine was adopted and fit for purpose in this presentation.

**Assumption:** Achieving optimal health and wellness a choice and it is possible with improved consciousness of personal health and lifestyle modifications.

**Key words:** Chronic diseases, wellness& wellbeing, life style medicine



## CMHS\_A14: Perceptions of Home Delivery Risk among Pregnant Mothers: Using Health Belief Model

*Resom Berhe, Measho G/selasie*

### Abstract

**Background:** Quality is not the only reason hindering pregnant women to access skilled birth attendance. Women continue to experience various problems to deliver with the help of skilled attendants. Literature suggests that women encounter sociocultural factors, perceived benefits, economic accessibility and physical accessibility as barriers to accessing skilled attendance during delivery. Hence, understanding the perceptions that prevent pregnant women from delivering in health facilities is a step towards focusing on how to help pregnant women to reduce or eliminate these factors.

**Objective:** To assess the perception of pregnant women towards home delivery risks using the Health Belief Model in North Achefer woreda, West Gojjam zone, Amhara regional state, Northeast of Ethiopia, 2014/15.

**Methods:** A community based cross-sectional study was conducted among 610 pregnant women's who are in there third trimester from December 2014 to January 2015. A multistage systematic sampling technique was applied. Data were collected using a modified version of the Champion's Health Belief Model Constructs Instrument, to assess the perception of risk of home delivery among pregnant women's. Bivariate and multivariate logistic regression model was fitted to identify factors associated with home delivery among pregnant women's. An adjusted odds ratio with 95% confidence interval was computed to determine the level of significance.

**Result:** The mean perception composite score out of 5 was  $2.84 \pm 0.76$ . Among women with a last live birth delivered anytime within the one year prior to the survey, 80% had been assisted by Non-skilled birth attendants. It was shown that home delivery was significantly associated with perceived susceptibility [AOR= 4.93, 95% CI: 2.94 - 8.20], perceived barrier [[AOR=5.00 95% CI: 3.05-8.20] and perceived severity [AOR= 1.62, 95% CI: 1.04 - 2.54]. Although, no information source was highly preferred, traditional birth attendants, mothers /grandmothers, husbands/partners, health professionals, and mass media were the top five sources.

**Conclusion:** Given the perceived susceptibility, perceived severity and perceived barriers roles in home delivery prediction, it is recommended to consider these structures in designing educational interventions in order to promote institutional delivery in the research area.

**Key words:** Perception, HBM, Delivery

CMHS\_A15: Comparison Of Rapid Diagnostic Tests With Polymerase Chain Reaction For The Diagnosis Of Malaria At Public Health Facilities In North Gondar, Amhara Regional State, Ethiopia

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**Abstract**

**Background:** In Ethiopia, malaria is one of the leading public health problems. Early diagnosis and prompt treatment is one of the main strategies in malaria prevention and control. Rapid diagnostic test (RDT) has been used for the diagnosis of malaria in remote areas where there is resource limitation. However, low specificity and varying performance of RDT has been reported. Therefore, this study aimed to assess the performance of RDT against nested polymerase chain reaction (nPCR) for the diagnosis of malaria in public health facilities in North Gondar, Amhara Regional State, Ethiopia.

**Methods:** A cross sectional study was conducted at public health facility in North Gondar, Amhara, Ethiopia. A total of 359 malaria suspected febrile patients enrolled in to the study. Fingure prick blood sample was collected for RDT testing and molecular analysis. Sensitivity, specificity and predictive values were determined for RDT using nPCR as reference diagnostic method. Kappa value was determined to see the consistency of the results between the diagnostic tools.

**Results:** Among the study participants, 22.28% (80/359) patients tested positive for malaria by RDT. By nPCR, 27.02% (97/359) patients were malaria positive. Among RDT negative samples, 10.02% (36/359) samples turned malaria positive by nPCR. In nPCR, 1.67% (6/359) and 0.28% (1/359) samples were positive for *P. ovalae* and *P. malariae*, respectively. The sensitivity, specificity, positive and negative predictive values of RDT for the diagnosis of malaria were 62.9%, 92.7%, 76.3% and 87.1%, respectively with 0.589 measurement agreement between RDT and nPCR. The sensitivity and specificity of RDT for *P. falciparum* identification was 70.8% and 95.2%, and 65.2% and 93.1% for *P. vivax*.

**Conclusion:** Although RDT is highly used at periphery health posts, its sensitivity and specificity for the detection and species identification of Plasmodium parasites is low as compared to nPCR. This suggested the need of proper handling and interpreting of diagnostic results of RDT. In remote and resource limited settings advanced and simplified diagnostic modalities should be considered for the effort to eradicate malaria in the country.

**Keywords:** RDT, Polymerase Chain Reaction, Malaria

## CMHS\_A16: Estimating Time to Cross the Threshold CD4 Cell Counts After ART Initiation: A Flexible Approach

Tadesse Awoke

### Abstract

**Background:** Antiretroviral therapy has shown to be effective in reducing morbidity and mortality in patients infected with HIV for the past couples of decades. The number of CD4 cells per cubic millimeter of blood is widely used as an important biomarker for progression when studying the efficacy of drugs to treat HIV-infected patients. In addition, the counts have been used in determining eligibility to initiate ART. However, the value at which the patients initiated ART has been modified since the introduction of the treatment. The main aim of this study was to determine the time how long it takes to cross the threshold and the proportion of patients above the threshold at any given time.

**Methods:** Hospital based retrospective cohort study was conducted from January 2009 to December 2013 at Gondar University hospital, Northwest Ethiopia. Information on demographic characteristics, type of ART regimen at initiation, follow up CD4 cell counts, ART start date, encounter date and event date were obtained from hospital records. Fractional polynomial random effect model was used to investigate CD4 cell counts response to treatment. Human subject research approval for this study was received from University of Gondar Research Ethics Committee and the medical director of the hospital.

**Results:** A total of 1347 patients initiated with AZT backbone containing ART regimen. The cohort contributed a total of 236.58 per 100 person years of follow up. We noticed that the increase in CD4 cells level is higher in the first five months followed by a moderate increase until the end of the follow-up period. The increase in CD4 cells from baseline was maintained for up to the end of follow-up period. It took lower time to cross the threshold for patients who initiated ART with EFV than NVP containing regimens for thresholds of 200 and 250 cells/mm<sup>3</sup>. The difference in the length of time which takes to cross the threshold among the two treatment groups reduced when the baseline CD4 cell counts increase.

**Conclusion:** This study revealed that one in four patients who initiated ART at CD4 level of less than 200 cell/mm<sup>3</sup> failed to reach CD4 counts of 350 cells/mm<sup>3</sup> during the study period. Efavirenz containing regimen improves the CD4 cells count of the patient quicker than nevirapine containing regimen for lower baseline CD4 cell counts. Those patients who have low CD4 cells count at baseline should be initiated with EFV containing regimen. Whilst, those who have higher baseline CD4 cells count can be initiated with NVP containing regimen to be cost effective.

**Keywords:** CD4 cell counts, ART, threshold

## CMHS\_A17: Second line Antiretroviral Treatment failure and its predictors among adults in northwest Ethiopia, 2015

Adino Tesfahun, Mamo Wubshet, Tadesse Awoke

### Abstract

**Introduction:** The rate of switch from first-line to second-line regimen and number patients taking second line ART is increasing from time to time, and in Ethiopia 1.5% HIV patients on ART are on second line regimen. Though some studies based in Ethiopia investigate the outcomes of first-line HIV treatment; to date, no study has been done regarding second line treatment. This study aims to anticipate the rate of second line regimens failure and predictors and thereby to inform respective stakeholders and assist in planning for the need of third line regimens in the future.

**Objective:** To assess second line Antiretroviral treatment failure and predictors among adults in northwest Ethiopia.

**Methods:** Institution based retrospective follow up study was conducted at University of Gondar, Flege Hiwot referral and Debreabor Hospitals from March 30, 2015 to May 18, 2015 among 356 clients in the age of 15 and above. The data were collected from patient charts, computer soft copies and registries. Life table was used to estimate the cumulative survival and Log rank tests to compare survival curves between the different categories of the explanatory variables. Both bivariate and multivariate Cox proportional hazards models were used to identify predictor variables.

**Result:** Out 356 participants, 198 (55.62%) are males and mean age of patients at switch was  $36.13 \pm 8.9$  years. Study subjects were followed for a minimum of 6 months and the median follow up period was 32.25 months (IQR=37.8 months). A total 67(18.82%) patients develop treatment failure. The incidence rate of failure was 61.7/1000 person year and the cumulative probabilities of survival at 12, 24, and 60, months were 0.94, 0.86, and 0.7654 respectively. Furthermore 62.7 % of failures were occurred within the first two year of follow up. Being in WHO clinical stage IV(AHR=2.6, 95%CI:1.3, 5.14), CD4 count <100 cells/mm<sup>3</sup> (AHR=1.78, 95%CI: 1.03, 3.076), age 50 and above(AHR=2.32, 95%CI: 1.016, 5.32) change in weight (AHR=0.916, 95%CI:0.88, 0.955), and switching in the calendar year September 2103 to October 2014( AHR=5.178454 , 95%CI: 1.16, 23.07) were significant and independent predictors of failure.

**Conclusion and recommendations:** The rate of treatment failure was high as compared to many sub-Saharan African studies and majority of failures were occurring in the first two years after switch. Hence close follow up of patients in the early period after switch and provision of an alternative third line regimen should be considered.

**Keywords:** Antiretroviral Treatment failure, Predictors, Northwest Ethiopia

**CMHS\_A18: Knowledge of Triage and Associated Factors amongst Nurses Working in Gondar University, Felege-Hiwot and Debremarkos Referral Hospitals, Amhara Regional State, Northwest Ethiopia, 2015.**

*Amare Demsie, Mengistu Mekonnen, Birhanu Boru*

**Abstract**

**Introduction:** The triage nurse in the emergency center (EC) or inpatient wards is the first person that a patient encounters and the triage nurses' knowledge has been cited as an influential factor in triage decision-making. Evidences show that there are limited resources, lack of knowledge and skills to successfully implement effective triage system in developing countries. Literatures indicate low triage knowledge among nurses.

**Objective:** The purpose of this study was to assess knowledge of triage and associated factors amongst nurses working in Gondar University, Felege-Hiwot and Debremarkos Referral Hospitals, Amhara Regional State, Northwest Ethiopia, 2015.

**Methods:** Institution-based quantitative cross-sectional study was conducted among 585 nurses from March 23 to April 5/2015, in Gondar University, Felege-Hiwot and Debremarkos Referral Hospitals. Stratified random sampling technique with proportional allocation of samples to each referral hospitals was used as basic sampling scheme and simple random sampling technique was used to select the study participants. Data were collected by pre-tested and structured self-administered questionnaire. Quantitative descriptive statistics was used to summarize the variables like socio-demographics and organizational related variables. Crude odds ratio with 95% confidence interval was computed during the bivariate analysis and multivariate logistic regression analysis was fitted and adjusted odds ratio with 95% confidence interval was calculated to identify associated factors with knowledge of triage amongst nurses and to control confounding variables.

**Results:** A total of 585 nurses were participated in this study. Of these, 560 returned the filled questionnaire that yield an overall response rate of 95.73%. The overall proportion of knowledgeable nurses about triage became 51.1%. Total patient care training (AOR [95% CI] 1.56 [1.04, 2.34] and level of nursing education: having bachelor degree in nursing (AOR [95% CI] 1.66 [1.09, 2.54] and having master's degree in nursing (AOR [95% CI] 2.92 [1.12, 7.61] were significantly associated factors of knowledge of triage.

**Conclusion and recommendation:** Knowledge of triage among nurses is low. Total patient care training and level of nursing education had significant association with knowledge of triage among nurses. The respective hospitals need to train and open the way to advance level of nursing education for nurses.

**Key words:** Knowledge, Nurse, Triage, Gondar, Ethiopia

**CMHS\_A19: Low Back Pain and Associated Factors among First And Second Cycle Primary School Teachers in Mekelle Town, Tigray, North Ethiopia.**

*Aregawi Kebede (BSc), Solomon Mekonnen (PhD), Haile Woldie (MSc)*

**Abstract**

**Introduction:** Low back pain is defined as pain and discomfort, localized between the bottoms of ribs and above the inferior gluteal folds (top of legs), with or without related leg pain. Low back pain is one of the causes to decrease labor productivity due to time off work. It affects approximately 70% to 85% of the population at some time in life. The work of teachers is not only teaching students, but also doing other activities and hence, these groups are among the occupational groups who have a high prevalence of MSD that may cause teachers to suffer adverse mental and physical health issues due to the variety of job functions that can have a contribution to low back pain. However, limited data are available about the magnitude of the problem especially, among first and second cycle primary school teachers who are working in Mekelle city.

**Objective:** To Assess the prevalence of Low back pain and Associated factors among first and second cycle primary school teachers.

**Methods:** institution based cross-sectional quantitative study was conducted from March 16 to March 30/2015 to assess the magnitude of LBP and associated factors among first and second cycle primary school teachers. Pre-tested and structured Self administered questionnaire was used to collect the data .Descriptive statistics was calculated for most variables in the study. OR with 95% CI was used to assess the association between the exposure and outcome variable.

**Results:** A total of 611 (276 first cycle and 335 second cycle) primary school teachers that were found in Mekelle city were included in the study. Out of these 286(46.8%) were male and 325(53.2%) were female .The overall response rate was 93.13% with 6.87% none response rate among the participants. Respondents 457(74.8%) had low back pain, and of these 220(79.7%) were first cycle and 237 (70.7%) second cycle primary school teachers. Analysis of this study had identified that sleeping disturbance, having an office at work area, less than 2 hours breaking time and feeling LBP during pregnancy at work area had significant association with low back pain.

**Conclusion and recommendation:** This study showed high prevalence of low back pain among primary school teachers. All the responsible bodies have to consider the severity of this problem and take measure on the risk factors to prevent those which can predispose to LBP.

**Key words:** Low Back Pain, School Teachers, North Ethiopia.

**CMHS\_A20: Determinants of Non-Adherence to Antiretroviral Therapy among HIV- Infected Adults at Aksum Town Health Facilities, Tigray Regional State Ethiopia: Unmatched Case – Control Study**

*Berhe Beyene, Yigzaw Kebede(MD,MPH, Professor), Yalemzewod Assefa (MPH)*

**Abstract**

**Introduction:** Antiretroviral therapy adherence is critical to obtain full benefits of ART and 95% adherence is required to be fully effective. Poor ART adherence can create a dangerous public health problem and limits the effectiveness of HIV treatment. Since adherence status is not stable, information is needed to identify site specific determinants of non-adherence to ART for effective intervention methods.

**Objective:** The objective of this study was to identify determinants of non-adherence to antiretroviral therapy among HIV infected adults on ART at Aksum town health facilities, Tigray Regional State, Ethiopia.

**Methods:** An Institution based unmatched case control study was conducted from March 20/ 2015 to May 15/2015 among 411 adult PLWHA (137 cases and 274 controls). Data was collected by both document review and interview via structured and pretested questionnaire. Both bi-variable and multiple logistic regressions were used to compute the statistical test associations by STATA version12. Variables with p – value < 0.05 were considered as statistically significant.

**Results:** From 411 subjects participated in the study (137 cases and 274 controls), 239 (58.1%) were males and 172(41.9%) were females on ART for more than 6 months. Those with more than two years duration on ART (AOR=7 and 95% CI=2.2-22.6), ART adverse effect (AOR=6.9 and 95% CI=1.4-32.9), substance use (AOR=5.3 and 95% CI=1.4-20.0), living with parents (AOR=3.4 and 95% CI =1.2-10.3), Presence of depression (AOR=3.3 and 95% CI=1.4-7.5), CD4 cell count less than 350 cells / mm<sup>3</sup> (AOR=3.2 and 95% CI=1.8-5.8) and low dietary diversity (AOR=2 and 95%CI=1.1-3.7) were found to be at higher risk to ART non-adherence.

**Conclusion and recommendations:** duration of treatment, experiencing adverse effect of ART, substance use, living condition, depression, CD4 cell count and dietary diversity showed significant association with non-adherence to ART. Therefore, potential adverse effects need to be well addressed and communicated with clients before they begin ART.

**Key words:** Antiretroviral therapy, case control study, determinant factors, Ethiopia

**CMHS\_A21: Stunting and Associated Factors among Children Aged 6-59 Months in Lasta Woreda, North East Ethiopia. Addis Birhanu, Solomon Mekonen (PhD), Azeb Atenafu (MPH/MA)**

**Abstract**

**Background:** Stunting in children under five is defined as a height for age less than Z-scores below minus two standard deviations (-2 SD) of the World Health Organization child growth standards. Globally, 165 million under five year's children were stunted which was associated with 10.6million death.

**Objective:** The aim of this study was to assess prevalence and associated factors to stunting among children aged 6-59 months in Lasta Woreda, North East Ethiopia

**Methods:** A community based cross sectional study was conducted in March-April, 2015. Data were collected from 759 households with children aged 6-59 months using validated questionnaire and Anthropometric measurement. EPI INFO version 7 software was used for data entry. For Analysis SPSS version 20 statistical software was used. To identify the association and significant predictors, binary logistic regression was employed. Principal component Analysis was applied to compute wealth index. Z-Score of the children were calculating using SMART software (ENA2011).

**Results:** A total of 825 study participants were included in the study giving response rate of 759(92%). The overall Stunting prevalence was 49.7% (95% CI: 46.1-53.3). Moderate and sever stunting were 31.7% and 18.0%. The main associated factors to stunting were found to be: Male children were stunted (AOR= 1.90; (95% CI; 1.29-2.82) more than girls. Children in the age groups 12-23, 24-35,36-47,48-59 months had 3.38, 6.41, 8.38, 5.39 times higher odds of being stunted, respectively, as compared to children of 6-11 months old. Children living in large family size households were more stunted (AOR=1.78; (95% CI; 1.19-2.65) than those living small family size. Children living in poor wealth index households and illiterate mother were more likely to be stunted than those living in higher wealth index households and had educated mothers, respectively.

**Conclusion:** This study shows that; the prevalence of stunting among children aged 6-59 months in Lasta Woreda is higher as compared to the national figures. Urgent and appropriate interventions are needed in Lasta Woreda to reduce stunting in children 6-59 months of age. Factors associated to stunting as identified with this study should be considered for the intervention plan.

**Keywords:** Stunting, 6-59months children, Lasta Woreda.

### CMHS\_A22: Prevalence of Work Related Back, Shoulder, and Neck Musculoskeletal Disorders and Associated Factors among Almeda Textile Factory Workers, Adwa, North Ethiopia

*Asmelash Tekie, Haimanot Gebrehiwot, Ansha Nega*

#### **Abstract**

**Introduction:** Work-related musculoskeletal disorders (WRMSDs) are responsible for a large portion of worker's compensation costs and are primary sources of lost production. In Ethiopia, the textile industry is rapidly increasing and contributing a high employment opportunity. But as there is no strong health and safety system, the working population is highly exposed to occupational injuries, particularly back, shoulder and neck pain. Occupational back, shoulder and neck pains are poorly understood in terms of their frequency and causes.

**Objective:** To assess the prevalence of work related back, shoulder and neck musculoskeletal disorders and associated factors among Almeda Textile Factory workers, Adwa, north Ethiopia.

**Method:** An institution-based cross-sectional study was conducted from March to May, 2015, with a face to face interview of self-reported musculoskeletal symptoms using Standard Nordic



questionnaire. A total of 624 production workers were selected by simple random sampling technique. The data was entered and analyzed using SPSS version 16 statistical package. Bivariate and multivariate logistic regression analyses were conducted to identify the degree of association using the odds ratio with a 95% CI.

**Results:** The prevalence of self-reported back, shoulder and neck WRMSDs among production workers in the past 12-months were, 53.1%, 38.2%, and 29.3%, respectively. Factors like, sex, age, work experience, physical activity, habit of proper sitting, availability of adjustable chair, work load, availability of enough light, job satisfaction, repetitive work and frequent twisting had significant association with the occurrence of back, shoulder, and neck WRMSDs.

**Conclusion and recommendation:** The prevalence of back, shoulder and neck musculoskeletal disorders among production workers was high ranging from 26%- 57%. Socio-demographic, personal, environmental and organizational risks are the risk factors for work related back, shoulder and neck MSDs in textile. Specific recommendations are formulated for the factory and all stakeholders.

**Key words:** Musculoskeletal disorders, Factory Workers, North Ethiopia.

### CMHS\_A23: Evaluation of Cancer Prevalence And Prescription Pattern Of Chemotherapy in the University of Gondar Teaching Hospital, Northwestern Ethiopia, 2015

*Daniel Asfaw, Dawit simegnew, Ehetemariam Shamble, Dawit Yosef, Atsede Abera, Aron Bekele, Gashaw Binega*

#### Abstract

**Introduction:** Information on prevalence of cancer and cytotoxic drug prescription pattern is an important basis for determining the priorities for cancer control in different countries worldwide. There is no reliable information about the prevalence of cancer and the prescription pattern of cytotoxic drugs in Ethiopia; hence this attempt was made to assess the situation.

**Objectives:** The aim of this study was to evaluate cancer prevalence and the prescribing pattern of cytotoxic medicines in the University of Gondar Teaching Hospital Oncology center.

**Method:** A hospital-based retrospective cross-sectional descriptive study was conducted. The study was carried out by reviewing medical records of 160 patients (242 prescriptions) who received Chemotherapy during hospitalization in UoG-TH from 01/01/06 to 30/08/07. A convenient sampling technique was used to select patient's medical records and prescriptions. A structured data collection format was used to collect the information on patient demographics and prescribed drugs. Data was analyzed using statistical package software SPSS version 20.2

**Results:** 19 different types of cancer were observed. Hematologic (40.6%) and reproductive (35.5%) cancers were found to be the most prevalent. The most frequently diagnosed cancers were breast (27.5%), Non-hodgkins lymphoma (NHL) (12.5%), and Acute lymphoblastic leukemia (ALL) (12.5%), followed by hodgkins lymphoma (8.8%). Females (63.8%) were found to be more susceptible to cancer than males (34.2%). The highest percentages (35%) of patients

were under 10 years old. The next susceptible age group was 31 to 40. A total of 514 cytotoxic drugs were prescribed. The commonly prescribed anticancer drugs were alkylating agents (29.8%), followed by anti metabolites (25.1%). The average number of drugs prescribed per prescription, cytotoxic drugs per prescription, antibiotics per prescription and other drugs per prescription were 4.39, 2.12, 0.19 and 2.07, respectively.

**Conclusions :** In the absence of a population-based cancer registry, this study constitutes a reasonable assessment of the epidemiological profile of cancer in northwest Ethiopia. Alkylating agents (especially cyclophosphamide) were the most commonly prescribed drug; hence, the rationality behind should be further investigated.

**Key words:** Evaluation, Prevalence, Pattern, Chemotherapy, Cancer, Universty of Gondar

### CMHS\_A24: First Line Antiretroviral Treatment Failure Pattern and Factors Associated with ARV Treatment Failure in Patients Following ARV Therapy in the University of Gondar Teaching Hospital

*Dawit Kumlachew, Samson Getu, Derso Teju, Desalegn Endale, Yemeserach Tesfaye, Zebiba Walle*

#### **Abstract**

**Background:** The use of combination antiretroviral therapy (cART) has become a standard of care for the treatment of HIV infection. However, cost and resistance to cART have been major obstacles for access to treatment, especially in resource-limited settings.

**Objective:** In this study, we aimed to determine the incidence and risk factors of first-line ARV treatment failure in HIV patients, following their first-line cARV therapy at University of Gondar Teaching Hospital, Gondar, Ethiopia.

**Methods:** An retrospective chart review based study was conducted at the University of Gondar Teaching Hospital on 340 adults who started antiretroviral treatment from September 2011 to May 2015. Data was analyzed using SPSS version 16.

**Result:** From September 2011 to May 2015, 340 patients were enrolled; 135 were male (39.7%), and 205 (60.3) were female. The mean age at ART initiation was 34.38 years. A total of 14 (4.1%) patients were found to have treatment failure. The median duration of treatment failure from initiation of treatment was 17.5 (8 – 36) months. The majority of failure cases 13 (3.8%) were due to immunological failure; 12 (3.5%), and 5 (1.5%) of those failures were due to virological and clinical failures respectively, alone or with other failure types. Male sex, advanced WHO stage, inability to work due to ill health, treatment interruption, poor-adherence to treatment, presence of opportunistic infections, low baseline CD4 count (<50 cells/mm<sup>3</sup>), and weight change were found to be significant predictors of treatment failure in the multiple binary-logistic regression analysis.

**Conclusions:** This study found that first line ART failure pattern was 4.1%, and even in resource-limited settings, a high rate of success could be expected with good and sustainable drug

adherence. Poor adherence, treatment interruption, advanced WHO stage, male sex, presence of opportunistic infections, weight change, inability to work due to ill health, and low baseline CD4 cell count are found to have a significant association with an unfavorable outcome of cART.

**Key Words:** ART, Incidence, Risk factors, Antiretroviral Treatment Failure, Immunological Failure, Virological Failure

### CMHS\_A25: The Role of Women Empowerment on Stunting and Associated Factors among Under-Five Children in Gambella Town, Southwest Ethiopia

*Debela Amente (BSc), Mrs. Azeb Atenafu (MPH, MA), Solomon Assefa (BSc, MPH)*

#### **Abstract**

**Introduction:** Worldwide, more than 3 million preventable child deaths can be attributed to child under nutrition annually. Four-fifths of the world's undernourished children live in just 20 countries, mainly South Asia and sub-Saharan Africa. In addition to about 16.5% of the annual GDP loss, child under nutrition in Ethiopia is responsible for 51% of deaths of under-five children. Women's empowerment status has a greater determining power on child nutritional status.

**Objective:** To assess the role of Women Empowerment on Stunting among under-five children in Gambella town, southwest Ethiopia.

**Methods:** A community -based cross-sectional study was employed and a total of 357 women with under-five children in all five kebeles were interviewed. The height and age of the child was taken by trained enumerators, and the index (height-for-age) was compared with the new WHO standard. Finally, data was entered into Epi-info version 3.5.4 and SPSS version 16.0 for analysis. Bivariate and multivariate logistic regression was fitted to identify the association between factors and prevalence of stunting. Significance was obtained at the adjusted odds ratio with a 95% CI and  $p < 0.05$ . The questionnaire was pre-tested and confidentiality was maintained throughout the study.

**Result:** The overall prevalence of stunting among under-five children was 25.3%; the highest (33.64%) was recorded among the age group of 6-24 months. Among the common factors, child age ( $p=0.004$  &  $0.026$ ), mother's income decision ( $p=0.032$ ), daily purchase decision ( $p=0.019$ ), family visit decision ( $p=0.006$ ), and wife beating justification ( $p=0.0001$ ) were independently and significantly associated with under-five stunting.

**Conclusion and recommendation:** Even though the prevalence of stunting seems to be low compared to the national report, it is highly associated with indicators of women empowerment in the study area. Consequently, the issue of women empowerment needs to be included in the national health policy as one strategy in tackling stunting.

**Keywords:** Women Empowerment, Stunting and Under-Five Children, Ethiopia

**CMHS\_A26: Prevalence and Associated Factors of Zinc Deficiency among High School Adolescents in Gambella Town, Southwest Ethiopia, 2015**

*Dedessa Gemedo, Solomon Mekonnen (Phd), Molla Mesele (Bsc, Msc)*

**Abstract**

**Introduction:** - The world's adolescent population comprises about 19% of the total population and is considered to be a nutritionally vulnerable segment. Globally 60-80% of adolescents suffer from micronutrient deficiencies. Zinc deficiency is a major public health problem in many developing countries where it is associated with poor growth and development.

**Objective:** - To assess the prevalence and associated factors of zinc deficiency among high school adolescent students in Gambella town, southwest Ethiopia.

**Methods:** - An institution-based cross-sectional quantitative study was conducted from March to April /2015 in Gambella town. Data were collected from 302 high school adolescent students by a pretested and structured self-administered questionnaire to collect socio-demographic and dietary intake data. Blood sample and anthropometric measurement data were also collected after written consent. Data was entered in to Epi- Info version 3.5.4 and exported to SPSS version 16 for farther analysis. After both bivariate and multivariate logistic regressions were computed the strength of associations between dependent and independent variables was presented using odds ratios and a 95% confidence intervals. Variables with p value less than 0.05 were considered as significant.

**Results:** - The overall response rate was about 87.28%. Of the 302 high school adolescents about 47.4% were female. The mean age of the participants was 17.1689  $\pm$ 1.1476. The overall prevalence of zinc deficiency was 9.6%. Malarial history in the last 2 weeks (AOR= 4.312, 95%CI: 1.611-11.539), physical activity; active (AOR = 8.780 95%CI: 2.219-34.742), highly active (AOR=4.202 95%CI: 1.117-15.806), and dietary diversity scores lowest (AOR=4.907 95%CI: 1.693-14.226) were significantly associated with zinc deficiency.

**Conclusion and Recommendation:** This study concluded that the prevalence of zinc deficiency among high school adolescent was low, so encouraging the consumption of animal source foods is crucial for further reduction of zinc deficiency.

**Keywords:** Deficiency, Adolescents, Ethiopia

**CMHS\_A27: Standard Precautionary Practice and Associated Factors among Health Professionals Working in Addis Ababa Government Hospitals, Ethiopia.**

*Dessie Abebaw Angaw (Bsc), Lemma Dereseh (Mph), Berihun Assefa (Asst. Professor)*

**Abstract**

**Background:-** Standard precautions are a simple set of effective practices designed to protect health care workers and patients from infections. Occupational exposure to blood and body fluids is a serious concern for health care workers, and presents a major risk for the transmission of infections while they perform their activities. However, in developing countries like Ethiopia less emphasis is given to the preventive strategies in reducing occupational exposures.

**Objectives:** - This study was aimed to assess standard precautionary practice and associated factors among health professionals working at Addis Ababa governmental hospitals, Ethiopia.

**Method and materials:** -Institutional based cross-sectional study with quantitative and qualitative component was conducted from March 22 to April 29, 2015 among 772 health professionals. For the quantitative part data was collected by self-administer questionnaire and for the qualitative part FGD and observation method was applied. Descriptive statistics and multilevel binary logistic regression analysis were performed. The intra-class correlation coefficient (Rho) was calculated to evaluate whether the variation in the scores was primarily within or between clusters

**Result:** Among health professionals, 50.65% (95% CI: 46.1, 53.9) had good standard precautionary practice. A significant heterogeneity was observed among clusters for standard precaution practice. At the individual level, attitude, age, and educational status were found to be much more important factors with standard precautionary practice. Controlling individual level factors, applying regular observation (AOR: 1.82; 95% CI: 1.2, 2.76), providing appropriate and sufficient materials (AOR: 1.53; 95% CI: 1.03, 2.28), lack of immediate response for reported incidences (AOR: 0.47; 95% CI: 0.30, 0.76) were also associated factors at hospital level.

**Conclusion and recommendation:** There is low and inconsistent practice of standard precautions in the health care settings that put patients and health professionals at significant risk of acquiring infections. Therefore, the health authorities need to give comprehensive and regular observation and provision of the necessary infection prevention supplies to maintain optimal practice in the hospitals.

**Key words:** Health professionals, multilevel analysis, standard precaution practice, Ethiopia

#### CMHS\_A28: Determinants of Stunting among Under-five Children: Evidence from the 2011 Ethiopian Demographic and Health Survey

*Teshome Kebeta, Solemon Meserat (BSc, MPH), Molla Mesele (BSc, MSc) tka1204@gmail.com*

#### Abstract

**Background:** Childhood stunting is one of the most common impediments to human development. The causes of stunting are numerous, ranging from immediate determinants such as poor diet and disease to the basic determinants, like socio-economic and political conditions.

**Objectives:** - To determine factors associated with stunting in children less than 5 years.

**Methods:** -An unmatched case control design was employed by using data of the 2011 EDHS. 4233 cases and 5655 controls identified by HAZ-score of EDHS 2011 were included in the study. Extraction and recoding of variables were performed, and an analysis using SPSS version 20 was done from March to June 2015.

**Results:** Children in the age group of 24 to 35 months were at the highest risk of stunting (AOR=5.526 with 95%CI=2.172, 14.060) compared to children less than six months. The other age groups 12-23, 36-47 and 48-59 months were also significantly associated with stunting. Children with narrow (AOR=1.881, 95%CI=1.414, 2.503) and moderate preceding birth interval were (AOR=1.704, 95%CI=1.341, 2.164) times more likely to be stunted as compared to those

with wide preceding birth interval. Anemia status (AOR=1.304, 95%CI=1.197, 1.420) and husband education (AOR=2.042, 95%CI=1.022, 4.080) were also associated with stunting. Households with two and more than three under five children (AOR=1.846 95%CI=1.393, 2.446) and (AOR=1.458, 95%CI=1.410, 1.864) times at risk of being stunted than households with single under five children respectively. The children from poorer households were (AOR=2.042, 95%CI=1.445, 2.885) times at risk of being stunted than those of the richest.

**Conclusions and Recommendations:** Age of anemia status, preceding birth interval, paternal education and household wealth index are independent determinants of stunting.

**Keywords:** Ethiopia, Stunting, Case Control, DHS

### CMHS\_A29: Level of Road Traffic Accidents and Associated Factors in Addis Ababa, Ethiopia

*Eshetu Alemayehu (Bsc), Tadesse Awoke (Assist. Professor), Abel Fekadu (Bsc, Mph)*

#### Abstract

**Background:** Road Traffic Accident (RTA) is the main cause of death and disability in the world. Ethiopia has the highest RTA in the world. Road traffic injuries account for over a third of all injuries in Ethiopia and affect all age groups. This study was conducted to show the level of accident severity and identify associated factors.

**Method:** Data was extracted from a daily registry book of police office road traffic accident departments of all sub cities in Addis Ababa. Simple random sampling was used to select samples from July 8, 2013 to January 8, 2015 record. Binary and multiple logistic regressions were used to identify factors associated to road traffic accidents.

**Result:** Seven hundred forty four samples were taken from the total 4604 accident records. Of these records, there were 37.6% were of slightly injured, 47.7% severely injured and 14.7% dead. Accidents were higher in the afternoon between 15:00-18:00 162(21.8%), between 18:00-21:00 time interval 136(18.3%) and morning 6:00-9:00 134(18.0). Accidents on Friday (16.8%) and Monday (16.0%) were higher than other days of a week respectively. Vehicles those serve many years had increase risk of death [AOR=1.06, 95% CI=1.02-1.10]. Employee persons were more vulnerable by traffic accident than those had private work [AOR=0.376, 95%, CI=0.20-0.71]. Vehicles use for public transport were increase risk of accidents than those use those use for private purpose [AOR=5.1, 95% CI=2.6-10.0]. Employed/hired drivers [AOR=2.25, 95% CI=1.17-4.32] and spring season [AOR=2.36, 95% CI=1.27-4.36] were other significant in road traffic accidents

**Conclusion:** Road traffic accidents were high at morning and at nighttime to back home. Factors possible to manage like vehicles use for public transport, employed/hired drivers, and spring season were aggravating factors of traffic accidents. Therefore, effective and continuous intervention needed to save inappropriate life lost on the road.

**Keywords:** Road traffic accident, factors of road traffic accident, Addis Ababa, Ethiopia.

**CMHS\_A30: Assessment of Magnitude Of Work Related Stress And Associated Factors Among Health Care Workers In Public Hospitals In Mekelle Town, North Ethiopia**

*Gezae Godifay*

**Abstract**

**Background:** Work-related stress is a pattern of reactions to work demands unmatched to HCWs knowledge, skills, or abilities; these challenges exceed their ability to cope, resulting in burnout, turnover, and low quality patient care.

**Objectives:** The aim of the study was to assess the magnitude the work related stress and associated factors among health care workers in public Hospitals in Mekelle town, northern Ethiopia.

**Methods:** In this cross-sectional study, 592 health care workers were selected from all wards of 3 hospitals. Data were collected using a standard self-administered questionnaire developed by the Health and Safety Executive (HSE) and demographic and work place information. Statistical analysis was done using SPSS version 20.0.

**Result:** This study showed that the magnitude of work related stress was 46.9%. This study revealed that being female (AOR=3.96(95%CI: 2.55, 6.51), Marriage (AOR=0.35 (95% CI 0.127, 0.975), work experience  $\geq 5$  years, (AOR=4.1(95%CI: 4.18, 4.73) and job dissatisfaction of (AOR=3.05, 95%CI (2.01, 4.58) were significantly associated with work related stress.

**Conclusion and recommendation:** According to this study, the prevalence of work related stress is higher when compared to study conducted in Addis Ababa. Sex, marital status, work experience, and job satisfaction were factors that have statistically significant association with work related stress.

**Key words:** Work related stress, hospital, Health care workers, Tigray, Ethiopia

**CMHS\_A31: Unintended Pregnancy and Associated Factors among Pregnant Women in Health Institutions of Axum Town, northern Ethiopia**  
*Hailay Syum (BSc), Abebaw Gebeyehu (PhD), Meseret Abay (BSc, MPH)*

**Abstract**

**Introduction:** Everyday 1,600 women and more than 10,000 newborns die globally from preventable complications during pregnancy and childbirth in which 50% of such pregnancies are unplanned. Unintended pregnancies are a substantial budgetary cost for governments, contributes significantly to unwanted population growth. The born children are also affected in terms of child care, psycho-social development and health status.

**Objective:** Is to assess the prevalence of unintended pregnancy and associated factors among pregnant women attending maternal health service in health institutions of Axum town, northern Ethiopia, 2015.

**Methods:** The institution based cross sectional study was conducted on 560 pregnant women attending maternal health services in the health institutions of Aksum town from March to April 2015 using an interviewer administered questioner. Systematic random sampling technique was used to select study participants.

**Result:** The magnitude of unintended pregnancy was 31.1 % (26.1% mistimed and 5% unwanted). Major reasons mentioned for failure to avoid unintended pregnancy were method failure, not expecting to be pregnant, rape, and fear of contraceptive side effects. The lack of formal education of women (AOR 4.94; 95%CI: 1.74,14.01), absence of spousal communication about FP (AOR 10.83; 95%CI: 4.71,24.89), age at first marriage <18years (AOR 3.92; 95%CI: 1.14,13.53), family size of 3-5 (AOR 4.47; CI: 1.01,19.93), and presence of previous history of unintended pregnancy (AOR 6.45; 95%CI: 2.69,15.46) were significant predictors of recent unintended pregnancies in the study area.

**Conclusion:** About one- thirds of the pregnant women experienced unintended pregnancy. Educational status of women, spousal communication about FP, age at first marriage, family size, and previous history of unintended pregnancy were found to be significantly associated factors. Programs that improve inter-spousal communication through peer or informal education and community level orientation should be designed.

**Keywords:** Aksum town, pregnant women, unintended pregnancy

### CMHS\_A32: Awareness of Occupational Hazards and Utilization of Safety Measures and Associated Factors among Welders in Lideta Sub City, Addis Ababa, Ethiopia.

*Kasshun Bezabih, Bikes Destaw (MPH, PhD Candidate), Yalemzewud Assefa (MPH)*

#### Abstract

**Introduction:** Welding is a hazardous profession with factors, such as heat, burns, radiation (ultraviolet, visible and infrared), noise, fumes, gases, electrocution, and uncomfortable postures involved in the work that endanger the health of the welder.

**Objective:** To assess the level of awareness of occupational hazards and utilization of safety measures and associated factors among welders large, at medium and small scale industry in Lideta sub- city, Addis Ababa, Ethiopia.

**Methodology:** A cross sectional study was conducted from April 1 to 15, 2015, among Lideta sub city welders. The study included 555 welders selected by simple random sampling. A structured and pretested questionnaire and an observational checklist were used for data collection. The data were entered into, EPI INFO 3.5.1 and analyzed using the SPSS version 20 statistical package. Frequencies and summary statistics were used to describe the study population. Binary and multiple logistic regression analysis were carried out.

**Results:** out of 180 respondents 86.5% were aware of occupational hazards and 194 (35.0%) self- reported utilization of PPEs compared to 132 (23.8%) by checklist. Educational status [AOR: 2.68, 95% CI, (1.07-6.70)], Work experience [AOR:5.57,95%CI, (1.65-18.85)] , Marital status [AOR: 12.56: 95%CI: (3.38-46.59)],work regulation [AOR: 2.40, 95%CI. (1.11-5.17)], job satisfaction [AOR:9.26:95%CI:(4.26-20.12)] and health complain [4.82:95%CI:(2.33-9.94)] were main factors to increase awareness on occupational hazards among welders. Age [AOR:



2.28; 95% CI:(1.03-5.08)], employment pattern [AOR:1.73; 95%CI: (1.02-2.96)], Safety training [AOR: 2.35, 95% CI: (1.46-3.81)], work regulation [AOR: 1.69, 95%CI (1.04-2.74)], supervision [AOR: 3.06, 95% CI:(1.77-5.29)], and availability of PPE in the organization [AOR: 1.85, 95% CI: (1.23-2.79)] were main factors to increase utilization of safety measure among the welders.

**Conclusion:** the awareness on occupational hazards was good; the utilization of PPEs was poor among the welders. Work regulation was the common factor to increase aware on occupational hazards and utilization of safety measure and work regulation of the welders should be encouraged.

**Key words:** welders, Lideta sub city, awareness, utilization, occupational hazards

### CMHS\_A33: Continuing Professional Association and Its Associated Factors among Nurses Working In Amhara Regional Referral Hospitals, Ethiopia

*Nega Tezera,*

#### Abstract

**Introduction:** Continuing education is a fundamental health investment that generates opportunity for nurses to broaden their knowledge, skill, and attitude thereby they can provide quality of health care. Continuing professional education adversely treated with poor management support and resource which include staff, fund, and space are also identified as factors.

**Objectives:** the purpose of this study is to assess continuing professional education and its associated factors among staff nurses working in Amhara regional state referral hospitals, Ethiopia, 2015.

**Methods:** Institutional based quantitative cross-sectional study design was carried out from March 12, 2015 to April 12, 2015 and Conducted at Amhara regional state referral hospitals. A stratified sampling technique was used to select study participants. A pre tested opened and closed ended self administer questionnaire was used for the data collection. Eventually data was entered in EPI-INFO version 7 and exported to SPSS version 20 for analysis.

**Results:** Only 32.3% of the respondents were engaged in continuing professional education. Diploma holder nurse (AOR=0.090, 95%CI: 0.014- 0.587), nurses who had 1-2 number of children(AOR=0.262,95%CI:0.069- 0.996),being working at Felegehiwot referral hospital (AOR=0.236,95%CI:0.113-0.496) , monthly salary of less than 1916 birr, 1917-2404 birr and 2405-3145 birr (AOR=0.049,95%CI:0.009- 0.255),(AOR=0.273,95%CI:0.134-0.537) and (AOR=0.240,95%CI:0.132- 0.438) respectively, lack of management support (AOR=0.07,95%CI:0.020- 0.244), were pronounced predicator of continuing professional education.

**Conclusion:** Staff nurses participation in continuing professional education in Amhara regional referral hospitals was found to be very low.

**Recommendation:** It is recommended that regional health bureau will use finding of this research as stepping stone for human resource development plan in the respective referral hospitals.

**Keywords:** continuing professional education; nurse; Amahara region, Ethiopia

CMHS\_A34: Level of Patient Safety Culture and Associated Factors In Jimma Zone Hospitals, Southwest Ethiopia

Sintayehu Daba (Bsc), Amsalu Feleke (Associate Prof.), Molla Mesele (MSc)

**Abstract**

**Introduction:** Patient safety culture is an important aspect for quality health care delivery and is an issue of high concern globally. Adverse events in the process of medical care due to unsafe practice represent a major source of morbidity and mortality globally. Even though empirical evidences are limited, poor patient safety culture is a common phenomenon in the health system of Africa in general.

**Objective:** The aim of this study was to assess the level of patient safety culture and associated factors in Jimma zone Hospitals, southwest Ethiopia.

**Methods:** Facility based cross sectional quantitative study triangulated with qualitative approaches was employed from March to April 2015. Stratified sampling technique was used to select 637 study participants in 4 hospitals. The standardized tool which measures 12 safety culture composites was used for data collection. Six BSc nurses' and one BSc OHS graduate were collected both the quantitative and qualitative data respectively. Bivariate and Multivariate linear regression analysis were performed using SPSS version 20. Significance level was obtained at 95% CI and  $p < 0.05$ . Semi structured guide in depth interview was used to collect the qualitative data. Thematic content analysis of the interview was performed.

**Results:** The overall level of patient safety culture was 46.7%. Longer hours worked per week ( $\beta = -0.06$ , 95% CI (-0.123, -0.001)), reporting adverse event ( $\beta = 3.34$ , 95% CI (2.119, 4.567)), good communication ( $\beta = 2.78$ , 95% CI (2.285, 3.284)), teamwork ( $\beta = 1.91$ , 95% CI (1.366, 2.457)), level of staffing ( $\beta = 1.32$ , 95% CI (0.885, 1.746)), feedback about error ( $\beta = 1.37$ , 95% CI (0.914, 1.831)) and participating in patient safety program ( $\beta = 1.3$ , 95% CI (0.573, 2.031)) were factors significantly associated with the patient safety culture. The in depth interview indicated incident reporting, shortage of resource, workload, healthcare staff attitude and patient involvement as important factors that influence patient safety culture.

**Conclusion and recommendation:** The overall level of patient safety culture was low. Working hours, level of staffing, teamwork, communications openness, reporting an event and exchange of feedback about error were associated with patient safety culture. Therefore, interventions of systemic approach through facilitating opportunities for communication openness, cooperation and exchange of ideas between health care workers are needed to improve patient safety culture.

**Key words:** Patient safety culture, safety culture, Patient safety, HSOPSC, Ethiopia

CMHS\_A35: Magnitude and Associated Factors of Needle Stick and Sharp Injuries  
Among Dessie City Hospitals Health Care Workers, South Wollo North East  
Ethiopia.

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**Abstract**

**Background:** Needle sticks and sharp injuries have been recognized as one of the Occupational hazards among health care workers. Occupational exposures to needle stick and sharp injuries are substantial source of infections with blood borne pathogens among health care workers and can cause substantial health consequences and psychological stress for Health Care Workers .Needle sticks and sharp injuries increase risk of spread of diseases like HIV, Hepatitis B and Hepatitis C.

**Objective:** determine the magnitude and associated factors of needle stick and sharp injuries among Dessie City health care workers.

**Methods:** Institution based quantitative cross sectional study design was conducted from March 21-April21/2015, among health care workers who are working at least one year in Dessie city hospitals. Data was collected by structured and pretested questionnaire. The study includes 438 health care workers who were selected from the source population using simple random sampling technique. The collected data was checked, coded and entered EPI-info version 3.5.1 and exported to SPSS version 20 for analysis. Bivariate and multivariate logistic regression analyses were done to identify factors associated with needle stick and sharps injuries. Finally, the results were presented with odds ratio (OR) and 95% confidence interval (CI) as well as appropriate tables and graphs.

**Results:** This study revealed that from 457 selected study participants, 438 (95.8%) were responded the questionnaire. The prevalence of needle stick and sharps injuries among health care workers in the last 12 months was 124(28.3%), of which 92(74.2%) was reported by male and the rest 32(25.8%) by females. Male health care workers[AOR:4.25,95%CI:(2.43,7.41)], not having safety instruction[AOR:2.27(1.29,3.97)], not have training on occupational safety and health[AOR:4.92,95%CI:(2.75,8.79)],having work experience $\leq$ 5years [AOR: 9.0, 95%CI :( 4.88, 16.60)], recap of needle after Use [AOR: 2.63, 95%CI :( 1.39, 4.99)] were found to be significantly associated with needle stick and sharps injuries.

**Conclusion:** This study showed still high prevalence of needle stick and sharp injuries among healthcare workers. lack of safety instructions , no occupational health and safety services like training on occupational health hazards and safety issues, absence of written protocol for reporting needle stick and sharps injuries, recap of used needle, which expose health care workers to the risk of NSSIs . Therefore, giving training on OSH, availability of safety instruction, avoiding of recap of needle after used are important to reduce the risk of such injuries among health Care workers.

**Key words:** Needle Stick and Sharp Injuries, Health Care Workers, Ethiopia

**CMHS\_A36: Postpartum Modern Contraceptive Use and Associated Factors In  
Aksum Town Northern Ethiopia.**

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**Abstract**

**Background:** Postpartum period is a critical period to address high unmet needs of family planning and to reduce the risks of closely spaced pregnancies. However, modern contraceptive use during extended postpartum period is low in Ethiopia. Therefore, this study aimed to assess postpartum modern contraceptive use and associated factors among women in Aksum town. This could help FP programmers to develop strategies for prevention of closer birth intervals and to maximize postpartum contraceptive use.

**Methods:** A community based cross sectional study was conducted from March 25 to May 10/2015 using face to face interview. A total of 601 postpartum women was selected by using systematic random sampling technique from the kebeles. Descriptive statistics were done to characterize the respondents using different variables. Both bi-variable and multi variable logistic regressions were performed using STATA version 12 to assess the relative impact of predictors of modern contraceptive use. Variables with P-value < 0.05 were considered statistically significant and AOR with a 95%CI was used to interpret the result.

**Results:** Over-all, 98.2% of the women responded to the interview. Nearly half (48%) of them used modern contraceptive during extended postpartum period (EPP). Grade 9-12(AOR, 4.25, 95%CI, 1.29, 14.00), grade12+ (AOR, 5.36, 95%CI,1.13,25.45), family planning counseling during prenatal and PNC (AOR=5.72,95% CI,2.68,12.28), having postnatal care (AOR,2.36, 95% CI,1.15, 4.87), resuming sexual activities (AOR, 9.53, 95%CI, 3.74, 24.27), menses return (AOR, 6.35,95% CI,3.14,13.39), were positively and significantly associated with modern contraceptive use in EPP. In addition, experiencing problem with previous contraceptive use were negatively associated with current contraceptive use (AOR,0.34, 95%,CI:0.16,0.71).

**Conclusion and Recommendations:** The contraceptive use during EPP was found to be below the national figure among urban women. So, strengthening family planning counseling during prenatal care and PNC visit, improved PNC utilization, and educational status is the means of approach to enhance modern contraceptive use for postpartum women.

**Key words:** Modern contraception, Extended postpartum period, Ethiopia.

**CMHS\_A37: Visceral Leishmaniasis Treatment Outcome and its Predictors among  
Patients in Kafta-Humera District Northwest Ethiopia**

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**Abstract**

**Introduction:** Visceral leishmaniasis is fatal when left untreated, it causes a global annual mortality estimated at 59 000. Ethiopia is one of the ten high burden countries for cutaneous leishmaniasis. It is estimated that the annual burden of Visceral Leishmaniasis ranges from 2,000 to 4,500 cases. Estimation of treatment outcome and its associated factors that predict poor treatment outcome could be an input for the concerned respected stake holders and clinicians.

**Objective:** The purpose of this study was to assess Visceral Leishmaniasis treatment outcome and its determinant factors among kala-azar patients At Kahsay Abera Hospital, northwest Ethiopia.

**Methods:** A two years and a half retrospective follow up study was conducted among 595 medical records of kala-azar patients admitted to Kahsay Abera Hospital from October 2010 to April 2013. Data was collected and fed into EPI-INFO Version 7.0 and consequently exported to SPSS version 20 software. Data was coded and cleaned; bivariate and multivariate logistic regression analysis was performed. Model fitness and co-linearity was checked by Hosmer-Lemeshow goodness-of-fit and tolerance respectably.

**Results:** The rate of poor treatment outcome of this research was 23.7 %. Duration prior to diagnosis (AOR=4.34, 95% CI= (2.22, 8.46)), general condition (functional status) of a patient (AOR=1.63, 95%CI=(1.06,2.4)) and visceral leishmaniasis-HIV co-infection ( AOR=2.72, 95%CI = (1.4,5.2)) were significant independent determinant factors for poor treatment outcomes.

**Conclusion:** Poor treatment outcome of this study was comparatively. Duration prior to diagnosis, general conditions (functional status) of a patient and visceral leishmaniasis-HIV co-infection were the threats of poor treatment outcome. Hence, premature seeking of medication and spatial favors to visceral leishmaniasis-HIV co-infected patients is worthwhile.

**Keywords:** Visceral Leishmaniasis, Treatment outcome, Determinant factors, Ethiopia.

## ABSTRACTS FROM COLLEGE OF BUSINESS AND ECONOMICS

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## **CBE\_A1: Assessing Employees' Perception of Destructive Leadership Behavior and Their Silence**

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### **Abstract**

*The purpose of the study is to assess the relationship between destructive leadership behaviors of managers and employees silence in nine government offices in three zones of the Amhara National Regional State. A total of 300 samples, 35 from each sector were planned and selected randomly. We were able to administer 230 itesms. But only 91 useable copies were collected. To measure the extent of employee perception of destructive leadership behaviors and their silences, two instruments adapted from standard research instruments were used by other previous researchers. Data were analyzed by means of descriptive statistics, correlation, and regression analysis. The main findings of this study show that a significant number of employees (59%) perceived destructive leadership behaviors in their organization. Most employees (60%) prefer to be silent in the organization. But only 9% variance of the current level of employees' silence is accounted for the manifestation of Destructive leadership.*

**Key words:** - *Destructive, Destructive leadership, silence, Employees silence*

## **CBE\_A2: Assessing the Relationships between Transformational Leadership and Employees' Engagement**

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### **Abstract**

**Background:** *In the unpredictable futures, in which the war for talent is endemic, organizations are increasingly taking interest in how not only to retain their talent, but also to optimize their leadership and engagement practices to maximize organizational outcomes. Because of this fact, there is a growing nosiness in understanding the relationship between transformational leadership and engagement in public preparatory schools despite ample of research on the issues of leadership and engagement are hardly investigated in other case areas.*

**Objective:** *The main objective of this study was to determine the relationships between transformational leadership and employees' engagement among public preparatory school teachers in North Gondar Zone.*



**Methods:** A standardized questionnaire, for both independent and dependent variables, was used as an instrument to collect data from 800 public preparatory school teachers in North Gondar Zone as a population, and 267 teachers were made use of as a sample size. The study employed a non experimental quantitative design with correlation survey research type and utilized stratified sampling technique to collect data from each stratum through simple proportionate stratification. Both descriptive and inferential statistics were used for analysing the data.

**Results:** The survey result confirmed that both the level of transformational leadership and engagement of teachers in all public preparatory schools are low though teachers who are teaching in Fasiledes and Azezo preparatory Schools are good relatively. But, on the opposite, Most of preparatory Schools located in Quara, Janamora, Telemi, Tegedie and Gendewuha were rated as extremely lowest. The three components of employees' engagement were significantly correlated with the overall transformational leadership even if the extent of association of vigor was better. As per the outcomes of Regression analysis, all the transformational leadership components can significantly influence job engagement and inspirational motivation was the highest predictor of teachers' engagement.

**Conclusions:** As per the survey result, schools located far away from Gondar town are living with very low mean value of transformational leadership and job engagement and the opposite is true. Another point that demands conclusion is that transformational leaders can contribute a lot for the physical dimensions of teachers' engagement and engaged teachers are always obliged to a leader who inspires the employees.

**Key words:** Transformational Leadership, Idealised Influence, Inspirational Motivation, Intellectual Stimulation, Individual Consideration, Vigor, Dedication and Absorption

**CBE\_A3:** The effect of work environment on employee engagement (Case of University of Gondar, Bahirdar University and Debre Tabor University)

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## **Abstract**

The purpose of this study was to assess the effect of work environment on employee's engagement. Employee engagement is the level of commitment and involvement an employee has towards their organization and its values. There is a growing recognition that work environment factor affects employee's engagement. Basically the work environment factors affect the quality of work life, individual quality of work life outcome and employee engagement. The research was carried out on three universities, the University of Gondar, Bahirdar University and Debre-Tabor University. The study mainly focused on five main factors, such as co-worker cohesion, supervisor support, autonomy, work pressure and physical comfort. The sample size of this study was 368, and it was selected through stratified random sampling. The researcher applied frequency from descriptive statistics and T-test, ANOVA, Correlation and multiple regression analysis to achieve the objective stated at the very beginning of this study. The findings of this study show that, co-worker cohesion, supervisor support and autonomy are significant and positively correlated with employee engagement, where as physical comfort

is insignificantly related with employee engagement, and work pressure has negative and significant relationship with employee engagement.

**KEY WORDS:** *employee engagement, co-worker cohesion*

**CBE\_A4: Evaluating the implementation and effectiveness of change management practice  
(a case of public development agencies in north Gondar zone)**

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**Abstract**

The "secret" of long term success is the ability to adapt to change. Organizations develop "success formulas" or "winning business models" that last for a period of time. Then, as the environment changes or conditions within the organization itself change, the enterprises must adapt. If it does so successfully, it will continue to exist and flourish. If it does not adapt successfully, however, it will experience difficulties and perhaps failure, regardless of how strong it appears at a moment or how many resources it has. The decline can occur swiftly or agonizingly slowly over a long period of time. This study was designed to assess the implementation and effectiveness of change management practice in public developmental agencies in North Gondar, particularly in Gondar town. On the basis of data collected through questionnaires which are founded on the theoretical assessment of related literatures, the research tries to unearth some of the real practices of change management based on the opinion of the respondents in particular organizations. The population and target population of the study comprises all employees (managers as well as non managers) currently working in the public development agencies located in Gondar town. The researcher will use both stratified and systematic random sampling techniques in selecting the research subjects. Stratified sampling technique were used to stratify employees who are currently working in these eight organizations into managers and non managers. Then the appropriate number of respondents were allocated and selected from each stratum and PDA's using systematic random sampling technique. So, several zonal and regional matters beyond this area are not be incorporated for the sake of specificity and manageability. The results imply that the employees in these organizations generally did not perceive the change management practices in the institution as fair. Similarly, their overall satisfaction on the change management practices of the organizations is low (below average). Therefore, in order to be effective in achieving their targeted goals and objective the organizations are required to reevaluate their change management practices specifically on the three basic dimensions of fairness parameters and their associated variables, like clarifying expectation standards, providing feedback, rating decisions, respectfulness of supervisions, sensitivity supervisions, setting employees performance expectations, raters confidence and appealing procedures.

**KEY WORDS:** *change, planned change, change management*

**CBE\_A5: Economic Contribution to Local Livelihoods and Households Dependence on  
Non-timber Forest Products: The Case of Northwestern Ethiopia**

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**ABSTRACT**

*Forest ecosystems have long been acknowledged for the multiple benefits they provide. In addition to their environmental benefits; the roles they play in local livelihoods is very crucial. In the case of Ethiopia, NTFPs provide valuable economic contributions both at local and national level. However, the contribution of NTFPs is often underestimated. This is because neither reliable market data nor empirical knowledge on the benefits of NTFPs is adequately available. The Metema Woreda forest is one of the ecosystem resources in northwest Ethiopia which provides several economic, ecological, and social benefits. The local livelihood contribution of NTFPs from the forest is particularly important, yet it was not adequately assessed so far that only little information is available. The main purpose of this study was, therefore, to evaluate the economic contribution of NTFPs to the livelihoods of households living around Metema Woreda forest. Specifically the study was undertaken to identify the major NTFPs in the area, assess the subsistence and cash income contribution of NTFPs to local households and identify the determinants of household dependence on NTFPs around Metema Woreda forest. The study was conducted in three purposively selected potential NTFP kebeles and a total of 170 households were randomly selected from the kebeles using the proportions-to-size technique of sample allocation. Mainly household surveys were conducted to collect the necessary data. The results indicated that NTFPs are more than a safety-net, and households living around forests in the study area are considerably dependent on NTFPs. The range of the NTFPs includes forest honey, fuel wood (fire wood and charcoal); grass (animal fodder), gum and resin collection, and other products (forest fodder, medicinal products such as damakese etc). These products provide important sources of income, (12.5%) for households living around forests who also practice agricultural production. Fuel wood is the most important NTFP in the study area followed by grass, honey, and resins. However, household dependence on NTFPs varied with differences in socioeconomic factors. Logistic regression predicted that livestock ownership (+), level of education (-), land size (-), distance to the forest (-), and credit availability (+) significantly determine whether a household participate in NTFP collection or not. Similarly, Tobit regression predicted that share of NTFPs varies significantly with land size (-) and distance to the forest (-). So, the local government line offices should pay adequate attention to the importance of NTFPs and integrate them to the rural development programs. The differences among local groups, such as the rich and the poor, should be considered in designing and implementing NTFP based development programs.*

**Key words:** NTFPs, rural household income, safety-net, economic contribution, dependence on NTFPs

## **CBE\_A6: Factors Enhancing the Market Linkage Practices of Micro and Small Enterprises in North Gondar of Ethiopia**

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### **ABSTRACT**

*Recently, creating market linkage practice for Micro and Small Enterprises (MSEs) is one of the top ranked issues in Ethiopia taking in to consideration its tremendous contribution to the socio-economic development of the poor society and the country at large. However, there is virtually no formidable data on factors enhancing market linkage practices of MSEs in North Gondar of Ethiopia. The objective of this study was therefore, to assess factors enhancing market linkage practices of MSEs in North Gondar. To achieve this objective the researchers employed both quantitative and qualitative research approaches. The target population for the survey was all MSEs in urban areas of North Gondar. Besides, for the qualitative part, key informant interview were conducted with higher officials from microfinance institutions, and Micro and Small Enterprise offices. The major findings of the study shows that all factors ( Access to finance transaction cost trust, business network and firm size ) that enhance the market linkage practice of micro and small enterprises have positive and significant contribution for the sustainable market linkage practices of the enterprises.*

**Keywords: Market Linkage, MSEs enhancement factors, MSEs, North Gondar, Ethiopia**

## **CBE\_A7: Econometric Analysis of Urban Youth Unemployment: Evidence From Amhara Region**

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### **Abstract**

*High level of youth unemployment generally signifies the failure of an economy to put to use its scarce resources. It is one of the most pressing socio-economic problems of the Ethiopian economy in General and Amhara region in particular. Using a regionally representative urban household survey of CSA, this study provided the first empirical analysis on youth unemployment duration in Amhara region. It tried to examine the incidences, durations and factors which determine urban youth unemployment in Amhara regional state. Moreover, the study analyzes the extent of risks of urban youth unemployment in the region. Parametric and semi-parametric hazard models are estimated to analyze the determinants of durations of youth unemployment. The study reveals that mean unemployment duration in urban is very long and expressed in year than months for both men and women's. The econometric evidence shows that the hazard rate into employment is significantly affected by age, marital status, and highest level of education attained, location and previous work experience. The nonparametric Duration dependence of*

*the exit rate from unemployment is different for men and women. The study also reveals that both the incidence and duration of unemployment are negatively related to household welfare. A number of suggestions have been made regarding ways of reducing youth unemployment problem in urban areas of Amhara region, the government and policy makers should review job market laws and regulation in order to promote a smooth transition of youth from education to job market. There is also a need strengthen the regulation relating to gender balance in the job market in order to give equal chance to the youth with the same level of skills or education. specific interventions especially in the creation of more formal jobs, credit and other facilities for own business, and strengthening job market regulation relating to youth people to ensure that all youth with education or skills realize their contribution to the region and country development. The study also strengths the importance of identifying the different target groups more effectively, placing immediate focus on young people with the lowest levels of qualifications and there are significant gender issues which require attention. The capacity of the economy in absorbing the potential labour force needs to be monitored regularly, and appropriate employment policies should be adopted consequently.*

**Key words:** *youth unemployment, duration, hazard rate, survival rate,*

#### **CBE\_A8: Determinants of Rural Household Livelihood Diversification: a case study in Dabat woreda**

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#### **Abstract**

*Like many countries, one of the most fundamental objectives of economic policies in Ethiopia is to sustain high economic growth with low income variability. The determinants of rural household livelihood diversification is one, which many economists have watched with keen interest. Farm households in Ethiopia have many challenges which include poverty and income variability. One of the strategies often adopted to tackle this is income diversification. This study is therefore designed to identify determinants of income diversification among farm households in Dabat woreda, North Gondar, areas of ANRS. The outcomes of the analysis are often used to inform policy making as well as in designing appropriate interventions and for assessing effectiveness of on-going policies and strategies. Therefore, the main purpose of this study is to find out and assess the determinants of rural household livelihood diversification. To do so, a multi-stage stratified random sampling technique was employed to collect primary data from one hundred and fifty(150) households distributed across the study area. Analytical tools designed are descriptive statistics and Tobit regression model. The Tobit model is used to capture determinants of income diversifications (agricultural and non- agricultural enterprises) among farm households. The significant variables that increase income diversification strategies of farm households are age of household head, educational level, household size, household farm size (Ha), annual crop production (Grain equivalent) ,number of Dependents (those not contributing economical to the*

household), membership of Cooperatives, non-farm income (N), number of livestock, distance to market and household head sex.

**Key words:** farm household, income diversification, determinants, livelihood, tobit model

*(CBE\_A9): Sustainable Cultural Heritage Management Practices of World Heritage Sites of Ethiopia: The Case of North Gondar Zone (Gondar, Guzara, and Gergara)*

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### **Abstract**

At a time of increasing globalization, the sustainable management of the fragile, unique and irreplaceable cultural heritage from different perspectives is becoming a major challenge as important elements of human culture are vanishing throughout the globe. The major purpose of this study is to assess how the cultural heritages of North Gondar Zone are managed for their future sustainability from heritage conservation, interpretation, visitor management and stakeholder involvement stances. Descriptive type of research design inculcating both quantitative and qualitative research methods is employed. Primary quantitative data was collected from 189 respondents (19 professionals, 88 tourism service providers and 82 tourists) and interview was conducted with 25 targeted informants from heritage and related professions, security employees, local community, service providers and church representatives by applying probability and non probability sampling methods. Frequency, percentage and mean are employed to analyze quantitative data through the help of statistical package for Social Science (SPSS) version 16. Findings of the study reveal that the overall sustainable management status of the cultural heritage of North Gondar Zone is below average. From the assessed concepts and terms, heritage authenticity is the only concept that is able to get good and very good scales by majority of the respondents and majority of the remaining concepts of heritage sustainability are at poor and very poor levels. It is found that the sustainability of cultural heritage management in North Gondar Zone is facing a lot of unfavorable factors like lack of long term planning, inadequate legal base and system of heritage administration, unmanaged development, limited capacity and number of professionals, scant attention to community based heritage and tourism development, beggars and illegal vendors, dirtiness and drainage problems, problems in variety and quality of visitor experiences, problems with stakeholder involvement and cooperation, lack of organized interpretation and presentation, lack of fund and others. So, reorganization of the management system, creating platform for coordination among stakeholders, developing appropriate interpretation system and introducing common practices of visitor management can be good remedies. Introducing community based heritage and tourism development concept is also recommendable for long term success.

**Key words:** Conservation, Interpretation, Stakeholder Involvement, Sustainable Cultural Heritage Management, Visitor Management

CBE\_A19: The Integration between Tourism and Micro and Small Scale Enterprises in Gondar Town

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**Abstract**

*The purposes of this study are to identify the main types of micro and small scale enterprises directly or indirectly related with tourism, to assess the current status of involvement of micro and small scale enterprises in tourism activities, to identify major factors hindering the linkages of tourism and micro and small scale enterprises and to analyze the impacts of each factor affecting integration between tourism and micro and small enterprises. The researchers were initiated to conduct this research since many problems are centered in linking Micro and Small enterprises and tourism. The study is qualitative in its design. Interview, focus group discussion and document analysis were the main data gathering tools used in this study. An interview was conducted with experts of Gondar town Micro and Small scale Enterprises Agency, North Gondar Zone Micro and Small Scale Enterprises and with Gondar town Culture and Tourism Department. In addition to government bodies the researchers also conducted an interview with owners of micro and small scale enterprises working in relation with to tourism and hospitality industry in the town of Gondar. To achieve the objectives of this research, focus group discussion between owners and workers of micro and small scale business enterprises, hotel and restaurant owners, church officials and government office representatives (Gondar town Micro and Small scale Enterprises Agency, North Gondar Zone Micro and Small Scale Enterprises and Gondar town Culture and Tourism Department) were held to identify the major challenges hindering the integration. Accordingly, the finding demonstrated that despite the potential, the number and types of micro and small scale enterprises directly related with tourism are very few as compared to other popular tourism sites of Ethiopia, such as Lalibela and Axum. Those who are in the tourism business are limited to hotel and restaurant service, souvenir shops and guiding services only. The study also shows that different constraints including an overall absence of tourism culture, a limited understanding of visitors' needs and interests, poor technical and technological support, miss utilization of working premises, limited access to capital due to high interest rate, and the general and persistent lack of business and entrepreneurial skills hinder the development of tourism and micro and small enterprises in the town. Government's focus on non tourism sectors of the economy is also another major challenge in linking tourism with the micro and small scale enterprises in Gondar.*

**Key Words:** Gondar, tourism, Micro, small scale, enterprises, integration.

CBE\_A11: Understanding the Role of Festivals on City Promotion: A Comparative Study  
of Lalibela and Gondar Cities' Festivals

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**ABSTRACT**

*The major purpose of this study was to examine whether and under what conditions festival tourism can help city promotion. It is specifically addressed to the perception of festival organizers, cooperation among local institutions and firms, and local-guest cohesion. To achieve these objectives, quantitative and qualitative comparative study method, and purposive and stratified sampling techniques were employed for questionnaire and interview data gathering instruments. Quantitative data was hand-coded into SPSS and analyzed using descriptive statistics (SPSS version19). A survey instrument was used to gather data from tourism and related experts, festival organizers, church administrators and community leaders. The quality of quantitative data from the questionnaire survey was checked using reliability (Cronbach's alpha) and validity (factor analysis) tests. The qualitative data was also collected from festival organizers, tourism and related experts, and church administrators and community leaders, and analyzed through interpretative and descriptive account of the data. To assure the reliability of qualitative data all interviews and discussions were recorded and registered word for word throughout the courses of interviews and group discussions. The interpretation of qualitative data was a thematic descriptive approach that utilizes a theme summary data and unattributed quotes to illustrate dominant issues in respondents' own words. The main findings indicate that managers perceive their festivals as creating community cohesiveness and strong communication among the current residents. However, they view the impact of the festivals on the promotion of the city within the country or in the international tourism market as limited. This study ultimately suggests that the festivals of Lalibela are less efficient in promoting the city and that Gondar festivals work to promote the city in Ethiopia and in the larger regions of East Africa. Finally, based on the results of the study, future studies should increase the number of cities from different countries and observe the impact of festivals on city promotion and increasing the number of festivals were some of the recommended points.*

**Key Words:** Festivals, Promotion, Social Cohesion, Stakeholder Cooperation, Lalibela and Gondar Cities.



CBE\_A12: Assessment of Marketing Skill Application in Tourism Industry (The Case of North Gondar)

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**Abstract**

The importance of marketing skill to tourism industry is increasingly seen as a viable development strategy to promote sustainable economy in an effective way to counter declining tourism incomes especially in developing countries. The efforts associated with different strategic applications suited to the industry in the area of marketing with emphasis on skill assessment are found to be the needs of the hour now.

However, our understanding of the dynamics of modern tourism business, entrepreneurialism in tourism sectors and competitive skills required by any service provider are more or less moderate and the materialization of marketing skills for tourism actors remains limited. Hence, the objective of this research was to explore the essence of marketing skills and its applicability in the tourism sector in North Gondar zone. The design of the study was descriptive type in association of both applications of qualitative, and quantitative approaches. Field surveys focus group discussions, interviews, questionnaire, and direct observation were the focal instruments in data gathering. The finding of this research can be stated as follows: The majority of tourism entrepreneurs believed that marketing skill is essential. Moreover, the current situation of tourism industry in North Gondar shows us there is lack of managerial, personal and marketing skill in practice.

**Key words:** Marketing skill; Marketing Practice, Sustainable Tourism development

CBE\_A13: Impediments of Souvenir Hand Crafts Development in North Gondar Zone

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**Abstract**

Other than its huge socio-economic benefits, a well-developed handicraft industry usually helps destinations to draw the attention of visitors easily. However, the development of souvenir handcrafts is being challenged by various contextual factors originating from socio-economic situations of each tourist destination. So, this research examined the impediments of souvenir handcrafts development in North Gondar Zone. Qualitative data was collected through the use of key informant interviews, and document analysis to complement each other. Relevant samples from hand craft units, practitioners, and researchers were employed. The interpretation of data used a thematic descriptive approach that utilizes a theme summary data and unattributed quotes to illustrate dominant issues in respondents' own words. The research disclosed that the development of souvenir handcraft in North Gondar Zone is being

*impeded by poor marketing, inaccessible finance, stagnant technology, inaccessible raw material, poor stakeholder's cooperation, and lack of capacity building training. Hence, as far as the issue of souvenir handcraft sustainability is concerned, focus should be on alleviating these challenges.*

**Key Words:** Souvenir-handcraft, North Gondar Zone,

## **Cbe\_A14: Bio-Physical, Economical, and Managerial Analysis for Sustainable Management and Conservation of The Degrading Boswellia Forests of Ethiopia**

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### **ABSTRACT**

*This is part of a multidisciplinary research on the assessment of the bio-physical, economical, institutional, and managerial aspects of the alarming degrading of Boswellia forest in Quara district, north-west Ethiopia. With five concrete themes to be addressed, the s was started on October 2014. The themes were, i) Theme one: document type and description of Boswellia forest concessions, and Production and management systems of different concessionaries; ii) Theme two: assess socio-economic importance of and peoples' dependency on Boswellia forest; iii) Theme three: Assess the existing abundance and population status of *B. papyrifera* tree species, and Investigate the effect of tapping on yield and reproduction of *B. papyrifera*; iv) Theme four: Examine the population dynamics of *B. papyrifera* and Employ a scenario-modeling simulation for future resource status; and v) Theme five: assess opportunities and alternatives: Make a Cost Benefit Analysis of tapping intensity and duration; Make a preliminary evaluation on appropriate agroforestry systems; Assess the community's willingness to participate in the conservation of the resource. The last two themes, iv and v, have not yet been completed; hence, all issues indicated in this paper are only that of the remaining three themes.*

*This multidisciplinary research is based on data from a multitude of sources and collection methods which include, primary data from vegetation survey (conducted on 150 plots of 20x20m size from five sample forest sites two from Private forest areas and one from the forest under NGRPME, Cooperative, and Rested or un-tapped forest), plot level tapping experiment (conducted on 135 sample trees), household survey (with a total of 200 random selected households), key informant interviews and group discussion. Secondary data was gathered from secondary sources, such as literature, office archives and documents, previously conducted studies etc. For analyzing these biophysical and socio-economic data, a number of statistical and econometric models were applied. The local community extracted many different products from the forest, including forest honey, fuel wood (fire wood and charcoal); grass (animal fodder), gum and resin collection and other products (forest fodder, medicinal products such as damakese etc). Of these diverse sources of income, forest related products contribute about 13 % of the*

household income at Quara. Furthermore, identification of the determinants factor that influence household engagement showed that livestock ownership (+), land size (-), and distance to the forest (-), significantly determine whether a household participate in NTFP collection or not.

The vegetation survey found a total of 36 tree and shrub species representing 20 families. The total stem density of woody species ranges from 360 trees ha<sup>-1</sup> at undisturbed forest site to 178 trees ha<sup>-1</sup> at the private forest. Vegetation at all sites was dominated by *B. papyrifera*. Highest density of *B. papyrifera* (164ha<sup>-1</sup>) was found in the undisturbed forest, followed by the forest under NGPME (135), private (89) and cooperative (82) forest. The whole tree community showed a bi-modal distribution with a relatively large number of individuals in the lowest and middle diameter size classes. Structural analysis of *B. papyrifera* population based on diameter distribution revealed that there was no small individual, and all encountered individuals were of above 8 cm DBH. In all forest sites, there were no seedling and sapling individuals, and the highest number of individuals was found in the middle diameter class (16-20cm). The observed structure indicated that the population is unstable and under threat due to lack of regeneration and juvenile. The lack of regeneration might be driven by land use changes, and increasing grazing intensity, fire frequency and clearing for agriculture.

Analysis of the tapping experiment revealed that tapping intensity had positive and significant influence on frankincense yield in all forest sites. Particularly, increased intensity of tapping resulted in increased yield for medium sized trees. Regarding the effect of tapping on reproduction, the study found that intense tapping influenced fruit production negatively and significantly in all forest sites except in the undisturbed forest. The current finding implied that high intensity tapping may raise the yield but reduce the reproduction capacity of the tree, which may put the future population of the species in question.

**Key words:** NTFPs, rural household income, dependency, frankincense, gum and resin

#### **CBEA\_15: Domestic Tourism as a Vehicle for Intercultural Dialogue and Cross-Cultural Understanding: The Case of World Heritage Sites in Amhara Regional State**

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#### **ABSTRACT**

Domestic tourism continues to be among the foremost vehicles for cultural exchange, providing a personal experience, not only of that which has survived from the past, but of the contemporary life and society of others. However, the first problem when the rationale for the Ethiopian tourism development has been discussed is; it is often conceived in macroeconomic terms that include ingeneration of foreign exchange, government revenue, and employment. These benefit the whole Ethiopians, but it ignores the social elements of tourism sustainability. Therefore, the major purpose of this study was to examine

whether and under what conditions domestic tourism can help intercultural dialogue and cross cultural understanding at Amhara world-heritages Sites, Ethiopia. To achieve these objectives, quantitative and qualitative case study method, and purposive and stratified sampling techniques were employed for questionnaire, focus group discussion and interview data gathering instruments. Quantitative data was hand-coded into SPSS and analyzed using both descriptive and inferential statistics (SPSS version 19). Therefore, tourism experts and domestic tourists participated and the collected data were analyzed by descriptive statistics, correlation, ANOVA, Post hoc and independent t-test. The quality of quantitative data from questionnaire survey was checked by using reliability (Cronbach's alpha) and validity (factor analysis) test. The qualitative data was collected from experts and domestic tourists, and analyzed through interpretative and descriptive account of the data. To assure the reliability of the qualitative data, all interviews and group discussions were recorded and registered word for word throughout the courses of interviews and group discussions. The interpretation of qualitative data was a thematic descriptive approach that utilizes a theme summary data and unattributed quotes to illustrate dominant issues in respondents' own words. The major findings of the study indicate that tourism experts and domestic tourists perceive domestic tourism as a means of intercultural promotion, cultural pluralism, strengthening democratic governance, tolerance and peace building, and social cohesion. Finally, based on the results of the study, the government should not view domestic tourism as some form of vector of economic domination but as an instrument of development a sustainable economic, environmental, and social tool for development.

**Key Words:** Domestic Tourism, Intercultural Dialogue, Cross Cultural Understanding, Pluralism, Tolerance, Social Cohesion, Democratic Governance

#### **CBE\_A16: Sustainability Determinants of 'Yekolo Temari Bete' in North and South Gondar Administration: a perspective of tourism attraction**

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#### **Abstract**

'Yekolo Temari Bet' is the gravity center of Ethiopian civilization in terms of architecture, art (music, dance, song, and painting), medication, philosophy, astrology and other sciences. Above all, the continuity of the major tourism attractions such as 'timket' and 'meskel' highly depend on the supply of scholars from these schools. In this regard, South and North Gondar administrative zones are home for the majority of 'Yekolo Temari Bet' and colorful 'timket' and 'meskel' festivals. So, this research is intended to examine the impediments of 'Yekolo Temari Bete' sustainability in North and South Gondar zones. In order to properly address this objective, data were collected through the use of key informant interview and document analysis. Respondents were sampled from church scholars and church school students through the principle of data saturation. The interpretation of the data applied a thematic descriptive approach that utilizes a theme summary data and unattributed quotes to illustrate dominant issues in respondents' own words. The research disclosed that the sustainable development of 'Yekolo Temari Bete' is being challenged by non-updated curriculum, degraded social status of the scholars, miserable economic life of students, and less attractive job environment for highly educated scholars. So,

focus should be on alleviating the aforementioned impediments as far as the issue of major cultural tourism attractions in Gondar area is concerned.

**KEYWORDS:** 'Yekolo Temari Bet', Traditional church school, Ethiopian civilization, Tourism attraction

### **CBE\_A17: Community Based Ecotourism as a Tool for Natural Resource Development and Management: A Case of Semien Mountains National Park.**

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#### **Abstract**

*In the face of degradations of natural resources and lack of alternative options, there are potentials of community based ecotourism in Semien Mountains National Park (SMNP) which could rescue the degraded environment. The major objective of this study was assessing the potentials of ecotourism or alternative options for sustainable development and usage of natural resources which will improve the livelihood of local communities and the conservation of SMNP. Survey questionnaires, interviews, observation, focus group discussion and literature reviews were employed to collect primary and secondary data and to assess the socio-economic situation of the households, ecotourism resources, and related problems of natural resource development and managements to come up with solutions. Five community associations were selected using purposive sampling from over 10 community associations in SMNP. Thereafter, 160 households were selected from 2000 targeted population (households) by systematic sampling. Survey questionnaires were employed to collect information from the households of local people, and tourists. The respondents of different stakeholders except households of the local people and tourists were selected by purposive sampling in order to get related information to the research. About 50 respondents of tourists were selected by random sampling from those who visited SMNP from December 2014 to March 2015. The analyses of the study revealed that natural and cultural resources, such as abundance and diversity of bird, scenic landscape, cultural and historical attractions and some hotels or lodges at nearby areas are the main ecotourism potential in SMNP. Deforestation, expansion of farming, overgrazing and over extraction of water coupled with conflicts between park and local communities are detected as the major problem contributors to the degradations of natural resources of the area. The study also revealed some income generating alternatives or ecotourism potentials which could help to reduce the present degradations of natural resources of the park. About 37.2% of the sampled households expressed their interests for diversified livelihood or ecotourism activities. Offering tourist facilities and services and creating job opportunities for members of local communities are the positive impacts of the tourism activities, whereas cutting trees, occurrences of seasonality and leakages are the negative impacts. The negative impacts might be able to aggravate poverty and consequent deterioration of tourism natural resources. Finally, reinforcing existing off-agricultural livelihoods, introducing additional alternative options or ecotourism are important strategic directions for sustainable management of the natural resources for SMNP.*

**Key word:** Ecotourism, leakage, Park, Poverty alleviation, and Tourism

## CBE\_A18: A Study on the Productive Participation in Different Small screen Programs By The Viewers In Gondar City, Ethiopia

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### Abstract

Television idiomatically called the " Idiot- Box" has grabbed a lot of attention from all categories of people both in terms of viewing the programmes and for the promotion of the brands. In every developed and some developing countries the small screen industry persuades a lot of viewers and marketers with innumerable programmes in many languages. Fortunately enough television is drawing the attention of many viewers with a lot of dexterous programmes in their respective countries and quite contrary to the Ethiopian people from different categories in semi urban and rural areas found to be considerably slipshod towards watching the small screen. Reasons for dawdling developments show the discrepancy with their media habits, economic backgrounds, alternative entertainment forms and socio-cultural traits even captivating the shift rate from other entertaining modes to this media is also discouraging with less leverage. There are ample chances of revenue generation through advertisements, sponsorships and transmission by increasing the rate of watching The small screen of Ethiopia owns certain good programmes associated with dramas and cinemas, reality shows, music and dances, discussions and interviews, news and information, sports etc. Having fanaticism to attain the firm footing in the industry, the programs must be created in order to gain the positive outcomes of viewers by improving the frequency of watching, evaluating the level of enjoyment, improving retrospection after the programme and handling complaints against the programmes. The major respondent groups identified in North Gondar region, Ethiopia ,with respect to the intensity of their media habits were the students, job holders, households and farmers & laborers who actively participated in the interviews and questionnaire. The concentration on the programme production by milking certain elements such as creative work, conceptual quality, and technological association may lead to gain the attention of viewers paving the way to shift increase. This paper explains the relationship between four participatory outcome variables of five famous and successful programmes from four major categories of regular viewers with an empirical data analysis by using a chi-square test by feeding hypotheses from twenty dimensions.

**Keywords:** Small screen, Edutainment, Ethnic values, Retrospection, Pragmatism.

## CBE\_A19: The Effects of Extrinsic Job Factors on Employees' Organizational Commitment (The Case of University of Gondar Employees)

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### Abstract

\*The study investigates the effects of employee's job satisfaction on organizational commitment. The population of the study was university of Gondar employees. The data were collected with the help of a structured questionnaire from 317 academic and administrative employees, the study used the proportional stratified sampling method as a sample design. The independent variable, job satisfaction

was measured using six extrinsic variables adapted from the Minnesota job satisfaction questionnaires. The dependant variable, organizational commitment was measured by the revised Organizational Commitment Scales (Meyer, Allen and Smith 1993), that is, Affective, Continuance, and Normative Commitment. Pearson's correlation and Regression were used to analyze the data. The major findings of the study showed that, extrinsic job satisfaction has a significant relationship with Affective, Continuance, and Normative commitment, and extrinsic job satisfaction factors significantly affect organizational commitments. An effective organization will always promote a sense of commitment and satisfaction among its employee'. To make it real in the university, the study suggested that increasing the level of extrinsic factors of job satisfactions of the employee's necessary, because extrinsic factors have a significant correlation with job satisfaction and it has a significant prediction on organizational commitment.

**Key words:** *affective, continuance, extrinsic satisfaction, normative and organizational commitment.*

### **CBEA\_20: The Link between Procrastination Behaviors of Leaders' and Employees' Silence**

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#### **Abstract**

The purpose of the study is to assess the relationship between procrastination behaviors of superiors and employees' silence in nine government offices of three zones of the Amhara National Regional State, Ethiopia. A total of 300 employees, 35 employees in each sector are planned to be selected randomly and to administer the questionnaire. However, 230 questionnaires are administered and only 91 usable questionnaires collected. To measure procrastination behaviors of leaders and employees' silence, two instruments were adapted from instruments used by other previous researchers. Descriptive statistics, correlations and regression analysis are used. The main findings of this study show that leaders of the public sectors have a habit of delaying things, or procrastinate. Employees are reluctant to speak up their concern in the organization. But according to this study, the influence of leaders' procrastination behavior on employees' silence is very low.

**Key words:** - *procrastination, silence, Employees silence, Defensive silence, pro-social silence*

### **CBE\_A21: The Effect of Microfinance Factors on Women Entrepreneurs' Performance with the Mediating Effect of Opportunity in North Gondar, Ethiopia**

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#### **Abstract**

Recently, empowering women entrepreneurship through microfinance is one of the top ranked issues in Ethiopia taking in to consideration their tremendous contribution to the socio-economic development of their families and the country. However, however, there is virtually no formidable data on the effect of microfinance factors on women entrepreneurs' performance with moderating effect of opportunity in North Gondar, northwest of Ethiopia. The objective of this study is, therefore, to assess the role of microfinance factors on women entrepreneurs' performance with the moderating effect of opportunity in north Gondar Ethiopia. To achieve this objective the researchers employed the mixed research approach. The study used the hierarchical regression analysis method. The results of hierarchical regression shows that microfinance factors (training, credit access and saving) have positive and significant contribution on women entrepreneurs' performance. Moreover, the results of the analysis indicates that social capital and training are positive and significant to explain business opportunity, whereas saving and credit access were statistically insignificant to explain business opportunity. Finally, opportunity for entrepreneurial activity could mediate the relationship between microfinance factors (credit, savings, training and social capital) and women entrepreneurs' performance. The results of the study imply that the North Gondar Micro and Small Enterprise office, Amhara Credit and Saving Institution and the Regional Micro and Small Enterprises Office should work together and arrange sufficient business imply skill trainings for women entrepreneurs who are interested in the job.

**Keywords:** Microfinance factors, women entrepreneurs, opportunity, North Gondar, Ethiopia

### **CBE\_A22: Agricultural Technology Adoption and its Determinants Among Smallholders in Amhara Region**

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#### **Abstract**

Though many attempts were made to enhance agricultural productivity and welfare of rural households through intensification of agriculture, little success has been achieved. One of the basic challenges has been low adoption rate of agricultural technology. The Amhara Region is among the regions with low adoption rate for modern agricultural intensification practices. With this underlying fact, the study tries to investigate how the decision of rural farmers in Amhara Region is determined by socio-economic, demographic, and environmental factors. To this end, the study uses the first round of the rich Ethiopian socio-economic survey. One of the novel elements of this study is that it tries to consider the capacity constraints farmers face in making adoption decisions. The study used the double hurdle model for understanding adoption decision and its determinants. The results attest that the role of agricultural extension on adoption decision is strong and significant. Demographic variables like sex and age also significantly affect adoption decision of households in the region. Female headed households are less likely to adopt an agricultural technology compared to their male counterparts. On the other hand, the relationship with age is nonlinear. Based on the results, the study recommends the strong agricultural extension and advice for empowerment of women to increase the adoption rate of modern agricultural technologies.

**Key words:** Adoption, Agricultural Technology, Amhara Region



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**CNCS-A1: Diversity in 198 Ethiopian Linseed (*Linum usitatissimum*) Accessions  
Based on Morphological Characterization and Seed Oil Characteristics**

Worku Negash, Pat Heslop-Harrison, Adugna Wakjira

**Abstract**

**Introduction:** Morphological and molecular characterization of germplasm is important for a sustainable exploitation of crops. Linseed or flax (*Linum usitatissimum*) is a multipurpose crop grown in many environments for food, feed, fiber, and industry. In Ethiopia, a centre of diversity for linseed, it is valued for food and export. The Ethiopian traditional varieties included plants with both fibre and oil-seed stem-branching morphotypes, although most were relatively small-seeded.

**Objective:** Here, we aimed to develop and use a set of morphological descriptors to determine levels and patterns of diversity in Ethiopian germplasm from the tropical highlands (3–15°N, > 2,000 m.a.s.l.) in 198 Ethiopian traditional varieties.

**Method:** Linseed samples/accessions were collected from different holdings. The selection of accessions acquired from EBI took into consideration their spatial distributions in the country as well as the times of collection. Two environmentally different research field sites were used to grow the linseed crop with RCBD field layout. Different techniques were used to describe different morphological characters.

**Result:** oil content was as low as 30% compared to 47% reported elsewhere. Days-to-flowering and days-to-maturity varied widely and were highly heritable. Ethiopian linseed had dominant and recessive yellow seed genotypes; some had a recessive conjoined or conjoined-seed character.

**Conclusion:** The descriptors developed here will be useful for genetic mapping and selection of breeding lines. The results show the range of characters which can be exploited in breeding lines appropriate for smallholder and commercial farmers in Ethiopia, producing a sustainable, secure, high-value crop meeting agricultural, economic, and cultural needs.

**Key words/phrases:** Biodiversity, Descriptors, Ethiopia, Flax/Linseed Landraces (*Linum usitatissimum*) Varieties

**CNCS-A2: Molecular Characterization of *Triticum Durum* – *Aegilops Speltoides*  
Introgression Lines and Evaluation for Thermo Tolerance and its Components.**

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**Abstract**

Backcross introgression lines (BILs) developed from crosses of *Triticum durum* – *Aegilops speltoides* were used to identify quantitative trait loci (QTLs) associated with heat tolerance. Three hundred lines in the first season and 100 selected lines in two consecutive

cropping seasons were grown under normal sown and late sown conditions. Membrane thermostability, chlorophyll content (CH), canopy temperature and triphenyltetrazolium chloride (TTC) tests have been used for identifying genetic variability within genotypes. Yield and yield related traits were also recorded. In all the traits variations between BILs in both normal sown and late sown conditions have been observed. Early maturity, shorter height and reduced tillering were recorded in late sown conditions which could be due to terminal heat stress. Out of 386 markers tested, 76 markers (19.7%) showed polymorphism between the parental lines. These polymorphic markers were used to genotype 100 selected BILs. Graphical genotyping showed introgressed regions in all 14 chromosomes of the recipient parent with overall 14.2% introgression. Single marker analysis (SMA) revealed that six markers (*Xgwm293*, *Xgwm565*, *Xgwm148*, *Xwmc269*, *Xgwm299* and *Xwmc603*) were significantly associated with spikelets/spike at LOD values ranging from 6.1-10.3 and phenotypic contribution of 18.5-44.3%. Similarly, markers *Xgwm293*, *Xwmc269*, *Xgwm565*, *Xgwm471*, *Xgwm148*, *Xgwm299*, *Xwmc603*, *Xwmc31*, *Xcfd6* and *Xcfa2278* were linked to thousand grain weight. One marker *Xcfd60* revealed association to TTC in normal sown BILs with LOD value of 3.1 and PVE of 16.1%. Four markers *Xgwm293*, *Xgwm148*, *Xcfd60* and *Xwmc269* showed linkage with CH with varying LOD score and PVE%. SMA also identified eight markers (*Xgwm293*, *Xgwm565*, *Xgwm471*, *Xgwm148*, *Xgwm299*, *Xwmc603*, *Xcfd6* and *Xwmc269*) linked to days to flowering and four markers viz, *Xgwm293*, *Xgwm471*, *Xgwm299* and *Xwmc603* showed association to days to maturity with LOD value higher than the threshold. Plant height was also linked to four marker loci (*Xgwm471*, *Xgwm148*, *Xgwm565* and *Xwmc603*) in average environment and stay green trait was linked to *Xgwm148*, *Xwmc269*, *Xgwm471* and *Xwmc269* with LOD score in the range of 2.6 - 3.4 and PVE of 12.6-15.9%. Additive QTL analysis identified that most of the traits were contributed by the donor parent and a number of markers identified in SMA were validated in additive QTL analysis, also.

**Key Words:** *Aegilops speltoides*, additive QTL, heat tolerance, SMA, SSR, *Triticum durum*.

### CNCS-A3: Evaluation of aflatoxins and storage fungi in sesame, chickpea and fab bean export commodities

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#### Abstract

Aflatoxins are highly toxic, mutagenic, teratogenic and carcinogenic kind of mycotoxin. Consumption of aflatoxin contaminated commodities poses serious hazard to the health of humans and animals. This study aimed to determine the aflatoxin level and storage fungi quality of export commodities of sesame, chickpeas and faba beans from Gondar town. The post harvest grain samples were collected randomly from different cleaning warehouses and 60 samples were taken for analysis. By taking 25gm composite sample from each collected samples followed by washing and surface sterilization serial dilution were done and the dilution was poured on PDA plates for isolation and identification of storage fungi. The prevalence of fungi was high in chickpeas and faba beans (60%) followed by sesame. *Aspergillus niger* (30%, 35% and 40%) and

*Aspergillus fumigatus* (25%, 40% and 45%) were the most frequent isolates followed by *Aspergillus flavus* (15%, 35% and 25%) from sesame, chickpeas, and faba bean samples. Aflatoxin B<sub>1</sub> was detected in 11 samples representing 10.33%, and aflatoxin B<sub>2</sub> was detected in 1 sample. The highest incidence of aflatoxin contamination occurred in chickpea (25%), followed by sesame and faba bean (15% each) while no aflatoxin G<sub>1</sub> and G<sub>2</sub> contamination was detected in all samples. Therefore, low level of storage fungi contamination and AFs occurs frequently in sesame, chickpeas and faba bean and can be improved by using proper harvesting practices, storage and transportation conditions. The small quantities of AFs warrant performing further investigation, monitoring, and routine analysis on regular basis.

**Key words/phrases:-** Aflatoxins, storage fungi, TLC, sesame, faba bean and chickpea

### CNCS-A4: Floristic Composition, Structure & Regeneration Status of Alemsaga Forest, Northwestern Ethiopia

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#### Abstract

Alemsaga is the largest forest remnant found in Farta woreda. The forest is surrounded by five churches which create good opportunity for the presence and protection of the forest. Though the area has been protected since 1970 E.C, there is no enough scientific information about the forest. Thus, this study was conducted on Alemsaga forest with the objective of determining the floristic composition, vegetation structure, and regeneration status of the plant species. Systematic random sampling method was used to collect vegetation data. Accordingly, 60 quadrats, each with 400 m<sup>2</sup> for woody species were laid along line transects radiating from the peak of the forest in 8 directions. All plots were laid at a distance of 100 m along the transect lines. For seedlings, the main plots were divided into subplots of 2m X 2m (100m) to make seedling counting easier. In each of these plots, all vascular plant species were collected and identified. In addition, vegetation parameters, such as DBH, height, and seedling and sapling density of woody species including location and altitude of each plot were recorded. A total of 128 species in 113 genera and 64 families were identified. Asteraceae and Fabaceae are the dominant families in terms of species richness. Structural analysis of some selected tree species revealed different population patterns. The forest was dominated by small trees and shrubs, indicating that it is in the stage of secondary regeneration. Phytogeographical comparison of Alemsaga Forest revealed the highest similarity with dry montane forests which asserts that Alemsaga Forest is one of the dry afro-montane Forests in Ethiopia. Studies on the structure and regeneration of the forest indicated that there were species that required urgent conservation measures. Therefore, based on the results of this study, detailed ecological studies in relation to various environmental factors, such as soil type and properties, ethnobotanical studies to explore indigenous knowledge on the diverse uses of plants, and maintenance of biodiversity that promote sustainable use of the forest are recommended.

**Key words/phrases:** Conservation, Forest Structure, Regeneration, South Gondar, Sustainable use

CNCS-A5: Association of multidrug resistance gene 1 (*pmdr-1*) *Asp86Tyr* gene polymorphisms and multidrug resistance pattern of *P.falciparum* isolates from untreated malaria patients in North Gondar Zone, North West Ethiopia.

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**Abstract**

**Background:** Malaria is a parasitic disease caused by a unicellular organism called *Plasmodium* that infects the human liver and erythrocytes. It is transmitted from person to person by the bite of the *Anopheles* mosquito, which bites only at night. Of the species of human malaria (*Plasmodium falciparum*, *P.vivax*, *P.malariae* and *P.ovale*), *P. falciparum* is the most ruthless disease which causes the highest mortality. It is a grave health problem in many tropical countries, and this situation is becoming worse due to the emergence of multi drug resistance strains in malaria endemic regions of the world. Malaria is a major public health problem in Ethiopia. It has been consistently reported as one of the three leading causes of morbidity and mortality in the past. The *Plasmodium falciparum* multidrug resistant gene, *pfmdr1*, has been shown to be involved in the mediation of the parasite's response to various anti-malarial drugs.

**Objective:** The present study aimed to assess the molecular basis of multidrug resistance pattern of *P.falciparum* isolates from untreated malaria infected patients in North Gondar Region northwest Ethiopia.

**Method:** One hundred blood samples were collected from malaria infected individuals from North Gondar Zone before treatment. The plasmodium was isolated and cultured under standard procedures. The cultures were tested for their drug susceptibility using standard procedures. Those that showed resistance *invitro* were collected further. DNA (Deoxi-ribose Nucleic Acid) was isolated from resistant cultured parasite by the phenol chloroform method. PCR (polymerase chain reaction) was implemented to amplify *pmdr1* gene by using appropriate primers. The enzyme *Nsp I* was utilized to digest the mutant alleles of *Pmdr I Asp 86 Tyr gene*.

**Result:** Eighty percent of drug resistant isolates showed the mutant allele *Tyr*, indicating the role of this mutant allele in affecting the drug transport mechanism to the target.

**Conclusion:** This study profoundly indicated the association of *Pmdr I Asp 86 Tyr gene* polymorphism with multidrug resistance of *P.falciparum* in north Gondar isolates of the parasite. To use such polymorphisms as a marker for multi drug resistance pattern a similar molecular analysis with large sample size is warranted.

**Key words:** *pmdr gne*, *Asp86 Tyr allele*, *parasitimia*, *p. falciparum*

CMCS-A6: Data Mining on Sectors of the Amhara National Regional State

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## Abstract

**Introduction:** Data mining is an application-oriented analytic procedure which is designed to explore a large amount of data, typically arising out of the context of business, market, insurance claims, weather conditions, scientific research, and many more, with an objective of identifying consistent patterns in the data sets, determining systematic relationships among the variables involved so that the findings can be validated by applying the observed patterns to the new subsets of data. "Data Mining is a process of torturing the unhealthy data until they confess". At data level, no one is able to observe patterns and unable to pass rational decisions.

**Objective:** The objective of this research is to make conducive environment for private business sectors and the Amhara Regional Government executive bodies to employ reliable information for decision. The main purpose of data mining is to find a solution that can be useful for predictions which are efficiently done using exploratory data analysis (EDA).

**Methods:** The huge amount of data were collected from different Amhara regional sectors. The analysis is based on the conceptual principles of statistics, including the traditional (EDA) tools, data modelling supported by relevant software packages.

**Results:** In Amhara region around 200000 businessmen are licensed with a paid up capital of 500.54 billion USD. In this region, 99% of the businessmen's capital is less than birr 500000, and their capital share is less than 1%. More than four million students were enrolled in schools, and there are around 74 hospitals and 3000 health posts.

**Conclusion:** In this paper we indicated various EDA techniques. We were able to cluster the performance levels of regional zones in to three by using the techniques of cluster and the contribution weight of seven different variables of the sectors in each zone using factor analysis.

**Keywords:** Data, Information, Knowledge, Level of pattern, Level of decision

## CNCS-A7: Ecological Impacts of *Eichhornia Crassipes* (Mart.) Solms- Water Hyacinth on Lake Tana, and Biological Control Method as A Management Option

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### Abstract

**Introduction/Background:** Water hyacinth- *Eichhornia crassipes* is one of the aggressive alien perennial aquatic plants that are currently threatening biodiversity, economic development, and human wellbeing.

**Objective:** A study conducted to determine the ecological impact of water hyacinth in Lake Tana and employ biological controlling methods as management option.

**Method:** For the determinations of ecological impacts, water samples were collected purposively from an area with water hyacinth and without. Physico-chemical and allelopathic effect of water

hyacinth on plankton abundance and distribution were analyzed using standard methods. The biological control method of the weed was investigated by using three commercially important fishes in cage enclosure culture technique.

**Result:** The mean Physico-chemical parameters such as  $T^{\circ}$ , pH,  $PO_4^{3-}$ ,  $SO_4^{2-}$ ,  $NH_4$  and TDS (25.8, 8.5, 0.58, 47.3, 0.22 and 76.5) did not show a significant difference between an area with water hyacinth and without (23.7, 8.6, 1.06, 45.3, 0.29 and 70.8) respectively. However, significant variation was observed in turbidity (30; 2), Conductivity (153; 142), DO (5.4; 6.4), alkalinity (68.3; 58.3) and plankton dominancy. The area with water hyacinth was dominated by members of division *Bacillariophyta*, *Cyanophyta*, and *Chlorophyta*. In addition to the phytoplankton genera recorded before, the area without water hyacinth was dominated by zooplanktons and Euglenoids. Although the feeding efficiency of fishes to eradicate the water hyacinth was low, *Clarias gariepinus* was found to be efficient, followed by *Oreochromis niloticus* and *Labeobarbus intermedius*.

**Conclusion:** Generally, as compared to the area with water hyacinth, the area without was found high in its nutrient content and biodiversity.

**Key words/ Phrases:** Ecology, Enclosure, Physico-chemical, Phytoplankton, Zooplankton, Water hyacinth

### CNCS-A8: Effect of Online Social Networking on Employee Productivity at the University of Gondar.

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#### Abstract

University largely depends on employees who are considered as one of the most important assets of any university because they are capable of creating value and enable Universities to provide a sustainable teaching learning process, community services, Technology transfers and researches. Success of any University depends on the productivity of employees. Social media, which has become very popular, has infiltrated the workplace and most employees are utilizing social media in the workplace. The main purpose of this study was to examine the extent of social media participation by employees and its effect on their productivity. A sample was stratified randomly selected from a population that has internet connectivity in the workplace. In addition to the frequency analysis and interpretation of responses to the formal questioner's survey, cross-table comparisons were used to give further insight into possible relationships between specific variables. Primary data was collected by using a questionnaire and interview. The research found both negative and positive relationship between social media participation and employee productivity. The negative relationship was however found to be stronger as 68.4 % employees spend most of their time on social media enhancing personal networks and 86 % of employees use office hours to visit online social networks. Positive relationship exists in employee, who use of social media for seeking and viewing work related information. The study concluded that employees participate in social media in the workplace for both work and non-work related activity. Social media has the potential to allow employees to form collaborations and



communities for knowledge creation and sharing, better channels of communication, which enhance employee productivity. However, it can draw employees in to an addiction that distracts performance as well as straining the University resources. This study aimed to serve as a foundation on which the University of Gondar could build a strategy that hop to do to incorporate online social networking with this university, in order to promote a knowledge sharing culture and approve an acceptable use policy accessing Online Social Networking sites during office hours.

**Keywords:** - Online Social Networking, Employee productivity

## **CNCS-A9: Impact of Information and Communication Technology (ICT) Teaching and Learning at the of University Of Gondar ( The Case of CNCS)**

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### **Abstract**

**Introduction/Background:** Information and Communication Technology has become an integral part of Ethiopia's development programmes over the last decade, following the initial indifference to the development of the sector. ICT has had a major impact on the education sector, on organization, and on teaching and learning methods.

**Objective:** The main objective of this study is to model a critical analysis of the impact of information and communication technology (ICT) on Teaching and Learning at the University of Gondar ( The case of College of Natural and Computational Sciences).

**Method:** This study subscribed mixed research in order to collect empirical qualitative and quantitative data. Qualitative data are collected by using focus group discussion, observation and quantitative data is collected by using Questioner. The research employs transcription of notes and creation of themes, clusters, motifs, contingency tables and generalizations from organized data to present a coherent and consistent picture. Moreover related literature is reviewed in textbooks, journals, and previous researches to further strengthen the primary data.

**Result:** The results of this study show that ICT has great impact on teaching and learning. Also the introduction of ICT makes learning so interesting for the students. Based on the findings suggestions and recommendations were made.

**Conclusion:** If our college is to maintain maximum educational standards, it should be provided with adequate funds, infrastructural facilities in terms of modern classrooms equipped with electronic computer system which are connected to the internet, well equipped laboratories, workshops, libraries, instructional materials and highly qualified personnel that can effectively utilize these resources.

**Key words:** Information and Communication Technology (ICT); College of Natural and Computational Science; Application of ICT on teaching and learning, Impacts of ICT

## CNCS-A10: Diurnal and Seasonal Variations of Geomagnetic Storms at Addis Ababa Station

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### Abstract

**Introduction:** Magnetic storm, is a depression in the H component of the magnetic field lasting normally over one to several days. This depression is caused by the ring current flowing westward in the magnetosphere, and Page 3 of 23 Go Back can be monitored by the Dst index. The storm main Full Screen phase is caused by magnetic interconnection between close interplanetary and the Earth's field [1][2]. The magnetic storm has three phases: an initial phase where the magnetic field in- creases any where from +10 to +50 nT, a main phase where the field magnitude decreases by 100 (or more) nT, and a recovery phase where the field gradually recovers to the ambient value. The initial phase typically starts suddenly (< 5min duration) and lasts an indeterminate amount of time. It may or may not be followed by a storm main phase (these first two phases, the initial and main phases, will be shown to be caused by different physical phenomena). The main phase can be as short as an hour or as long as a day. The recovery phase typically lasts 7 to 10 hours [4].

**Objective:** To carryout science based study on national technology infra- structure problem due to the effects of global geomagnetic storm, by monitoring space hazards in the Sun-Earth System.

**Result:** Space storms are the prime complex processes of space weather. They interconnect in a uniquely global manner, the Sun, the interplanetary space, the terrestrial magnetosphere and atmosphere, and occasionally the surface of the Earth. Geomagnetic storm is one of the results of Sun-Earth interaction. The characteristic the signature of a geomagnetic storm, or simply a magnetic storm, is a depression in the H component of the magnetic field lasting normally over one to several days. The research investigates the storm time diurnal and seasonal variation of horizontal geomagnetic field of the Earth in Addis Ababa . To do this research magnetometer data for the year 2007 up to 2009 were utilized. In 2008 in comparison with other seasons it had been found that in Automan 2008, maximum depression of horizontal magnetic field around 4 UT and it lasts for a very short period.

**Conclusion:** Most frequent diurnal geomagnetic storms have been observed during winter. From the observation it was found that there was an hourly shift of storm time through the seasons.

**Key words:** Magnetic storm, space weather, electric power, spacecraft, aviation, GPS, Blackouts, Magnetometer.

## CNCS-A11(PG): Evaluation of Potential Bacillus Species from Lake Tana Benthos for Antimicrobial Bioactive Compounds

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### Abstract

Bacillus species produce versatile secondary metabolites including lipopeptides, polypeptides, macro lactones, fatty acids, polyketides, and isocoumarins. The aim of this study was to isolate, characterize and extract bioactive secondary metabolites from antibiotic producing Bacillus spp. of water and sediments of Lake Tana. The antibacterial activities of Bacillus species were screened by two steps, primary screening and secondary screening. During the primary screening, the isolates were screened against tested bacteria by the perpendicular streak and agar overlay methods. On the basis of the primary screening results, isolates showing substantial antibacterial activities were selected for subsequent secondary screening programs. During the secondary screening, bioactive compounds were recovered from the selected potential isolates by using Submerged State Fermentation. Disk diffusion and agar well diffusion methods were used to determine the inhibitory activity of bioactive extracts of Bacillus species against tested bacteria. Among 22 Bacillus species isolated from Lake Tana, 8 showed a wide range of zone of inhibition against tested bacteria. The isolates revealed higher inhibition zone against Gram positive bacteria than Gram negative bacteria. The minimum inhibitory concentration and minimum bactericidal concentration of ethyl acetate extracts were 0.63mg/ml and 1.25mg/ml against Staphylococcus aureus and 1.25mg/ml and 1.25mg/ml against Escherichia coli respectively. The potential of these microorganisms to produce useful antimicrobial compounds is great and, they have broad spectrum activity against both Gram positive and Gram negative bacteria that lead to a new choice for the treatment of commonly encountered infectious disease. Therefore, water and sediments of Lake Tana must be better explored for further exploitation of diversified group of Bacillus with potential antimicrobial compounds.

**Key words/Phrases:** Bacillus, Antimicrobial compounds, Tested bacteria, Broad spectrum, Primary screening, Secondary screening

### CNCS-A12(PG): Bacteriological Quality and Food Safety Practice of Food Handlers' Hands at Tekl Dingay Schools in Lay Armachiho Woreda, North Gondar, Ethiopia.

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### Abstract

Food borne diseases caused by microbiological agents are still a major public health problem across the globe. The problem is severe in developing countries due to difficulties in securing optimal hygienic food handling practice. Food handlers might be infected by a wide range of enteropathogens leading to the transmission of many infections to the school community and other food services. Food safety measures in school would improve the protection of students and staff

from the outbreak of food borne illness. The objective of this study was to assess the microbial quality and food safety practices of food handlers' hands in *S.aureus* public school food services at Tekl-Dengay schools in Lay Armachho woreda. A structured questionnaire was used to collect socio-demographic data and risk factor checklist. Samples were collected from 12 food handlers' hands during the two intervals of hand swabbing (before and during) preparation of ready to eat food by sterilized cotton swab for bacteriological techniques (culture, biochemical test) and drug susceptibility test by disc diffusion were conducted. The finding revealed that fecal contamination and personal hygiene of the food handlers were well maintained with the range of mean bacterial counts from 0.11 to 0.47 colony forming units/ml during the two intervals of hand swabbing (before and during) preparation of ready to eat food. However, the general indication of the microbiological quality (aerobic plate count) was a range of mean bacterial counts from 1.41 to 1.56 colony forming units/ml. Antimicrobial susceptibility test was done using Ampicillin, penicillin and tetracycline on the collected isolates. The result shows highest resistance tetracycline (77.78%), Ampicillin (69.27%) and penicillin (58.33%) for *Salmonella* species, and *E.coli* respectively. This study highlighted the presence of *Salmonella* species from the isolation of food handlers' hands. *E.coli* and *S.aureus* which is public health vital bacteria's may pose significant risk in the school community and special care should be emphasized on their practices at the interval of before and during the preparation of ready to eat food. Out of 12 foodhandlers, 5(41.67%) were illiterates, also 4(33.33%) had less than one year service, and only 4(33.33%) believed that the food was contaminated by foodhandlers. Therefore, it is important for Lay Armachiho woreda public schools to implement food handlers training on food safety and regular sanitary services for such food service giving personnel.

**Key words/ phrase:** - Food handlers, personal hygiene, Cross-contamination, Microbiological quality, School food-service

### CNCS-A13 (PG): PHYTOCHEMICAL INVESTIGATION ON LATEX EXTRACTS OF *EUPHORBIA TIRUCALLI* (KINCHIB)

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#### **Abstract**

*Euphorbia tirucalli* is probably the best known and most widespread of all trees *Euphorbia* species and is well known as a source of traditional medicine in many countries. In the present investigation, the work designed extraction, isolation, and structural elucidation of the components from methanol extract of latex of *Euphorbia tirucalli*. The pure compound was isolated through column chromatographic purification and characterized. Finally, the structure of the isolated compound was labeled as HM-2 was established using spectroscopic techniques. IR, MS, <sup>1</sup>H NMR <sup>13</sup>C NMR and DEPT-135, and found to be 3-β-OH-tirucallosol. Antimicrobial activity evaluation using the Agar Well Diffusion Method did not show significant activity against *E.coli* and *Staphylococcus aureus*,

**Keywords:** Latex, *Euphorbia tirucalli*, 3-β-OH-tirucallosol, *E.coli*, *Staphylococcus aureus*

## CNCS-A14(PG): PHYTOCHEMICAL INVESTIGATION ON CINNAMON STEM BARK (Qerefa)

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### Abstract

*Cinnamomum zeylanicum* is one of the herbs and spices plants that come from cinnamon family which contains high quality of essential oil. In this study, the essential oil from plant *Cinnamomum zeylanicum* was extracted using Solvent and Soxhlex extraction methods. Soxhlet extraction produced crude essential oil which was purified by column chromatography and solvent extraction methods. Finally the structure of pure isolated compound labeled as Wa was established using spectroscopic techniques. IR, MS,  $^1\text{H NMR}$   $^{13}\text{C NMR}$  and DEPT-135, and were found to be cinnamaldehyde, which is the main component in cinnamon. The extracts produced from Wa-extract exhibited moderate antimicrobial activity against *E.coli* and *Staphylococcus aureus* with inhibition zone of 2.5mm and 1.25mm, respectively, and the result was statistically significant ( $P=0.00$ ). The MBC result also revealed the same type of outcome as that of the MIC in which the extracts produced from Wa-extract signs of moderate MBC value in which *E.coli* and *Staphylococcus aureus* with inhibition zone of 10 mg/l for both and the result was statistically significant ( $P=0.00$ ).

**Keywords:** *Cinnamomum zeylanicum*, Soxhlex, cinnamaldehyde, *E.coli* and *Staphylococcus aureus*

## CNCS-A15 (UG): Evaluation of *Xanthium Strumarium* Linn. Plant Extracts Against Immature Stages of *Culex* Mosquitoes (Diptera: Culicidae)

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### Abstract

The aim of the present study was to evaluate immature mosquitocidal activity of *Xanthium strumarium* plant extracts against *Culex* mosquitoes in the laboratory. In this study, acetone, methanol, and water extracts were prepared at 50, 100, 150, 200 and 250ppm concentration and tested against IIIrd, IVth instar larvae and pupae of *Culex* mosquitoes. The mortality rate of immature mosquitoes was recorded after 24, 48 and 72hr exposure period continuously. The larvicidal and pupicidal activity of plant extracts was tested by following the recommendation of WHO protocol. Result revealed that third instar larvae after 24hr exposure period, the maximum percentage of mortality of 77.8% was recorded at 250ppm concentration in the acetone extract. After 48hr and 72hr exposure period, the maximum mortality of 88.9% was recorded in acetone extract in all the tested concentration. The maximum percentage mortality of IVth instar larvae was 88.9% in acetone extract at 200 and 250ppm concentration after 72hr exposure period. Pupal mortality was also greater in acetone extract. The percentage mortality in all stages of mosquitoes was higher in acetone extract followed by methanol and water extract. The percentage mortality is associated with the concentration of the extracts tested and exposure period. This laboratory study showed that *Xanthium strumarium* leaf extracts have immature mosquitocidal activity against *Culex* mosquitoes. The aqueous leaf extract can be useful to apply small man made

breeding places to prevent adult emergence. Further isolation and characterization of bioactive molecules from acetone and methanol extract is useful to develop novel botanical formulation for large scale field application.

**Key words:** *Culex*, Mosquitoes, Larvicidal, Pupicidal, Solvent extract, *Xanthium strumarium*,

### **CNCS-A16(UG): Assesment of Modern Maternal Health Care Usage in Gondar Town (The Case of Keble-18)**

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#### **ABSTRACT**

The main objective of this study was to assess the awareness and usage of modern maternal health care and to identify the determinant factors affecting the utilization of modern maternal healthcare services in kebele-18, Gondar. The survey was conducted in kebele-18 in 2007 E.C (2015/14). In this study, 240 mothers were selected using simple random sampling technique, and the data was collected by using questionnaire. The collected data was analyzed by Chi-square test and Logistic regression using SPSS software. The result of the study revealed that antenatal care; delivery care and postnatal care service utilization in the study area was 72.1%, 71.2%, and 47.2% , respectively. Household income, awareness of mothers' about maternal health care, access of health care services, attended birth order were major predictors of antenatal care service utilization in the study area at 5% level of significance. Religion, husband occupation, attended birth order, and quality of antenatal care were major predictors of delivery care service utilization in the study area at 5% level of significance. Ability of delivery, place of birth and professional ethics were major predictors of postnatal care service utilization in the study area at 5% level of significance. To increas maternal health care services utilization (i.e. antenatal care, delivery care and postnatal care), expand access of health care services improve the quality of antenatal care services, awareness raising promotions and providing training to health workers to increase their skill and professional commitment are recommended.

#### **GUST PRESENTERS**

**G1 -A: (BDU)Habitat preference of the endemic and endangered walia ibex (*Capra walie*) in the Simien Mountains National Park, Ethiopia**

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## Abstract

The Walia ibex (*Capra walie*) is an endemic and endangered species restricted to the Simien Mountains National Park, Ethiopia. Recent expansion of humans and livestock grazing in the park have prompted concerns that the range and habitats used by walia ibex have changed. We observed the walia ibex, conducted pellet counts, of walia ibex and livestock, and measured vegetation and classified habitat characteristics at sample points during wet and dry seasons from October 2009 to November 2011. We assessed the effect of habitat characteristics on the presence of pellets of the walia ibex, and then used a spatial model to create a predictive map to determine areas of high potential to support the animal. Rocky and shrubby habitats were more preferred compared to herbaceous habitats. Pellet distribution indicated that livestock and the walia ibex were not usually found at the same sample point (i.e., 70% of quadrats with walia pellets were without livestock droppings; 73% of quadrats with livestock droppings did not have walia pellets). The best model to describe the probability of the presence of walia pellets included effects of herb cover ( $\beta=0.047$ ), shrub cover ( $\beta=0.030$ ), distance to cliff ( $\beta=-0.001$ ), distance to road ( $\beta=0.001$ ), and altitude ( $\beta=0.004$ ). The Walia ibexes have shifted to the eastern, steeper areas of the park which appears to coincide with the occurrence of more intense, human-related activities in lowlands. Our study demonstrates the complexities of managing areas that support human population while serving as critical habitat for a species of conservation concern.

**Key words:** Endangered, endemic, Ethiopia, habitat preference, Simien Mountains, walia ibex

## G2-A (BDU): Annealing-Induced Surface Recovery in Thin Film Metallic Glasses (TFMGs): Effects of Annealing Condition and Film Composition

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## Abstract

Because of their unique properties, most recently, thin film metallic glasses (TFMGs) have been studied for various research and engineering applications. In this study,  $Zr_{50.3}Cu_{28.1}Al_{14}Ni_{7.6}$ ,  $Cu_{48}Zr_{42}Al_6Ti_4$ ,  $Hf_{45.9}Cu_{44.8}Al_{6.5}Ti_{2.8}$ , and  $Fe_{65}Ti_{13}Co_8Ni_7B_6Nb_1$  (in at.%) TFMGs are grown by RF magnetron sputtering system on silicon substrate, followed by nanoindentation conducted at room temperature. The shape recovery property of sputtered thin film metallic glasses upon heating are

examined. Due to the surface tension-driven viscous flow, the shape of indentation appears to recover to different extents at various temperatures and holding times. It is found that a maximum of 59.8% indentation depth recovery is achieved after annealing within the supercooled liquid region (SCLR). Atomic force microscopy results reveal a decrease in film roughness to a minimum value within SCLR. In addition, because of the difference in bonding force among constituent elements, film composition is found to be one of the factors affecting the extent of recovery. Accordingly, Zr-based TFMG exhibits larger recovery than Cu-, Hf- and Fe-based TFMGs. To elucidate the experimentally observed shape recovery, a numerical modeling has been employed. It is evident that the depressed region caused by indentation is elevated after annealing.

**Keywords:**

Thin film metallic glass, Indentation depth recovery, Annealing, Roughness, Film composition  
Serum

### **G3-A (BDU): zinc deficiency and associated factors among pre-ART and on-ART adults at Felege Hiwot referral hospital, Bahir Dar, Northwest Ethiopia**

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**Abstract:** Among several trace elements, zinc is a micronutrient that has a very significant role in maintaining immune function. Studies investigating trace elements status in people living with HIV/AIDS are few in Ethiopia. Hence, the present study was undertaken to investigate the concentration of serum zinc among sex and age matched pre ART and on ART adults. A cross-sectional study was conducted among 150 people living with HIV/AIDS (75 pre -ART and 75 on -ART) adults. Concentrations of zinc from serum were measured using fully automated flame atomic absorption spectrophotometer. CD4+ T-cell count, CD8+ T-cell count, hemoglobin determination, and Body Mass Index (BMI) were performed to evaluate the clinical status of study participants. Serum zinc deficiencies were observed in 46 (30.7%) study participants. In multivariate logistic regression analysis, pre-ART study participants were nearly four times more likely at risk of serum zinc deficiency than on-ART study participants (AOR=3.56, 95% CI=1.52 to 8.32). Similarly, the odds of being serum zinc deficient were three times more in undernourished study participants than nourished study participants (AOR=2.61, 95% CI=1.02 to 6.67). A relatively high percentage of study participants had serum zinc deficiency. Early evaluation of serum zinc deficiency and zinc supplementation along with anti-retroviral treatment should be considered for pre-ART and under nourished adult people living with HIV/AIDS.

**Keywords:** Antiretroviral Therapy, Bahir Dar, HIV/AIDS, Serum Zinc Deficiency



## G4-A (BDU): Printable Polymer Solar Cells using Highly Conductive PEDOT:PSS

### Anodes

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### Abstract

Solar cells which change light energy directly to electrical energy are considered as viable renewable green energy sources. The conventional silicon solar cells are expensive primarily due to energy intensive and expensive manufacturing technology. Polymer solar cells (PSCs) are promising solar cell technologies to deliver cheap solar energy as they can be solution processed by high throughput and cheap roll-to-roll technology. The roll-to-roll processability, which also is a determining factor for the cost of devices, is highly dependent on electrodes of the devices as the interlayer and active layer materials can easily be processed through conventional solution processing. Currently, Indium Tin Oxide (ITO) is widely used as the standard transparent electrode; however, ITO is not an ideal electrode due to its limited availability and other technical drawbacks. Among alternatives, conductive polymer poly(3,4-ethylene dioxythiophene) (PEDOT) doped with poly(styrene sulfonate) (PSS) is quite promising as a next-generation transparent electrode. However, pristine PEDOT:PSS has very low conductivity so that it cannot be used as standalone electrode. In this work, we show that conductivity of PEDOT:PSS can be tremendously enhanced from 0.3 S/cm to 2050 S/cm by facile film treatment with formic acid. The mechanism of conductivity enhancement was thoroughly investigated using UV-Vis spectroscopy, SEM, AFM, XPS and other characterization techniques. Carrier concentration increase by 4 orders of magnitude, charge screening between PEDOT and PSS followed by phase separation at the nano scale, removal of PSS from the film and reorientation of PEDOT chains leading to bigger and better connected particles are the mechanisms for the conductivity enhancement. ITO-free polymer solar cells (PSCs) with P3HT:PCBM active layer fabricated using formic acid treated PEDOT:PSS as anode showed efficiency of 4.10% while the ITO counterpart showed 4.11%. PSCs with PEDOT:PSS also showed better device stability than devices with ITO.

**Key words:** ITO, transparent electrode, PEDOT:PSS, solar cell, formic acid, conductivity enhancement

## G5-A (BDU): Photochemical Reduction Method in Preparation of Silver Nanoparticles Decorated Magnetic Microspheres as a Stable and Sensitive Surface-Enhanced Raman Spectroscopy (SERS) Substrate

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### Abstract

In this work, silver nanoparticles (AgNPs) decorated magnetic microspheres (MMs) are prepared as surface-enhanced Raman scattering (SERS) substrate for the analysis of adenine in aqueous solutions. To prepare these substrates, magnetic nanoparticles were first synthesized by coprecipitation of Fe (II) and Fe (III) with ammonium hydroxide. A thin layer of cross-linked polymer was formed on these magnetic nanoparticles by polymerization through suspension of magnetic nanoparticles into a solution of divinyl benzene/methyl methacrylate. This thin layer of polymer improves the stability of the magnetic nanoparticles and also assists the adsorption of AgNPs on the MMs. To form AgNPs on these polymer-coated MMs, photochemical reduction method was employed and the factors in photochemical reduction method were studied and optimized for the preparation of highly sensitive and stable AgNPs on MMs substrates (abbreviated as AgMMs substrates). By dispersion the AgMMs in aqueous samples, cylindrical magnet was used to attract the AgMMs for SERS detections. The observed enhancement factor of AgMMs reached 7 orders in magnitude for detection of adenine with a detection limit approaches to few hundreds of nanomolar.

#### G6-A (BDU): Microcrystalline Si thin film solar cells prepared through VHF-PECVD

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#### Abstract

In this work, hydrogenated microcrystalline silicon ( $\mu\text{-Si:H}$ ) films deposited through very high frequency plasma enhanced chemical vapor deposition (VHF-PECVD) were investigated. First of all deposition parameters such as total pressure, substrate temperature, silane concentration, distance between electrodes, total gas flow rate, and plasma power were varied to investigate their effects on the properties of the intrinsic  $\mu\text{-Si:H}$  absorber layers. We found that at a high growth rate of  $7.3 \text{ \AA/s}$ , a  $\mu\text{-Si:H}$  thin film with optimized properties of 64 % crystalline ratio and  $1.72 \times 10^{-6} \text{ S/cm}$  dark conductivity was obtained under a power density of  $177 \text{ mW/cm}^2$ , substrate temperature of  $200 \text{ }^\circ\text{C}$ , silane concentration of 4 % and total pressure of 1.5 Torr. Furthermore, effects of doping ratio and thickness on the properties of both p-type and n-type  $\mu\text{-Si:H}$  doped layers were explored. The results showed that a 20nm thick p-type  $\mu\text{-Si:H}$  layer which possessed high dark conductivity of  $1.7 \times 10^{-1} \text{ S/cm}$  was achieved using a trimethylboron/silane doping ratio of 0.2 %, and a substrate temperature of  $180 \text{ }^\circ\text{C}$ . On the other hand, a 25 nm thick n-type  $\mu\text{-Si:H}$  layer with  $3.7 \text{ S/cm}$  dark conductivity was established under a tert-butylphosphine/silane ratio of 0.5 %. Finally, by combining the optimized conditions for each layer, we tried to make a  $\mu\text{-Si:H}$  thin film solar cell using the standard Asahi U glass. The result showed a short circuit current density of  $12.45 \text{ mA/cm}^2$ , open-circuit voltage of 0.46 V, fill factor of 54.6 %, and efficiency of 3%.

**Keywords:** Microcrystalline silicon; Thin film solar cells; VHF-PECVD; High growth rate

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## **CSSH-A1: Self-Efficacy, Academic Achievement and Academic Motivation of Preparatory School Students in Gondar City and Gondar Zuria Woredas**

Hana Shewamoltot (MEd., Special Needs Education)

Meseret Getachew (MA, Educational Psychology)

### **Abstract**

*The main objective of this study was to investigate the association among self-efficacy, academic motivation and academic achievement of preparatory school students. A cross-sectional descriptive survey was used as a research design. Simple random sampling was applied to select the participants. General self-efficacy, academic self-efficacy, academic intrinsic and extrinsic motivation instruments were employed to gather data. Data were analyzed using t-test and correlation. Results indicated that students have significantly higher mean score in general self-efficacy and academic self-efficacy. There was a moderate and positive correlation between general and academic self-efficacy. General self-efficacy and academic self-efficacy were found to be positively and moderately correlated with academic intrinsic motivation. Academic achievement was weakly but positively correlated with general self-efficacy and intrinsic motivation. Positive and moderate association was also found between academic achievement and academic self-efficacy. A statistically significant weak negative association was found between academic achievement and academic extrinsic motivation. Male students had significantly higher mean in general self-efficacy, academic self-efficacy and intrinsic motivation. However, there was no statistically significant difference in sex on academic extrinsic motivation. Significantly higher mean was observed for students from Gondar Zuria Woredas in general self-efficacy, academic-self efficacy and academic intrinsic motivation. Motivational and life skills trainings should be given to intrinsically motivate and enhance self-efficacy of students giving emphasis to female and Gondar city students.*

**Keywords:** *general self-efficacy, academic self-efficacy, academic intrinsic motivation, academic extrinsic motivation, academic achievement*

## **CSSH-A2: The Effects of Gender Role Socialization on Self Expression of Female Students in Secondary School**

Mulusew Birhanu, Gender and Development studies Department Email- madiba28@yahoo.com

### **Abstract**

*One way of implementing gender equality is the elimination of stereotyping gender role socialization in school and family. Scholars on gender show that there is knowledge gap on how gender roles are depicted in education or schools. Furthermore, there are no adequate mechanisms to ensure gender equality in secondary schools between students. Some research*

reflects low priority is given to gender and self-expression by governments, international organizations, and foundations except for minor initiatives especially on gender socialization effect on female self-expression, which arose from gender socialization. Wide gap between men and women has existed over the years. Females socialize in a way that they are silent, docile, passive, and unexpressive. So, the objective of this study is to assess the effects of gender role socialization on the self expression of female students in secondary schools using qualitative and quantitative research approach by exploratory research design. Qualitative data gathered purposively from selected key informants and the quantitative data was also gathered through self-administered questionnaire from sample secondary school students by stratified systematic random sampling. 130 (50 male and 80 Female) students were involved in this research. Hence, the data was analyzed using qualitative and quantitative data analysis techniques. Quantitative data analyzed using descriptive statistics and chi-square test. The descriptive statistics were computed by using SPSS software. The result suggested that students' stereotyped gender role socialization and self expression are linked (stereotyped gender role socialization has negative effect on self expression of female students). This research also suggested that less self-expression has a negative effect on female academic achievement, on their health development, on the recognition of their right and put them in the subordinate position. Stereotype Gender role socialization of students should be reduced, and they should socialize equally with their male counter parts. The educational curricula and classroom practices at all levels should emphasize gender equality. In addition, it was recommended that federal and state minister education should develop educational policy from a gender equality perspective (single-gender education).

**Key words-** Gender, socialization, Gender role, gender socialization, self-expression

### **CSSH-A3: "The Culture of Begging": An Assessment of the Arts of Street Beggars: The Case of Ebinat Wereda**

**Emwodew Melkegnaw**

#### **Abstract**

It is apparent that the issue of begging is a widespread occurrence. Though begging is a worldwide phenomenon, it is the most prominent in developing countries. Street beggars, for instance, in urban areas are found typically in public places such as bus stations, restaurants, markets, main roads, mosques, churches, etc. (Adedibu et.al, 2011). According to (FSCE), as cited by Girmachew Adugna on the situation of street children in Ethiopia found that the problem is growing in all towns. This study, therefore, was examined the culture of begging and the arts of street beggars in Ebinat woreda (district). The study found that beggars apply different heart touching strategies to collect money such as blessing the almsgivers before and after alms, by crying and spilling tear, pity hand movements having cents, by calling the name of arks like God, St. Merry, St. Michael, St. Gabriel and martyrs and by giving thank for God. But the most inspiring strategy employed by beggars is through poem;, by expressing the nature of human

beings, witnessing the almighty of God. The study was conducted by employing a cross-sectional research design. Focus group discussion, key informant interview, field observation, semi-structured and unstructured interview were used. Five interesting case studies were also included in the study. The study population consisted of street beggars, town administrative staffs, staffs from Labour and Social affair, and community members. The aim of this inclusion of different groups outside street beggars is in order to triangulate and enrich the data that was gathered from street beggars. Taking in to account the result of the study in mind, this research highly recommended that government and religious institutions should first distinguish capable and disabled beggars and after identifying them letting, the capable beggars get training them in order to return, to their own business while helping disabled ones. This is because, from the observation, we found that there were young and working group who accepted begging as a culture, as their prime choice.

#### **CSSH-A4: Assessing the Impacts of Land Registration and Certification With Respect to Selected Socioeconomic Parameters In South Gondar Administrative Zone: The Case of Tach Gayint Woreda**

Belete Gelanew Adugna<sup>1</sup>

##### **Abstract**

*In Ethiopia, there is a great concern over the country's socio-economic backwardness, poverty and food insecurity and, for some; the prevailing land policy is one of the root causes. Land is a very crucial socioeconomic asset in the country and a subject of continuous debate. This study was intended to assess the impacts of land registration and certification in Tach Gayint Woreda of South Gondar Administrative zone. To achieve this pillar objective, key socioeconomic attributes like gender equality, tenure security, land border conflicts, land management practices, and perception of the local people for this intervention have been considered in assessing the impact. Both primary and secondary data sources were used to achieve our data demand. Data collection instruments like key informant questions, Initial ideas of focus group discussions and observation checklists have been used to get the desired primary data. Qualitative data analysis method has been employed with in-depth analysis of office document for the study. Accordingly, land registration and title certification is found to be a positively motivating factor for better land management practices it and improved the existing conditions with respect to gender equality in property ownership, tenure security of the farming households and reducing land border conflicts. The perception of the local community-for the intervention is also continuously being shaped after mainstreaming and awareness tasks are done as per the office documents reviewed and the information gained from key informants.*

**Key words:** Land registration and certification, socio-economic parameters

**Cssh-A5: Assessing the Main Causes of Flood Hazard by Examining GIS and RS Based Land Use Land Cover (Lulc) Change, Slope and Drainage Density Analysis in Fogera Woreda: The Case of Ribb And Gumara Watershed, South Gondar Zone, Ethiopia**

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**Abstract**

*Floods are common natural disaster occurring in most parts of the world, and also they are the key environmental problems in degraded watersheds. This study was conducted in Fogera woreda: The case of Reb and Gumara watershed, southern Gondar zone of Amhara region where there is high incidences of floods. The objective of this study is to investigate the main (root) causes of flood hazard in the study area. The spatial analysis like LULC change, drainage density, Soil type and topographic (slope) analysis were conducted with ERDAS, RS and GIS. The remaining non spatial data of flood cause analysis and assessment was done based on the data collection and concept from the literature review. These, data were gathered through observation, interviews with different officers from different government and non-governmental organizations, and purposive and simple random sampling techniques were used to collect the data through questionnaire survey given to 379HHs of flood victim areas of Fogera woreda. Results of the questionnaire from household respondents, interviews with government and NGOs and direct observations of the two watershed of the study woreda indicate that flood hazard is increasing due to major factors like land use/land cover change, rain fall pattern, slope and drainage densities. Result from ERDS, GIS and RS analysis show that the watershed is experiencing high LULC change and dynamics on agricultural, settlements, grazing, forest and bare lands, and those change aggravated the peak flow or reoccurrences of flood hazard in the study area. The finding in the study area also clearly shows that, land use and land cover change have highly correlated with flooding because these impacts and occurrences of flooding in the watershed was occurred after a few years i.e. after forest and grazing lands have been changed to bare lands, settlements and agricultural lands. But the unquestionable fact in relation to land use, land cover change in the study area is the degree of flooding or runoff is closely related to and is a reflection of the degree of rainfall, soil type, topography and drainage density. In order to minimize and tackle this problem, mitigation program should be put into practice by government agents as well as well as communities and individuals who are living in the area.*

**Key words:** Flood, GIS, RS, ERDAS, Slope, Soil type, Rainfall and LULCC



## **CSSH-A6: Exposure and Perception of Climate Change in Northwest Ethiopia: Cases From Simada and Debark Woredas**

Menberu Teshome, PhD

### **Abstract**

*Smallholder farmers are the most exposed groups of the society to climate change risks. This study assessed the exposure and perception levels of farming households to climate change in Simada and Debark woredas of northwest Ethiopia using IPCC's integrated approach. Analysis of the exposure will help to answer questions of how much farming households are exposed to climatic risks and perception of these risks. The primary data were collected from randomly selected sample households using questionnaire survey, interviews and field observations. Secondary data were gathered from Global Weather Data for SWAT, books, reports and journal articles. The data were analyzed using simple regression, standardized precipitation index, exposure index, Likert rating scale, and descriptive statistics (mean, maximum, minimum and percentage) complemented with qualitative methods. The results of the meteorological data show that annual temperature had been in increasing trends in the studied woredas for the last three decades though faster rate of temperature increase was detected in Simada. The rates of increase in the two woredas were also faster than the national level increase observed over the past 55 years. On the contrary, the rainfall has shown a decreasing trend and variable distribution in the observation period in the two woredas. The standardized precipitation index (SPI) result for Debark indicates that the years 1999, 2002, 2008, and 2009 were severely dry and the years 1984, 1985 and 2004 were moderately dry. The years 1990 and 1998 were very wet and the years 1980, 1981, 1996 and 2010 were moderately wet. The rest eighteen years received nearly normal rainfall. Drought conditions obtained from the rainfall data is consistent with the perception of communities. Many people perceived the occurrence of exceptional droughts in the years 1984/85, 2002/3 and 2008/09 over the last three decades marking the 2002 as the worst of all years. The SPI result indicates that periodic fluctuation of wet and dry years characterize the rainfall condition in Simada. From 32 years of observation, 15 years (46.88%) recorded below the long-term average annual rainfall and the rest 15 years recorded above the long-term average. Only one year received nearly normal rainfall in the period (1983). The amount of rainfall in the years 1984, 1987, 1997, 1999, 2002, and 2008 were the lowest on the record in the observation period, marking the worst drought years in the woreda.*

## **CSSH-A7: Impact of Land Use-Land Cover Change on Annual Stream Flow: The Case Of Megech River Catchment; North West Ethiopia**

By Dereje Amene (Department of Development and Environmental Management Studies)

### **Abstract**

*The SWAT model was used to investigate the impact of land-cover changes on the runoff of the Megech catchment, North West Ethiopia. The model was calibrated against measured daily discharge, and land-cover changes were examined through classification of satellite images. Land-cover change scenarios were generated, namely the worst- and best-case scenarios. Historical land-cover change results showed that agricultural area increased from 42.6 to 62.2% between 1975 and 2010 while forest cover decreased from 16.4 to 2.8%. This significant decrease in forest cover is mainly due to expansion of agricultural land. A comparison between 1975–1980 and 1981–1985 showed that land-cover changes accounted for a difference in surface runoff ranging from 51 to 62% between the two time periods. The land-cover scenarios used showed the magnitude of changes in runoff due to changes in the land covers considered. In 1986–2000, the annual and the high flows of the catchment increased by 11% and 38% respectively while the low flows decreased by 28%. Generally, the results indicate significant changes in land cover and the hydrological regimes of Megech catchment over the past 40 years.*

**Key words:** land-cover change, runoff, hydrology, SWAT, North West Ethiopia

## **CSSH-A8: Regular Classroom Teachers' Knowledge, Skill and Attitude Towards Inclusive Education: The Case of Primary Schools in North And South Gondar.**

Meseret Getachew, Hana Shewamoltot & Habtamu Genet, lecturer, University of Gondar, psychology department

### **Abstract**

*Most research findings indicated that the majority of children with disability are found to be out of school especially in low and middle income families compared to children without disabilities. As a means to accommodate all children in public education despite their diversified educational needs, inclusive education was introduced some decades earlier. Inclusive education is a process of increasing the participation and disabled children alleviating barriers for equal accommodation and participation for all learners. As part of the principles of inclusive education, teacher's knowledge and skill in dealing with inclusive classrooms and teachers' positive attitude are important tools for better implementation of inclusive education. This study was designed to investigate the level of attitude, skill and knowledge of regular teachers towards inclusive education. This study was also designed to investigate the difference in attitude, skill*

and knowledge towards inclusive education across teaching experience, department, sex and familiarity to types of disability. Lastly, the objective of this study was to examine the relationship among attitude, skill and knowledge of regular teachers towards inclusive education. To meet this objectives, the researchers took 78 primary teachers from six schools (5-8 grade), Gondar, MaKisegnt, Woreta and Debretabour. A 4-point Likert type scale questionnaire was employed to assess teachers' attitude, skill and knowledge towards inclusive education. The data was analyzed using mean, standard deviation, correlation coefficient and one-Way ANOVA by SPSS. The result revealed that regular classroom teachers have positive attitude mean (mean=30.96) towards inclusive education. However, regular teachers have below average mean score of skill(mean=18.96)and knowledge (mean=15.12). The result also revealed that statistically significant difference was not observed in mean score of attitude, skill and knowledge across teaching experience, department/subject, sex and familiarity with different types of disability among regular teachers. On the other hand, the result of the Pearson correlation coefficient indicated that there was statistically significant positive correlation between attitude and skill as the mean score of respondents towards inclusive education indicate ( $r = 0.468, p < 0.05$ ). The result also indicated that there was positive significant relationship between knowledge and skill of regular teachers to teach in inclusive classroom( $r=.679, p<0.05$ ).

The study suggested programs that will help develop positive attitude towards inclusive education and programs that will improve skills and knowledge to teach students with disability in inclusive classroom setting. This could be facilitated by arranging trainings and seminars by concerned bodies

Key words; attitude, skill, knowledge, inclusive education

**CSSH-A9: የወፍጮና ጥጥ ፈተላ ቃላዊ ግጥሞች የይዘት ትንተና**

**በአባባ ሁሴን**

**አጠቃሎ (Abstract)**

የዚህ ጥናት ዋና ዓላማ የወፍጮና ጥጥ ፈተላ ቃላዊ ግጥሞችን ከመሰብሰብ ባሻገር ይዘታቸውን በመተንተን ቃላዊ ግጥሞቹ ያላቸውን ማህበራዊ ፋይዳ ማሳየት ነው። ይህንን ዓላማ ከግብ ለማድረስ በደንበያ ወረዳ ጫሂት ከተማ በሶስት የገጠር መንደሮች የሚገኙ አስራ አምስት ሠዎች በዓላማ ተኮር የንግድና ዘዴ ተመርጠው በጥናቱ ተሳትፈዋል። በቃለ መጠይቅና በምልከታ የተገኙ መረጃዎችም ለጥናቱ ስራ በመረጃነት ውለዋል። በመረጃዎች ትንተና መሰረትም በመሰረተ ልማት ዝርጋታና ንግድ መስፋፋት ምክንያት እነዚህ ቃላዊ ግጥሞች እየጠፉ መሆኑ፣ በዛን ዘመን የነበሩ ሰዎች ሀዘናቸውን፣ ደስታቸውን ትዝታቸውን፣ ቁጭታቸውን፣ እምነታቸውን፣ ፍቅራቸውን፣ ስሜታቸውን፣ ወዘተ ወፍጮ እየፈጩ ወይም ጥጥ እየፈተሉ በግጥም በማንጎራጎር ይገልጹ እንደነበር፣ እነዚህ ቃላዊ ግጥሞች እንደሌሎች የስነቃል ዘርፎች ባህልን፣ እምነትን፣ ማንነትን፣ በአጠቃላይም በወቅቱ የነበረውን የአሰሪዎችና የተቀጣሪዎች ግንኙነት እንዲሁም ሰዎች በውስጣቸው ይሰማቸው የነበረውን ስሜት ቁልጭ አድርገው እንደሚያሳዩ በጥናቱ

ተደርገዋል። ስለሆነም የጥጥ ፈተላና የወጪው ቃላት ግጥሞች ከምድረገጽ ሳይጠፉ ምሁራን፣ ባለሙያዎችና የሚመለከታቸው አካላት ሰብስበው እንዲያስተምሩባቸው፣ የጽንፅ መምህራን እነዚህን የስነቃል ዘርፎች ለተለያዩ ቴክኒኮች በመጠቀም ስነቃሎችን ከግዳዮች አንጻር የበኩላቸውን ድርሻ እንዲወጡ፣ እነዚህ ስነቃሎች ተተንተነውና ተተርጉመው ለተተኪው ትውልድ ያገለገሉ ዘንድ በዚህ ጥናት ተጠቅሟል።

### CSSH-A10: Causal Attribution of Students to their Academic Achievement

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#### Abstract

Human beings are constantly searching for the cause of behavior. According to Heider (1958), people broadly attribute the causes of behavior either to internal or external factors. An internal attribution is causes that are associated with the person's innate characteristics such as personality traits, moods, attitudes, abilities or efforts. And, an external attribution on the other hand, is the causes that are external to the person such as the actions of others, environmental situation or luck. This study, however, examined causal attribution of students to their academic achievement. A descriptive survey design was employed to measure the existing attribution level of students. Simple random sampling method was used to select sample departments from each college. And, representative samples were selected from each department based on their academic rank. The total participants involved in this study were 104 second year students at Mizan-Tepi University. They completed multi-attributional causality scale with items on ability, effort, context and luck dimensions. Mean, independent sample t-test, and one-way analysis of variance (ANOVA) were used for analysis. The result showed that the majority of the students attributed their academic achievement to internal factors. Academic success was attributed to internal factors while academic failure was attributed to external factors. Moreover, students with high and medium achievement tend to attribute their academic achievement to effort and ability while students with low achievement assign academic success and failure to luck. Regarding sex, male were tend to attribute their academic achievement to ability than female but there was no significant difference in effort, context and luck. This study suggests students should accept the fact that much of what happens to them is a result of what they do. As such, they should focus on effort as the main driver of success in their academic endeavors rather than luck. Teachers, on the other hand, should adjust the way they interact with and respond to students' achievement by appreciating the fact that every student can learn to achieve and therefore every student can be successful. It is also suggested that university authorities should always emphasize effort as the basis of students' success in their academic activities while improving the learning environment so as to minimize environmental constraints.

**Keywords:** Attribution, Academic Achievement, Internal Attribution, External Attribution

# CSSH-A11: Assessing Public Sector Corruption Risk Factors on Government Revenue: The Case Study of Revenue And Customs Authority at Metema, North Gondar, Amhara National Regional State

ABEYOU MOLLA

## **Abstract**

*This research was intended to explore the phenomenon of public sector corruption in Metema, and the nature and forms of workplace corruption in particular with special emphasis to the Metema Customs and revenue Authority. The overall objective of this study is to assess the perceptions of public organizations and private institutions towards corruption risk factors up on custom and revenue authority in Metema town. Given the lack of previous research in this area, the study is exploratory; it also calls for empirical studies for there is almost no research on the topic. The research is descriptive in nature and hence qualitative approach was employed. The source of information was both primary and secondary data. Interview was used to collect primary data. Primary data was gathered and analyzed from 21 knowledgeable government officials, civil society leaders, private sector representatives and civil servants working in relevant positions while secondary data from the TI, world bank principles on corruption and Federal Ethics and Anti-Corruption Commission was used. Published and unpublished documents as secondary data sources was intensively used. The results of the research discovered that corruption has become a serious problem of the Town. All major forms of corruption have been prevalent in workplaces. Favoritism and bribery were reported as the most common. In customs, valuation, classification, examination, services associated with delay, duty free service, outright smuggling, and embezzlement were reported as the most widespread areas and forms of corruption while need and poor working conditions, greed and rent seeking behaviors, attitudinal problem, existence of backward working system, and resource constraints and administrative discretion are reported as major causes. According, to the perception of both the employees and officials of Custom and Revenue Authority, the nature of the work performed, working condition, and organizational culture have been identified in order of importance as major corruption optimizing risk factors in Custom and Revenue Authority. The research has revealed three scenarios regarding reporting cases of corruption in the town: first, the society reports but the reports mostly fail to take effect because of lack of supporting evidences; second, some consider corruption as a "necessary evil", and hence, do not report; and third, the society does not report because of lack of confidence about effectiveness of the process in general. In workplaces as well, employees who exactly know about the occurrence of corrupt practices usually do not report because they are either accomplices or are indifferent. Moreover, the study has revealed that the weak civil service integrity system of the town and absence of effective institutional anti-corruption strategies are responsible for the prevalence of public sector corruption in Metema town.*

## **CSSH-A12: The Impact of Teachers' Beliefs on Teaching Grammar in the Context of Writing**

**Yifter Meless , Email Address: Yifter2011@yahoo.com**

### **Abstract**

*This research studied the relationship between English teachers' beliefs about grammar instruction in writing skill and their actual classroom practices. There was a need of such kind of study in the context of High schools in order to make teachers realize the importance of knowing one's teaching beliefs before moving to the practice them. It also examined the contextual factors that support or impede the translation of beliefs into practices, and the accommodative strategies teachers adopt when coping with contextual constraints. The study was carried out in Grade 9-10 English teachers in four government high schools: Teda, Azezo, Fasiledes, and Edget-feleg in Gondar town. Multiple methods were used in the investigation including: questionnaires, observations, and interviews. The research is a mixture of qualitative and quantitative methods with descriptive survey design, thus, data was gathered, categorized, and analyzed descriptively and statistically. The central theme of the analysis highlights the interactive relationship between beliefs, knowledge and instructional matters in teachers' personal framework of teaching grammar in writing context. Despite the fact that most teachers believed the importance of "the integrated-communicative" approach to teach English grammar in writing skills through meaning and form focused, the results revealed that teachers predominantly prefer the explicit focus-on-form approach. Thus, on the basis of the findings, it is suggested that teachers should know what teaching beliefs they have for further improvement of their instructional approaches on teaching grammar in the context of writing. They must also be given proper professional training opportunities for opening the doors of self-development towards an integrated-communicative approach.*

## **CSSH-A13: Harnessing Students' Councils to Promote Youth Development**

**Aduigna Abebe, Department of psychology.**

### **Abstract**

Research is increasingly indicating that students' councils are fertile contexts for promoting positive youth development. Yet, there is little research in Ethiopia about youths' growth experiences in university students' councils. The purpose of this research was to explore the available opportunities in the students' council of social work students at Addis Ababa University and to organize them in the way of promoting youth development. In this study, the researcher used a participatory action research to involve members of the students' council in researching their views regarding the challenges and opportunities of their council through dialogical approach. This action research took place in three stages between 01 February and 06 June, 2011. First was the exploration stage in which participants reviewed the situation and explored all possible opportunities in their council through dialogue. Second stage was the intervention stage

wherein participants have prioritized and developed extracurricular activities. This intervention resulted in the formation of two clubs: Peace and Diversity Club, and Anti-HIV/AIDS Awareness Club. Five themes emerged from the analysis of qualitative data derived from dialogues and interviews. The findings of the study revealed that participants have developed sense of ownership, initiative, social support and communication skills, cultural competence, and awareness of safe sexual behavior. The realization of engagement in democratic, collaborative dialogue in this research has great implication for students' councils to promote empowerment among university students in Ethiopia. The findings of the study are also informative to university students about the significance of extracurricular activities as curricular activities in promoting positive youth development.

**Keywords:** Youth development, student council, extracurricular activities

### **CSSH-A14: Evaluating the Performance and Applicability of AGWA2 Model in Analyzing Runoff and Sediment Load From Small Watershed: The Case Of Arno-Garno Watershed in North West Ethiopia**

*Dereje Amene, Department of Development and Environmental Management Studies*

#### **Abstract**

*Understanding the hydrologic response of Arno-Garno River regarding changes in sediment load, and surface runoff is an important component of water and soil resource planning and management. This study was initiated to evaluate the performance and applicability of coupled models of KINEROS (Kinetic Erosion) and SWAT (Soil and Water Assessment Tool) through AGWA2 in analyzing annual sediment load and runoff discharges at the outlet of Arno-Garno catchment. Statistical model performance measures, coefficient of determination ( $r^2$ ) of 0.71, the Nash-Sutcliffe simulation efficiency ( $E_{NS}$ ) of 0.71 and percent difference ( $D$ ) of 3.69 for calibration indicated good performance of the model simulation on annual time step. In addition, the performance of the model when looking at the annual surface runoff is good, with 84% coefficient of efficiency and the performance of the model in simulating annual sediment loads is good with 81% coefficient of efficiency. This result directed to the conclusion that the model can consistently predict annual stream flows and sediment yields on any other catchments with settings related to the watershed studied. Mean annual surface water and sediment yield simulated with the calibrated model were found to be 142.6mm, and 256mg/ha respectively while the observed annual surface runoff and sediment yield were found to be 154.3mm and 268.2Mg/ha respectively. Very few years of simulated flows were over estimated, but most simulated flows were close to observed flow by both the graphic and the statistical methods. Therefore, coupled models of SWAT and KINOROS can be taken as potential tool for simulation of the hydrology of ungauged watershed in north-west Ethiopia, which is hydro-meteorologically similar with Arno-Garno watershed. Future studies on Garno watershed modeling should address the issues related with water quality and evaluate best management practices.*

**Key words:** Simulation, calibration, watershed, AGWA2, applicability/performance

## **CSSH-A15: Engendering Gender Based Livelihood Diversification: The Role of Women in Household Food Security**

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### **Abstract**

*Women make essential contributions to economic developments, household income, food security and in the world of formal work. They remain the invisible workforce in the global production chains, where they dominate as house-workers and sources of temporary labor force. For a long time due to the society's biased view and patriarchal gender relation, they were forced to leave the mainstream of economic sector for males. This research work has focused on the analysis of the role of women in improving household food security. Therefore, the study has examined the role of women in household food security resilience in rural families using mixed research design. In-depth interview with Key informants and focus group discussion was been used. For data analysis the concurrent triangulation strategy was applied. Qualitative data was been analyzed using thematic and narrative analysis. Binary logistic regression and chi-square test was used to make inferences. The study has identified the activities performed by women in ensuring food security at the household level. They have also faced challenges, which have exposed them for the feminization of poverty. The crucial roles of women as agricultural workers, shock absorber, makers and shapers of livelihood have often been ignored by the government and policy makers, which are not revealed in research. Even if they were responsible to manage the household food security for longtime, they were challenged by lack of access to land, raw material, information, access to training, inclusion to the justice system and lack of income to support their family. While they were found to be vibrant in household income and food security, they are further challenged by the cultural system of the society.*

**Keywords:** household, livelihood, food-security, and resilience.

## **CSSH-A16: Valuable Local Histories and Community Archives at Crossroads: A Survey on the Condition of Managing Records and Manuscript Repositories in North and South Gondar Zones**

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### **Abstract**

**Background:** This study was the first phase in the initiative of developing project proposal that will be conducted later to collect records, and establish archival center for research either at Gondar University or anywhere in North and South Gondar Zones.



**Objective:** The main objective of the study was to investigate records management trends in various government sectors in North and South Gondar Zones.

**Methods:** This study employed a qualitative research approach. The researchers used a survey research method with visits and semi-structured interviews, observations and document analysis as the main data collection instruments. The research also used purposive sampling technique to select a total of 42 interviewees that consist former record workers who are currently assigned in other positions, record officer, active staff, secretaries, and some concerned authorities from twenty selected public sectors in North and South Gondar Zones. The data were analyzed and interpreted using a descriptive analysis.

**Results:** The findings of this study revealed that the public sectors in North and South Gondar Zones have thousands of written heritages that can date far back to the 1940s and 1950s, which have greater potential for community based problem-solving research, decision-making and development purposes. However, the overall records and archival management practices in the study areas were poor, and the valuable records are found to be in risk, and they are exposed to destruction. This was evidenced by different challenges: lack of awareness, insufficient resources, very limited space, absence of records management policies and procedures, regular restructuring of government offices, misunderstanding of the implementation of philosophy of "Business Processing Re-engineering"(BPR) and abandoning the status of "*mezgeb bet*"( record office), absence of qualified record managers and lack of training opportunities in records management. The result also showed that the records that are in danger of extinction need urgent remedial actions to be taken by the government, community, higher institutions and other stakeholders.

**Conclusions:** Although the research was limited to government departments at zonal level, it can shed light on the study of challenges of managing records that most organizations in all *woredas* in North and South Gondar Zones face. Its results provide useful remedial strategic recommendations to safeguard records from destruction, keeping them in safe repositories and promote effective records management system in the two zones and elsewhere in Ethiopia. The study also recommended that a scholarly developed project proposal should be designed to intervene in the security and preservation of records in the study areas. The most important mechanisms that the authors recommended to preserve and transfer the existing indigenous cultural heritages to the future generation are: appraising, disposing, arranging, classifying, and organizing records scientifically to be managed by qualified archivists; microfilming, copying, and digitizing them and allocating sufficient space and budget.

**Keywords:** records, archives, records management, local history, government departments, written heritages

### **CSSH-A17: In-Laws Interference, Marital Quality, and Divorce in Chilga, Northwest Ethiopia**

*SemalegneKendieMengesha (semalegne2000@gmail.com)*

#### **Abstract**

*Recent evidences indicated that about 59% of first marriages in Chilga Woreda end up with divorce due to childlessness, sexual incompatibility, parents-in-law interference, infidelity, and other factors (Kendie, 2014). However, detailed explanations about the relationship among parents-in-law interference, marital satisfaction and first marriage divorce is nowhere in the study area since greater attention has gone to other factors. Therefore, this research is aimed at examining the relationship between parents-in-law interference and divorce being mediated by marital quality. A cross-sectional sample survey consisting of 373 individuals, who are engaged in first marriage at least a year ago were included in the study. Baron and Kenny's (1986) mediation model was used. The result of the study indicated that parent-in-law interference contributed to first marriage divorce being partially mediated by marital satisfaction. In other words, parent-in-law interference mostly directly affects first marriage spouses to decide to quit their partners whenever the level of parents-in-law interference gets higher. Nevertheless, sometimes parents-in-law interference, rather than directly leading couples to divorce, first spoils marital satisfaction and then divorce. Policy, research, and practice implications have been discussed.*

*Key Words: parents-in-law interference, divorce, marital quality, Ethiopia*

### **CSSH-A18: Challenges of Historical Heritage management in Däbrä Tabor and Its vicinities up to 1900**

*Awegichew Amare,<sup>1</sup> Dereje Workayehu,<sup>2</sup> Desalegn Bizunch,<sup>3</sup> Adera Getaneh,<sup>4</sup> Ebrahim Dantew<sup>5</sup>*

#### **Abstract**

*Gondär is rich in its diverse heritage resources. Some of the heritages of the zone are registered by UNESCO for they possessed outstanding universal values, which are exposed for better management. Some others, however, are partially neglected and are not managed in proper way at the local level. The main objective of this study was to investigate challenges of historical heritage management in South Gondär with special focus on historical sites in and around Däbrä Tabor town up to 1900. To conduct this study, qualitative research design was used. The sample*

participants and informants were determined by purposive sampling. Data were collected through observations, interview, focus group discussions and document analysis, and the data were analyzed through explanation, description, summarization and interpretations of larger meanings of data on challenges of heritage management in the study area. It was found that Locals' resistance, absence of context based management plan, private ownership over heritage resources, infrastructural gaps, vague boundary demarcation, and poor link among stakeholders are the major challenges of heritage management.

**Key terms:** heritage, challenges, Däbrä Tabor and its vicinities

### **CSSH-A19: A History of Social Change and Crime Occurrence: Trends and Patterns in North Gondar, 1941-1991**

Dereje Workayehu<sup>1</sup>, Adera Getaneh<sup>2</sup>, Dessalegn Bizuneh<sup>3</sup> and Gebeyehu Mengesha<sup>4</sup>

#### **Abstract**

*This study examined an event that has great political and social implications. In spite of its sensitive and delicate nature, crime in Ethiopia in general and in North Gondar in particular has hardly become a focus of scholarly attention. So far, no major attempt has been made to reconstruct the history of crime in the study area from the scholarly point of view. Interest in the topic of crime has developed within the discipline of history in recent years, and that many criminologists and sociologists have come to appreciate the value of diachronic or historical approach to the study of this issue. This research attempted to study the patterns and trends of crime in North Gondar from a historic perspective in line with the rapid tempo of social change the country experienced from 1941 onward. In the process of writing this paper, the researchers consulted both primary and secondary source materials by applying data collecting methods like archival research, library work and interview. According to the available police statistics, as compared to the pre revolutionary era crime appears to have dropped in the revolutionary era in the study area at least until the early 1980s. However, low crime rate was recorded at the time of numerical decline of the police force which arose suspicion in the reliability of the police statistics. The definition of political crimes was also broadened in the derg regime. Many crimes which were previously considered as ordinary, were labeled as political or "counter revolutionary" during the derg regime. The geographical location of the area along the Sudanese border, where many armed groups, who opposed the regime were found to have partly influenced the type of crimes committed.*

**Key Words:** Crime, Social Change, Derg, Revolution, Red Terror

## **CSSH-A20: The Endangerment level of Kemantney Language and the Urgency for Revitalization**

*Semalegne Kendie Mengesha, Lecturer, Department of Social Work, UoG, E-mail: semalegne2000@gmail.com*

### **Abstract**

*Linguists reported that the Kemants speak a language known as Kemantney, which belongs to a Cushitic Agew language. In 1994, there were about 172,324 Kemants among whom 1650 were mother-tongue speakers of the language, which indicates that Kemantney is endangered. However, this endangerment and the urgency for revitalizing it has not yet been studied so far using standardized tool. Therefore, this systematic review is aimed at describing the endangerment level of Kemantney and the urgency for revitalization. UNESCO's (2003) Language Vitality Assessment was used. The findings indicated that Kemantney is spoken by a very small number of elderly people mostly for specific purposes (religious rituals and secret talks), and it remained inactive in responding to new domains and media. In addition, there are no any orthographic materials and documentation as Kemantney have been a non-written language throughout the history of the Kemant people (Hudson, 1999). Likewise, Kemantney has not got any official status since the 14<sup>th</sup> century as a result of which it has undergone both through active assimilation (from the 14<sup>th</sup> century to the end of the Solomonic Dynasty) and passive assimilation (from the end of the Solomonic dynasty until now) (Quirin, 1998). Therefore, Kemantney is found at a higher risk of extinction, which needs urgent revitalization measures. However, the best opportunity is that government's positive response to the Kemants' quest for identity and self-rule, which has boosted the majority of Kemants to highly value their language, which enables them wish to see it promoted. Policy, research practice, and recommendations are discussed.*

*Key Words: kemantney, Kemant, revitalization, endangerment*

## **CSSH-A21: Medicinal Use of Fauna in the Folk Medicine System of Gondar: The Case of Metema Woreda**

*Mezgebu Belay, MA, Lecturer and Chairperson, Department of Social Anthropology  
University of Gondar*

### **Abstract**

*The Gondar people utilized indigenous medicine for generations, and it remains popular even in the presence of biomedicine. Indigenous medicine is known for its holistic approach to health problems unlike biomedicine, which is very expensive and not easily accessible. Medicinal Animals are part and parcel of the mechanisms to deal with illness and disease for most of the people in Gondar in general and Metema in particular. Through field work conducted with*

*Metema people with the help of key informant, interview with semi structured questions, this research tried to explore the traditional way of treating various kinds of human ailments by using various vertebrate/invertebrate and wild/domestic animal products in north Gondar by taking Metema woreda as a specific study site. Besides, this study provided an overview of the medicinal fauna, animal species used as remedies, body parts used to prepare the remedies, and ailments for which the remedies are prescribed in traditional medicine system of Metema people. Furthermore, this study assessed the uses, collections, productions and distributions of medicinal animals in the local zootherapeutic practices of Metema woreda as well as the challenges that it is currently facing.*

**Keywords:** Medicinal Fauna, Folk medicines, Zootherapy, Metema woreda

### **CSSH-A22: University Teachers' Perception, Utilization and Preference of Lecture Deliveries: PowerPoint Vs Traditional Lecture**

Daniel Tsehay and Ebasushe Yiredaw (Department of Psychology)

#### **Abstract**

This study examined teachers' perception, utilization, preference and reasons for frequent utilization of a particular lecture approach (PPT or Chalkboard lecture). Self-reported questionnaires were collected from 138 teachers. Open ended questions and interview were also employed. To analyze the obtained data percentage and T- test were used. Teachers displayed positive perception for both teaching techniques; however, running classes with PowerPoint lecture was better viewed than traditional lecture. Sizeable numbers of teachers are using PowerPoint lecture (53.6%) is employed frequently and always, and still traditional lecture (39.1%) is used frequently and always, however; practice of teaching using chalk board lecture is declining compared to PowerPoint lectures. As far as teachers' preference is concerned, PowerPoint lecture was dominantly preferred by teachers (50.7%) compared to traditional lecture (30.4%) where as the number of teachers using both teaching techniques was very low (18.8%). Some important points were also recoded using open ended questions and interview. This study evidenced significant number of teachers more prefer and utilize PowerPoint lecture than traditional lecture. However, students preferred to be taught by traditional lecture, which show a clear gap of preference and practice. This triggers to question and audit our usage of PPT at large scale in the academic community.

**Keywords:** Perception, Utilization, Preference, PowerPoint Lecture, Traditional Lecture.

CSSH-A23: ስነጽሁፋዊ ስራዎችን በመጠቀም የጽንፅ ክሂሎችን አዋህዶ የማስተማር አተገባበር ቅኝት በመሰናዶ ትምህርት ቤቶች

መልሻው ምትኩ

አጠቃላይ

የጽንፅ ትምህርት የመጨረሻ ግብ የተማሪዎችን በጽንፅ የመግባባት ችሎታ ማጎልበት ነው። ይህ ችሎታ ሃሳብን ከመቀበልና ከማስተላለፍ ባሻገር የጽንፅውን ስርአትና አገባብ እስከመገንዘብ ድረስ ይዘልቃል። በየደረጃው ያሉ ተማሪዎች ይህን ችሎታ ያጎለበቱ ዘንድ ክሂሎች ተቀናጀተው መቅረብ ይኖርባቸዋል። የጽንፅ ክሂሎችን አዋህዶ ለማቅረብና ትምህርቱን ሳቢና ማራኪ ለማድረግ በስነጽሁታዎቹ የሚቀርብ የጽንፅ ትምህርት ሚና ከፍተኛ ነው። የዚህ ጥናት አላማም በመሰናዶ ትምህርት ቤቶች በስነጽሁፍ የጽንፅ ክሂሎችን አዋህዶ የማስተማርን አተገባበር በመፈተሽ ላይ ያተኮረ ነው። ጥናቱ ገላጭ የጥናት ዘዴን ተከትሎ የተካሄደ ሲሆን መረጃዎቹ ከመምህራን በምልከታና በቃለ መጠይቅ፣ ከተማሪዎች በጽሁፍ መጠይቅ ተሰብስበውና በአይነት ተደራጅተው አይነታዊና መጠናዊ በሆነ ስልት ተተንተነዋል። የተገኘው መረጃ እንደሚያመለክተው በተተኪ ስራ ትምህርት ቤቶች ውስጥ የሚያስተምሩ የአማርኛ ጽንፅ መምህራን በስነጽሁፍ የጽንፅ ክሂሎችን አዋህዶ የማስተማር አተገባበር ስልት ተጠየቃልና ቅድምተከተላዊ እንዳልሆነ፤ አንዱን በሌላው ውስጥ አካትቶ የማቅረብ ሂደቱም በጣም ዝቅተኛ እንደሆነ መረጃው ያሳያል። በተጨማሪም የመምህራኑ የትምህርት አቀራረብ ስልት ተማሪዎችን አሳታፊ ከሆኑት ከጥንድ፣ ከቡድን ስራ እንዲሁም ሰርቶ ከማሳየት ዘዴን ከመጠቀም ይልቅ መምህር ተኮር የገለጸ ስልትናጥያቄና መልስ ስልትን በብዛት እንደሚጠቀሙ በጥናቱ ተረጋግጧል።

CSSH-A24: Land Use and Land Cover Dynamics, Driving Forces and Impacts in Lay Gayint Woreda of Amhara NRS, Ethiopia

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Abstract

The objective of this study was to assess the pattern, and to identify the major driving forces of LUC changes; and analyze consequences of these changes. Landsat image of 1984 and 2004 were used to produce two layers of Maps using Remote Sensing and GIS. The results show that Cultivation land and settlement are increased by 51.8 % followed by increment in Bare Land by 19.1 %, while Communal Grazing, Forest cover and Shrub have been reduced by 52.6 %; 79.6 % and 28.4 %, respectively. Population growth, less hand holding related to traditional farming practices, high fuel energy demand were the major driving forces for the observed changes. One of the major negative impacts of LUC changes in the Woreda is land degradation, mainly in the form of erosion and the resulting loss of fertility. Therefore, sustainable land management practices, utilization of alternative energy sources, family planning, achieving improvement in awareness on the impacts of those changes are some of the appropriate interventions to be made.

**Key words:** GIS, Remote Sensing, LUC changes, Land Degradation, Soil fertility, soil erosion, Sustainable Land Management Practices

**CSSH-A25: Land Suitability Assessment for Sorghum and Maize Crops Using SLA and GIS Approach in Dera Wereda, ANRS, Ethiopia**

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**Abstract**

The land suitability evaluation for sorghum and maize found in the study area has been done in order to define the land fitness for specific land uses as well as estimating the possible increase of crop production after improving land management. Sorghum and maize are cereals that are considered in the suitability appreciation using GIS to match the suitability for two crops based on their biophysical requirements and the characteristics of land in Dera wereda. The methodology employed combines land quality attributes that most influence crop suitability and biophysical requirements of selected crops for analysis. The suitability assessment for both crops was conducted using the method as described in FAO guidelines of land evaluation for rainfed agriculture. The results of weighted overlay for biophysical suitability evaluation using Simple Limitation Approach (SLA) indentified that about 40.25% and 59.75%, and 70.67% and 27.36% of the total area of land in the wereda were evaluated as moderately and marginally suitable for sorghum and maize production respectively. However, only small patches of area were weighted as highly suitable and not suitable for maize production. As a result, the largest proportion of land was only moderately suitable for maize (70.67%), but marginally suitable for sorghum production (59.75%) in the wereda. Therefore, a GIS based approach for evaluating land in terms of potentials and constraints cannot be overlooked in this study as a useful tool in assessing land for sustainable agricultural planning.

**Keywords:** suitability evaluation, biophysical requirements, FAO method, GIS based approach, Simple limitation Approach (SLA), sustainable agricultural planning

**CSSH-A26 በጎንደር ከተማና አካባቢዋ በሚገኙ አብያተ ክርስቲያናት የባህል ሃኪሞች ባህላዊ የዕድሜት መድሃኒት አቀማመጫ፣ አዘገጃጀትና አሰጣጥ**

*ሐብታሙ አቃናው*

**አጠቃላይ(Abstract)**

ባህላዊ የዕድሜት መድሃኒት በፎክሎር ጥናት መሰከ በ“ሃገረሰባዊ ልማድ” ስር የሚፈረድና የ“ሃገረሰባዊ መድኃኒት” ገደብ ክፍል ነው። የዚህ ጥናት ዋና ዓላማ “በጎንደር ከተማና አካባቢዋ በሚገኙ አብያተ ክርስቲያናት የባህል ሃኪሞች ባህላዊ የዕድሜት መድሃኒት ቅመማ፣ አዘገጃጀትና

አሰጣጥን አጠቃላይ ሁኔታ መመርመር ነው። ጥናቱ በዓይነታዊ የምርምር ዘዴ በመመስረት 8 ባህላዊ የዕድገት መድኃኒት አዋቂዎችን በዲላማዊ የንጥናዊ ዘዴ በመምረጥና መረጃ በማሰባሰብ በይዘትና በገለጫ የመረጃ የመተንተኛ ዘዴዎች ለመተንተን ሞክሯል።

በጥናቱ እንደተረጋገጠው በባህላዊ ህክምና ጥበብ የታመመ አካል ስለ መጣ ብቻ መድኃኒት አይቆረጥም፣ አይዘጋጀም፣ አይቀመምም፣ አይሰጥም። በቅድሚያ የበሽታውን ዓይነት መለየት፣ ከዚያም ዕዕዋት የሚበቅሉበትን ቦታ፣ ስያሜያቸውን፣ የሚሰበሰቡበትን ጊዜና ወቅት፣ አዘገጃጀታቸውን፣ የመድኃኒቱን አሰጣጥ፣ ስለ ማዘጋጃና መቆረጫ ቁሳቁሶች፣ ዕለታትና ስርዓተ ገቢሮች ባህል ሃኪሞቹ በተገቢው መንገድ ማወቅ ግድ ይላቸዋል። እያንዳንዱ የዕድገት መድኃኒት አሰባሰብ፣ ቅመማና አሰጣጥ ቴክኒክ በምስጢር የተያዘ ነው። በተለይ የመድኃኒቱን አሰባሰብ፣ አቀማመጥና አሰጣጥ በተመለከተ ከራሳቸው ውጭ ሌላ ሰው በፍጹም እንዲያውቅ አይፈልጉም። አንዳንዶቹ ከቤተሰብ ሲወርሱ ሌሎች ደግሞ ባለሙያዎቹን ለረጅም ዓመት በማገልገልና የባለሙያዎችን ጥበብ በመሰረቅ እንደተማሯቸው ለማረጋገጥ ተችሏል። በዚህ ምክንያት የባህል መድኃኒት ዕድገትና ዕውቀቱ በብዛት እንደጠፋ፣ አሁንም በመጥፋት ላይ መሆኑንና ባለሙያዎችም ስራውን በመተው ላይ መሆናቸውን ለመረዳት ተችሏል። ስለሆነም ይህ ውድና የማይተካ የሀገር ቅርስን መታደግ እንደሚያስፈልገው ለዩኒቨርሲቲውና ለሌሎች ለሚመለከታቸው አካላት አጥኝው ይጠቁማል።

**CSSH-27: GIS and Remote Sensing Based Land Use and Land Cover Dynamics at Semien Mountains National Park**

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**Abstract**

*The main purpose of this study is to quantify the magnitude and rate of change of major land use/land cover types, and to identify the major drivers of change in SMNP using GIS and remote sensing. To address the pre-stated objective three land sat images in the periods between 1985, 2000 and 2015 with the time series of 15 (fifteen) years for the consecutive of 30 years land use and land cover dynamics were classified and analyzed using Erdas Imagine 9.2 and ArcGIS 10 environments. The results of the analysis depicted that a remarkable expansion was observed in forest cover followed by farmland and settlements between 1985 and 2015 by about 16% (22 ha/y) and 14.7% (21 ha/y) although some portions of their original extent were converted into other LUC classes. Expansion of forest cover was dominantly attributed to conversions of exposed rocks (1334.97 ha) and shrubs (1255.23 ha). These possibly attributed to conversion of some portions of exposed rocks and shrubs, which were unsustainably utilized into protected areas by area closure and transformation of shrubs into forest cover. Similarly, farmlands and settlements have been expanded mainly due to area gains from grassland (984.51 ha) and forest cover (1037.25 ha). This is largely associated with encroachment of farmlands and settlements into grasslands and original natural forest cover as a result of population pressure. The results*



also indicated the reduction of areas under grassland, exposed volcanic rocks and shrubs by about 2.35% (5 ha/y), 18% (32 ha/y) and 11% (14 ha/y) is evident because the added areas from other LUC classes could not compensate the losses respectively. The dominant contributor of the existing decline in grassland was associated with the conversions of its initial extent mainly into farmland and settlement (984.31 ha). This is possibly attributed to the existence of settlements in the park, which require additional lands for farming and livestock keeping. Areas constituted by exposed volcanic rocks decline mainly contributed by the conversion of the original cover into forest cover (1334.97 ha). This is possibly attributed to some efforts of degraded land management mainly in the form of area closure for controlled grazing in the park. Shrinkage of shrublands was also attributed to its conversion mainly into farmland and settlements (1037.25 ha) and forest cover (1255.23 ha). This caused the disappearance of some portions of grasslands as a response to the conversion of some of the areas that were previously under grasslands largely into farmlands and settlement units. The major drivers identified in the study area were civil war between 1984 and 1991, which resulted in the agricultural exploitation, deforestation and illegal wildlife hunting, population pressure due to influence of settlers for the last decade. The population pressure through settlement and cultivation is rising in the form of intensive cutting of tree for local energy consumption, cutting of long grass for housing construction have changed the traditional Walya Ibex habitats into intensive man-used zone. Finally revitalizing the national park is not only the duty of the government but also all the concerned individuals; specially the communities around the park and different stake holders at different levels should work in integrated and in systematic manner.

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**FVM 01: Cattle Urine Technology to Maximize Maize Plant Biomass Yield  
Applicable to Small Holder Farmers by Evaluating the Biomass Yield and  
Palatability of Harvested Maize Fodder Using Dairy Cows at Gondar, North West  
Ethiopia.**

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**Abstract**

**Background:** The use of chemical fertilizers in Ethiopia 1999/2000 was only ~35 kg ha<sup>-1</sup> on average. Nitrogen consumed in excess of animal requirement is excreted in faeces and urine, contributing to environment pollution. A 650-kg dairy cow is estimated to excrete 116 kg N/yr, 12% of which could be lost by ammonia volatilization, making dairy cows the major N polluters in animal husbandry. Observed Urinary Nitrogen Excretion from Plasma Urea Nitrogen in Dry and Lactating Cows.

**Objectives:** To estimate Maize Plant ear height, to evaluate Maize Plant height, and to estimate Maize Plant Biomass yield in kg in 60 to 65 days of planting (iv), to evaluate the palatability of harvested Maize plant by feeding dairy cows.

**Materials and methods:** The Maize (*Zea mays* L.) trial was conducted in the University of Gondar forage Elephant grass development garden. The study was undertaken at Gondar, North Gondar Administrative Zone of Amhara Region, Ethiopia. Data used for the study generated both the optimum amount of water and urine mix to get the utmost vegetative yield. Each plot was 2m x 10m meter trial at different water and urine mixes. Both positive and negative controls were also used to compare and contrast the two. By far the simplest method of collecting and storing urine is for cattle to use container or plastic drum. The simplest are funnels mounted over 20 liter plastic containers. Urine was applied for the preparation of soil at the time of sowing and onwards. Urine was applied three times in a week with water up to the end of harvesting in different combinations i.e, water to urine ratio of 10:1, 8:1, 6:1, 4:1, 2:1, and 1:1 (water: urine) ratio as well as Urea to DAP (Positive control) and with no urine, DAP & Urea fertilizer to (negative control) Treatments (Ts) 1, 2, 3, 4, 5, 6, 7 and 8 each with three replications respectively. After germination Ash (*Amed*) were once used to correct the Phosphorus (P) and Potassium (K) shortages. All the following 1 to 8 treatments (Ts) respectively used; and each with three replications were examined and followed for about to 65 days. The statistical analysis to be used in the study would vary depending on the type of variables and information obtained. However, the quantitative data was analyzed using descriptive statistics.

**Results:** The Maize (*Zea mays* L.) germination was started as of six days of sowing. The cattle urine was diluted with water and watered the maize plant morning and evening three times per week up to the end of the harvesting time 65 days of planting. In each treatment rows the Ash (*Amed*) was once treated and /or spread to correct the shortage of the phosphorus (P) and potash (K). The result was awfully promising in alleviating the feed shortage of animals with in 60 to 65

days of germination. More cattle urine to water concentration has little effect on maize biomass yield based on this trial; than water diluted treatments; this might be because of the fact that; as urine concentration increases ablaze effect on plants that deter vegetative growth. Treatments (Ts) were 10:1, 8:1, 6:1, 4:1, 2:1, and 1:1 (water : urine) ratio as well as Urea to DAP (Positive control) and the last with no urine, DAP & Urea fertilizer to (negative control). Treatment (Ts) 1, 2, 3, 4, 5, 6, 7 and 8 each with three replications respectively. The average over all treatments maize plant ear height in cm was 139.94; 129.44; 118.06; 116.33; 108.95; 96.5; 64.72 and 39.4 in (Ts) respectively. The average over all treatments maize plant height in cm was 213.83; 199.39; 183.28; 181.38; 181.33; 166.28; 128.83 and 80.07 in (Ts) respectively. The average over all treatments maize plant biomass Yield in kg was 55; 38; 32; 31.33; 29.33; 22.67; 5.67; and 4.17 in (Ts) respectively. The average over all treatments maize plant estimated Row biomass yield in kg/ha was 27500; 19000; 16000; 15667; 14667; 11330; 2833; and 2083 in (Ts) respectively. The average over all treatments maize plant estimated row biomass yield in tons/ha was 27.5; 19; 16; 15.67; 14.67; 11.33; 2.83; and 2.08 in (Ts), respectively. The average over all treatments of maize plant estimated biomass yield in tons/ha was 82.5; 57; 48; 47.44; 34; 8.2; and 6.25 in (from 1 to 8 Ts) respectively. What has been pragmatic from the trail was that; more diluted water to Urine ratio T1 (10:1) has much improved maize biomass yield than the rest of treatments even in positive control trials. In the positive control trial drop-down biomass yield was observed. This might be due to the firing effect of the inorganic fertilizers; hence, jog-drop-watering in the dry season of the area was used. That might not be sufficient to dilute like that of rain water and causes the roots on fire. In the trial in treatment one (T1); 10:1 (water to urine) ratio on average 82.5 tons/ha of green fodder can be harvested than the negative control treatment (T8) which has only 6.25 ton/ha of maize biomass yield. The T1 has much improved performance and is more productive than the positive control treatment (T7) having only 8.2 ton/ha green fodder. The reason behind was nothing but the urea 46% N and Diammonium Phosphate (DAP) 18% N & 46% phosphate mix was used once at the time of sowing. Harvested maize after weighed fed for dairy cows voraciously 100% fed the maize fodder.

**Conclusion:** The trail proved that the water to urine mix has an impact on the productivity of maize biomass yield per hectare. In developing countries; like Ethiopia pastoralists considered the livestock population as a bank to deposit their wealth which can be supported by diluted water to urine application feeding. This trial is not only cheap, accessible, and affordable to the livestock owners; but also; can boost productivity milk and meat; hence; it was 100 percent palatable voraciously. On the hand, the technology, what has been tested was experimented in the dry season of the year. It alleviated the livestock owner's worry in feed accessing; reduced of disease infection from communal grazing sites. What makes this trial more likely was nothing but as the dilution with water increases the biomass yield increases. This helps to use the urine to cultivated more land.

## FVM 02: Adoption and Invention of Egg Candling Machine

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### Abstract

**Background:** This study was done in Gondar University, Faculty of Veterinary Medicine from September 2014 to June 2015. Chicken farmers use candling to learn which of their chickens' eggs are fertile and will hatch into baby chicks. Candling can also be used to tell if a fertilized egg has stopped developing. The candling process works by illuminating the interior of an egg so you are able to see what is inside the shell. The poultry sector has been growing in Ethiopia since the last decade due to the attention given to the sector through organizing the young graduates from universities. Yet, the quality of the eggs produced is not well tested before they are sold to consumers. And lots of eggs are thrown away while on the process of preparation for food. Therefore, needs were arising from universities, hotels, and restaurants, large egg merchants and brokers for quality products.

**Objective:** The two main objectives of this project were to invent and adopt an egg candling machine and test its efficiency against the gold standard method of detecting egg quality testing procedures.

**Materials and Methods:** The research team was very keen about adopting and inventing a simpler egg candling machine and contributing their good share to the users and producers and thereby reducing low quality egg on the market. The first phase of this project is inventing the first line machine and the second phase was testing its efficacy. For these activities, the detailed literature reviewing to assist our assumption, sketching the drawing, and trying to assemble the machine were necessary. Then egg quality testing using this machine and by involving two graduating classes of DVM students took place.

**Results:** The project had two phases; the first phase was inventing the machine, and the second phase was testing the machine and making it available to the market for users. Thus, the first phase and second phase were accomplished successfully. These were invention with the adoption of parts and testing its efficiency against the gold standard we used to test egg quality.

**Conclusion:** The candling machine is invented with a test efficacy of above 90 percent against the gold standard (breaking the egg and examining). The machine is designed in such a way that it is going to be modified and made simpler for country side usage by people with less income or town egg merchants. But it is found easy and afforded for hotels, universities, and big merchants. Yet, currently it has some disadvantages because it uses light and heavy to transport.

**Recommendation:** It should be modified and be readily available on market with aluminum works. And the property ownership should immediately be requested before dissemination to the market.

**Keywords:** Eggs, Candling, Quality, Adoption and Invention

### **FVM 03: Study on Effects and Occurrence of Nematodes in Local and Exotic Chickens in and Around Bahir Dar, Northwest Ethiopia**

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#### **Abstract**

**Background:** Poultry are kept in backyards or commercial production systems in most areas of the world. Compared to a number of other livestock species, fewer social and religious taboos are related to the production, marketing, and consumption of poultry products. For these reasons, poultry products have become one of the most important protein sources for man throughout the world.

**Objective:** to study the effect and occurrence of Nematodes in Local and Exotic Chickens in and Around Bahir Dar.

**Materials and Methods:** A cross sectional study was conducted to investigate gastrointestinal (GI) nematode parasites in chickens in and around Bahir Dar, northwest Ethiopia. A total of 384 chickens comprising 112 exotic and 272 local were examined for gastrointestinal nematode infections. Simple random sampling method was implemented for selecting chicken. Sample size for the study was calculated using the formula given by Thrusfield, 2005 with precision level of 5%, confidence interval of 95% and the expected prevalence of 50% since there has been no similar study done on the study area. Accordingly, the required sample size was 384.

**Result:** Out of these, 180 (46.9%) were found to be infected with GI nematode parasites. The nematode species found in chickens were *Ascaridia galii* (15.1%), *Heterakis gallinarum* (11.7%), *Capillaria columbae* (4.4%), and *Subulura brumpti* (2.9%). There was a statistically significant difference ( $p < 0.05$ ) in the prevalence between breeds of chickens in which higher infection rate was observed in local breeds of chickens (51.47%), than in exotic breeds (33.6%). There was also a statistically significant difference ( $p < 0.05$ ) among age groups where higher prevalence of GI nematodes was recorded in adults (50.55%) compared to growers (38.93%). In addition, there was a statistically significant association ( $p < 0.05$ ) in prevalence between the different management systems where higher infection rate was recorded in extensive management system

(51.47) compared to intensive management system. There was no statistically significant difference ( $p>0.05$ ) among sex category of chickens in which the prevalence of infection was 49.29 and 44.4% in female and male chickens respectively. Mixed infections with two or more parasite species were also observed in 12.8%. This study strongly suggested that GI nematode parasites are a very serious problem of backyard chickens in the study area and appropriate control strategies need to be devised.

**Conclusion:** This study has demonstrated a high prevalence of gastrointestinal nematode parasites of chickens in both extensive and semi-intensive management systems in the study area within the survey period. Free-ranging birds have an increased opportunity to encounter the infective eggs, larvae and intermediate hosts of parasites that can cause serious debilitating infections.

**Key words:** Gastrointestinal Nematode, Chicken, Bahir Dar

#### **FVM 04: Survey on Dairy Farm Management and Infertility Problems in Small, Medium, and Large Scale Dairy Farms in and Around Gondar, North West Ethiopia**

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#### **Abstract**

**Background:** Infertility issues within dairy herds can be subtle, complex, and costly. Losses per cow per day could be higher depending on the management system. However, the scope for improvement is great with farmer and veterinary partnership having the potential to improve herd fertility rates over time with better management.

**Objective:** A detailed and organized questionnaire format was designed and an attempt was made to generate base line information with particular emphasis on infertility problems of indigenous and crossbred dairy cows in smallholder, medium and large scale dairy farms in and around Gondar.

**Methods:** A systematic questionnaire was designed and instituted to obtain relevant and reliable information about animals. The questionnaire was checked for clarity of the questions prior the interview. Respondents were briefed on the objective of the study. Following that, the actual questions were given out. Accordingly, a total of 138 SSDF, 98 MSDF and 7 LSDF dairy owners and attendants were interviewed for the investigation of infertility problems of dairy herds.

**Results:** To study the infertility problems of the interviewed dairy owners, a total of 384 cross breed and 266 indigenous dairy cows were examined for infertility problems by classifying the method of study as questionnaire survey. In the questionnaire survey 178 (50.71%) and 173 (49.29%) infertility problems were recorded in indigenous and crossbred cows, respectively.



**Conclusion:** Across all dairy farm scale, there is a problem of infertility, in which it has a critical influence on dairy cattle production in the area.

**Key words:** Dairy cows, Gondar, Infertility, Questionnaire survey, Scale

**FVM 05: Prevalence, Intensity, and Risk factors of Infestation with Major Gastrointestinal Nematodes in Equines in and around Shashemane, Southern Ethiopia**

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**ABSTRACT**

**Background:** The equine population of the world is 98.3 million (40 million donkeys, 15 million mules, 43.3 million horses). In the distribution pattern, 98% of all donkeys, 97% of all mules, and 60% of all horses are found in developing countries. The number of equines in Africa is in the range of 17.6 million, comprising 11.6 million donkeys, 2.3 million mules, and 3.7 million horses. The equine population in Ethiopia is estimated to be 8.4 million (2.75 million horses, 5.02 million donkeys, and 0.63 million mules) (Wilson, 1991). In Amhara region, the equine population is estimated to be 1.9 million. Equids – donkeys, mules and horses- play an important role as working animals in many parts of the world, employed for packing, riding, carting, and ploughing. Equine power in both rural and urban transport system is cheap and viable, providing the best alternative in places where the road network is insufficiently developed, and the terrain is rugged, and mountainous, and in the cities where narrow streets prevent easy delivery of merchandise.

**Objectives:** to determine the prevalence, intensity and risk factors of infestation with major gastrointestinal nematodes in equines in and around Shashemane

**Materials and Methods:** Prevalence, intensity, and risk factors of major gastrointestinal nematode infestation in equines was studied through a cross-sectional survey in 384 equids in and around Shashemane, southern Ethiopia.

**Results:** Three hundred and fifteen equids (82%) were demonstrated as harbouring one or more GIT nematodes using faecal floatation technique. The prevalence of GIT nematode infestation was 86.5%, 73.4% and 85% for donkeys, horses and mules, respectively. The identified nematodes were *strongyle*-type (73.4%), *Parascaris equorum* (21.4%) and *Oxyuris equi* (4.4%). The species of equines had a significant ( $\chi^2 = 9.35, P < 0.01$ ) association with the occurrence of GIT nematode infestation. GIT nematode infestation was two times (OR= 2.3,  $P < 0.01$ ) more likely to occur in donkeys than in horses. Moreover, donkeys had the highest mean faecal egg counts (1831.2EPG), followed by mules (915.7EPG) and horses (772.5EPG). There was significant correlation between EPG and body condition score ( $P < 0.05$ ) in each equine species.

**Conclusion:** In conclusion, this study provides information which might help in designing future control strategies to control nematode infestation in equines. Moreover, suitable tropical climatic conditions, low level of management and owners' awareness, and poor animal health services are expected to have contributed to high nematode infestation rates. Therefore, emphasis should be given to awareness creation about the strategic deworming, animal welfare, and management.

**Keywords:** equine; gastrointestinal nematode; infestation; intensity; prevalence; Shashemane

### **FVM 06: Effect of Vaccination on Transmission Dynamics of Highly Virulent Newcastle Disease Virus in Experimentally Infected Chickens**

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#### **Abstract**

**Background:** Newcastle disease (ND) is one of the most important infectious diseases of poultry that causes high level of mortality in unvaccinated birds. The high virulence of the virus is responsible for the severe economic losses in many poultry-producing countries, including Ethiopia. Studies suggested that current vaccines induce better protection against viruses in past epizootics than on currently circulating viruses, raising questions as to the effectiveness of vaccination in preventing ND virus infection and transmission.

**Objective:** Evaluating the effect of local conventional vaccines on the transmission dynamics of velogenic ND virus strain at different vaccination schemes in experimentally infected chickens

**Materials and methods:** The experimental study was conducted on 200 commercial chickens, randomly divided into four groups. Experimental group I and II were challenged one week and two weeks after a single vaccination, respectively, and group III were challenged one week after booster vaccination to examine the transmission dynamics among vaccinated and contact birds. Experimental group IV consisted of unvaccinated but challenged birds to examine the transmission dynamics among unvaccinated birds. In each group, 10 vaccinated birds were challenged and 10 unvaccinated contact chickens were added 24 hours later and kept together in an isolated house. Birds were vaccinated by Hitchner B1, LaSota, and I-2 vaccines prior to challenge and were monitored for any clinical disease as well as mortality.

**Result:** Vaccinal and challenge viruses induced high antibody levels, both in challenged and contact birds. The live vaccines in booster immunization protected birds against morbidity and mortality and significantly reduced the incidence of viral shedding from chickens compared to single vaccinated and unvaccinated birds. Protection from disease and mortality was correlated with the presence of protective antibody titers ( $>4 \log_2$ ) at day of challenge. Both the

unvaccinated and in-contact birds had excreted the virus and showed high level antibody titers indicating the high infectivity of the challenge virus.

**Conclusion:** The detection of the challenge virus in most of vaccinated birds demonstrated that local vaccines cannot fully protect birds from viral infection, replication, and shedding. As a result vaccinated-infected birds can act as sources of infection for susceptible flocks. The high mortality observed in unvaccinated birds suggested the virulence of the challenge virus to cause major outbreaks in susceptible population. Vaccination programs supported by strict biosecurity measures should be implemented to control the disease in poultry.

**Keywords:** Chickens, Newcastle disease virus, Transmission, Vaccines, Vaccination

### **FVM 07: Follow -up study on infertility problems of indigenous zebu and crossbred dairy cows in small, medium, and large scale dairy farms in and around Gondar, North west Ethiopia**

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#### **Abstract**

**Background:** Regular breeding depends up on the normal function of the reproductive system. In order to breed regularly, normal cyclic cows display estrous behavior, mate, conceive, sustain the embryo through gestation, calve, and resume estrous cyclicity and restore uterine function after calving. When the function of the reproductive system is impaired cows fail to give birth regularly. Infertility remains a limitation to achieve optimal of milk production in many dairy herds throughout the world.

**Objectives:** to study infertility problems of indigenous zebu and crossbred dairy cows in small, medium, and large scale dairy farms in and around Gondar

**Materials and Methods:** Regular follow up was conducted to determine the infertility problems of dairy cows in smallholder, medium, and large scale dairy farms in and around Gondar, North Western Ethiopia. The study population comprised 266 indigenous and 384 crossbred cows, randomly selected from 138, 98 and 7 smallholder, medium and large scale managed dairy farms, respectively. A total of 650 cows were examined of which 352 (54.15%) had at least one of the infertility problems.

**Results:** The infertility problems encountered were repeat breeder 82 (23.29%), silent estrous 54 (15.34%), postpartum anoestrus 43 (12.22%), true anestrus 34 (9.66%), ovarian cyst 31 (8.81%), retained fetal membrane 23 (6.53%), clinical endometritis 22 (6.25%), abortion 21 (5.97%), dystocia 17 (4.82%), pyometra 14 (3.98%), and stillbirth 11 (3.13%), respectively. This study indicated a higher incidence of infertility in cross breeds and in higher age group. Large scale farm cows were less affected than small and medium scale farm dairy cows. The highest

infertility problem occurred in multiparous cows than in primiparous cows. Primiparous cows have the highest fertility among dairy animals followed by a decline in fertility with advancing parity. A high incidence of infertility was found in emaciated and thin cows than average and heavy body condition scores. The longitudinal study involved repeated visits and monitoring of dairy farms selected for follow up. The dairy farms registered for follow-up were classified as small (n =1-2), medium (n=3-10), and large (n= 11 and above) sized dairy farms based on the number of adult cows and pregnant heifers. In and around Gondar about 362 pregnant cows expected to give birth within the study period, and 288 lactating and dry non pregnant cows were subjected to different clinical and gynaecological examinations including rectal examination at monthly intervals, and findings were recorded accordingly. The incidence of infertility due to repeat breeder was the highest among all other problems, accounting for 82 (23.29%), the indigenous bred showed higher incidence 37 (25.52%) of repeat breeder problem when compared to crossbred cows 45 (21.74%). The dairy farm scale was taken into consideration for the occurrence of repeat breeder. The small scale dairy farms showed the highest 49 (30.06%) followed by medium scale dairy farms 25 (19.23%) and large scale dairy farms, 8 (13.56%).

**Conclusions and Recommendations:** A total of 650 dairy cows were examined for infertility problems by regular follow-ups. Out these 352 (54.15%) were diagnosed to have at least one of the infertility problems. Good management system which includes, individual record for each animal and its maintenance should be implemented. In general, the development and use of simple and understandable recording systems in all farm scales is of paramount importance.

**Key words:** Crossbred, Dairy cows, Gondar, Indigenous bred, Infertility, Large scale dairy farm, Medium scale dairy farm, Regular follow up, Small scale dairy farm.

### **FVM 08: Ectoparasites prevalence in small ruminants in and around Sekela, Amhara Regional State, Northwest Ethiopia**

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#### **Abstract**

**Background:** Small ruminants represent the most important part of the Ethiopian livestock system. The sheep and goats population of the country is estimated at 25.5 and 23.4 million, respectively. Small ruminants are exploited in the country for diverse purposes, including meat, milk, and skin production, breeding and as means of cash income. Skins and hides of livestock have the largest share of exports in Ethiopia. Annually 16.2 million pieces of skin are produced in the country, based on the off take rates of 33% and 32.5% for sheep and goats respectively.

**Objectives:** to determine the prevalence of ectoparasites in small ruminants in and around Sekela, Amhara region

**Materials and methods:** This study was conducted to determine the prevalence and type of ectoparasites, and to identify risk factors associated with ectoparasite infestations in small

ruminants in and around Sekela, northwest Ethiopia. Clinical examination and laboratory analysis were made on 304 sheep and 96 goats. The collected raw data were analyzed using  $\chi^2$ -test.

**Results:** Out of the 400 sampled animals, 182 (45.5%) were infested with one or more ectoparasites. The prevalent ectoparasites observed were lice, ticks, *Ctenocephalides* species, *Melophagus ovinus* and *Demodex* species. The infestation rates of ectoparasites with age and sex were significantly varied ( $P < 0.05$ ) in sheep but not in goats ( $P > 0.05$ ). Body condition score was not significantly associated ( $P > 0.05$ ) with ectoparasites infestation in both sheep and goats. In our attempt, only two cases due to *Demodex* species were recorded in sheep.

**Conclusion:** The prevalence of ectoparasites in the present study was high and this could affect the wellbeing and productivity of small ruminants. Therefore, to reduce ectoparasites prevalence and the impact on the productivity and health status, planning of integrated control measures with sustainable veterinary services aiming at awareness creation about the importance and control of ectoparasites for livestock owners is required.

**Keywords:** Ectoparasite, goat, infestation, northwest Ethiopia, prevalence, Sekela, sheep

### **FVM 09: Diagnosis of Subclinical Endometritis during Postpartum Period on Subsequent Pregnancy in Small, Medium, and Large Scale Dairy Farms in and Around Gondar, North West Ethiopia**

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#### **Abstract**

**Background:** Subclinical endometritis is a chronic, unapparent inflammatory process of endometrium with a relatively high proportion of polymorphonuclear cells (Neutrophils) cells in the uterus, suppresses the fertility of affected cows. The proportion of polymorphonuclear cells (Neutrophils) cells was considered to be "relatively high" depending on sampling technique as well as on the time from parturition. The key for excellent fertility in dairy herds is a healthy uterine environment, optimal estrus detection efficiency, and ideal timing for breeding. Subclinical endometritis in dairy cows has a profound negative impact on pregnancy.

**Objectives:** to diagnose subclinical endometritis during postpartum period on subsequent pregnancy in small, medium and large scale dairy farms in and around Gondar

**Materials and Methods:** During the study 147 apparently healthy 3rd trimester pregnant cows were selected in smallholder, medium and large scale dairy farms in and around Gondar, North Western Ethiopia. After calving, endometrial samples were collected from the uterus of apparently normal cows by using uterine lavage technique on postpartum dairy cows from 40-60 days. Collected samples were centrifuged and a drop of sediment was streaked onto a clean microscopic slide and stained with giemsa. The percentage of polymorphonuclear cells

(neutrophils) was calculated. The cows were examined between 40 and 60 days after calving for the presence of subclinical endometritis by using the lavage technique. Collected samples were centrifuged and a drop of sediment was streaked onto a clean microscopic slide and stained with Giemsa. Subclinical endometritis was determined using endometrial cytology. To minimize contamination of the sample, the vulva and perineum were cleaned with water and soap properly. The uterus was lavaged by infusing 50 ml of 0.9% sterile sodium chloride solution with 50 ml syringe attached to a 52 cm sterile plastic infusion rod. The uterus was then manipulated and massaged through rectum for about 10 seconds, and some of the infused fluid was aspirated into the syringe via the same sterile plastic infusion rod by negative pressure aspiration and retracted to recover the fluid. No special effort was made to retrieve the fluid if it did not flow freely. As much fluid as possible was recovered by negative pressure aspiration into the syringe and transferred to the 10 ml sterile test tube without any preservative. The uterine samples were put into the icebox and brought to the Faculty of Veterinary Medicine, Microbiology laboratory within 2 hours of collection and centrifuged at 800 rpm for 5 min. A drop of sediment was streaked on to a clean microscope slide and air-dried. Then the slide was fixed with methanol and stained with Giemsa for 45 min and examined under a microscope at 400 $\times$  magnification. Initially the whole slide was assessed and a representative area was selected to determine the PMN % among all other cells was estimated. The percentage of neutrophils PMN % was determined by counting 80–100 cells on a representative field of vision.

**Results:** It was found that increase in the number of neutrophils correlated with decrease in pregnancy. The threshold value for the proportion of PMN indicated samples with  $\geq 3\%$  neutrophils were categorized as subclinical endometritis and cows were characterized as suffering from subclinical endometritis. The counted cells contained epithelial cells, neutrophils, large mononuclear cells (Presumed to be macrophages) and small mononuclear cells (Presumed to be lymphocytes). The samples that did not contain epithelial cells were considered not taken from uterus and rejected for the study. The incidence of subclinical endometritis was different in small, medium and large scale farms 25 (37.88%), 29(43.94%) and 13 (18.18%), respectively. Only 72 (48.98%) of the selected cows became pregnant in AI after sampling, and 75(51.02%) did not. The amount of neutrophils was lower in the cows that became pregnant in the first AI after sampling. With an increase in the number of neutrophils the likelihood of pregnancy decreased. The mean number of services per conception as 2.04 for sub clinical endometritis positive cows.

**Conclusions and Recommendations:** This study revealed that subclinical endometritis was more prevalent in MSDF followed by LSDF and SSDF. The percentage of neutrophils was lower in the cows that became pregnant in the first AI. An increase in the percentage of neutrophils decreased the likelihood of pregnancy. The best cut off point (based on likelihood of pregnancy) of healthy cows was found to be  $< 3\%$  neutrophil and cows with  $>$  or  $=3\%$  neutrophils had subclinical endometritis. Subclinical endometritis subsequently decrease pregnancy in cows. So herds should be managed properly after postpartum. The results of this study indicate that endometrial cytology can be a useful technique in identification of cows with subclinical endometritis.

**Key words:** Subclinical Endometritis, Endometrial Cytology, Pregnancy, Neutrophils

## **FVM 10: Bovine and Ovine Schistosomiasis: Prevalence and Associated Risk Factors in South Achefer, Northwest Ethiopia**

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### **Abstract**

**Background:** Schistosomiasis is a snail-borne trematode infection of man and animals in tropical and subtropical countries. It is an economically important disease caused by several *Schistosoma* species and results in economic losses through mortality and morbidity from severe infection and from long term effect of moderate and long standing chronic infection.

**Objective:** to determine the prevalence and associated risk factors of Bovine and Ovine Schistosomiasis in south Achefer district

**Materials and Methods:** This cross-sectional study was conducted to determine the prevalence and associated factors of bovine and ovine schistosomiasis in South Achefer, northwest Ethiopia. A total of 532 faecal samples were collected from randomly selected cattle and sheep in three purposively selected peasant associations. The samples were processed with a sedimentation technique to detect the *Schistosoma* ova using light microscope. The collected raw data were summarized using SPSS-16.

**Results:** The overall prevalence of *Schistosoma* infection irrespective of factors was found to be 26.9% (24.6% in cattle and 2.3% in sheep). Species-wise prevalence of *Schistosoma* infection in cattle and sheep was significantly ( $P < 0.05$ ) varied. Similarly, a significant ( $P < 0.001$ ) association of *Schistosoma* infection with body condition score was observed in bovine population but not in sheep. However, *Schistosoma* infection did not affect ( $P > 0.05$ ) by age and gender of both species of animals.

**Conclusions:** From the result, it can be concluded that schistosomiasis is one of the major health concerns of livestock (mainly of cattle) production of the area. Therefore, control of schistosomiasis using integrated management aiming to reduce the prevalence and impact of *Schistosoma* infection could be a valuable action for the area.

**Keywords:** cattle, prevalence, *Schistosoma* infection, sedimentation, sheep, south achefer

## **FVM 11: Risk Factors Related to Infertility in Dairy Cows in and around Gondar, North West Ethiopia**

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#### Abstract

**Background:** The cause of infertility in cows is multifactorial, involving inadequate nutrition, poor reproductive management, an increased incidence of disease and overall poor cow welfare. High fertility efficiency is necessary for efficient milk production and it, therefore, has an important influence on herd profitability. Low fertility efficiency decreases herd profitability by: (i) prolonging the calving interval, which results in less milk produced per cow and fewer calves born per year; (ii) increasing culling due to infertility and therefore, increased replacement costs; (iii) increased labor, semen costs and veterinary bills; (iv) an extended low production or dry period can result in over conditioned cows calving in too high a BCS (>3) which results in a subsequent prolonged period of negative energy balance (NEB) and low fertility efficiency. High fertility efficiency is dependent on obtaining normal uterine involution, early resumption of ovulation, high efficiency of estrous detection and high conception rates per service.

**Objective:** The aim of this study was to determine the risk factors for infertility problems in dairy cows.

**Materials and Methods:** Regular follow ups were conducted to determine the infertility problems of dairy cows and to identify associated risk factors in smallholder, medium and large scale dairy farms in and around Gondar, north western Ethiopia. The study populations comprised of 266 indigenous and 384 crossbred cows, randomly selected from 138, 98 and 7 smallholder, medium, and large scale managed dairy farms, respectively. A total of 650 cows were examined of which 352 (54.15%) had at least one of the infertility problems. The association of infertility with the risk factors was investigated using univariate and multiple logistic regressions. The longitudinal study involved repeated visits and monitoring of dairy farms selected for follow up. The dairy farms registered for follow-up were classified as small (n=1-2), medium (n=3-10), and large (n= 11 and above) sized dairy farms based on the number of adult cows and pregnant heifers. About 362 pregnant cows expected to give birth within the study period and 288 lactating and dry non pregnant cows were subjected to different clinical and gynaecological examinations including rectal examination, at monthly intervals and findings were recorded accordingly. The effect of 11 potential risk factors on the incidence of infertility problems was analyzed by using logistic regression. The association of each individual risk factor with the infertility problem of cows was first screened by univariate logistic regression.

**Results:** Out of the total of 11 risk factors, 8 (breed, age, parity, herd composition, farm scale, and cleanliness of the farm, heat detection, and recording) showed an association with infertility problem with a P- value of less or equal to 0.2. A multivariate logistic model was built from those factors and showed significant association in the univariate analysis. After building the model using a backward step-down selection, out of 8 risk factors that were considered in the multivariate model only two factors: age and method of heat detection were significantly associated ( $P < 0.05$ ) with the infertility problem of . The model showed that keeping the effect of other potential risk factors constant, the risk of the infertility problem in older cows (44%) were



more likely to be affected than younger cows (RR: 0.442; 95% CI: 0.284- 0.687). Similarly, keeping the effect of other potential risk factors constant, the risk of using the visual observation method of heat detection for infertility problem was only about 30% of that of using no follow up method of heat detection (RR: 0.297; 95% ; CI: 0.114- 0.777 ).

**Conclusions:** Management decisions of dairy producers, as well as their knowledge and skills have a profound impact on the fertility of cows. Differences in management systems account for the differences in fertility rate. Further availability of feed resources and efficient nutritional and herd health management are identified as the principal constraints on dairy production in all dairy farm scales. Extension services, such as AI and veterinary services are not available in and around Gondar town. Furthermore, most farmers focus on crop production and spend little time and effort on oestrus detection and calf rearing on the other factors which also contribute to fertility rate.

**Keywords:** Dairy cows, Infertility, Risk factors, univariate, multiple logistic regressions

### **FVM 12: Seroprevalence of *Toxoplasma gondii* infection and associated risk factors among pregnant women in Debre Tabor, Northwest Ethiopia**

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#### **Abstract**

**Background:** *Toxoplasma gondii* is an obligate intracellular protozoan organism that infects both birds and mammals. Human infections are particularly serious if they occur during pregnancy and may result in abortion or congenitally acquired disorders which primarily affect the central nervous system. This study assessed the seroprevalence of *Toxoplasma gondii* infection and associated risk factors among pregnant women at Debre Tabor, Northwest Ethiopia.

**Objective:** to determine the seroprevalence of *Toxoplasma gondii* infection and associated risk factors among pregnant women in Debre Tabor, northwest Ethiopia

**Materials and Methods:** An institution based cross-sectional study was conducted in Debre Tabor town of South Gondar Zone. A total of 263 pregnant women who came to Debre Tabor public health facilities for antenatal care were selected and included in the study. The venous blood serum was tested using toxolatest agglutination test. Data on socio-demographic and potential risk factors were collected using a structured questionnaire through a face-to-face interview. Data were entered and analyzed using SPSS version 20.0. Both bivariate and multivariate analyses were carried out to identify associations between dependent and independent variables.

**Results:** Of 263 pregnant women included in the study, 180 (68.4%, 95% CI: 63.1-71.4%), were found to be seropositive for anti-toxoplasma antibody. Multivariable analysis showed; age group

≥36 years (Adjusted Odds Ratio [AOR] = 3.56; 95% CI: 1.01–12.5), illiteracy (AOR = 4.77; 95% CI: 1.01–30.3), and cat ownership (AOR = 3.36; 95% CI: 1.39–8.12) were significantly associated with seropositivity of *T. gondii* infection.

**Conclusions:** Seroprevalence of *T.gondii* infection in Debre Tabor town was high. Age, educational status, and presence of cats at home were identified as factors associated with *T.gondii* infection. Education of pregnant women about the transmission and prevention methods of this infection through health extension and in antenatal care clinics is important. Besides, studies on incidence of toxoplasmosis in newborns and infants are recommended.

**Keywords:** Seroprevalence, *Toxoplasma gondii*, Risk factors, pregnant women, Ethiopia

### **FVM 13: Analysis of Habitat Suitability for the Major Tsetse Species in Ethiopia Using High Resolution Environmental Datasets and Maxent Modeling Technique**

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#### **Abstract**

**Background:** Tsetse-transmitted animal trypanosomosis remains a major challenge to rural and agricultural development in western and south western parts of Ethiopia. Estimates made decades ago indicate that a total area of 220, 000 km<sup>2</sup> is infested with different species of tsetse flies in which case livestock reared in this area are exposed to various levels of trypanosomosis risk. The distribution of tsetse flies is influenced by ecological and climatic conditions. Understanding the influence of these ecological and climatic factors on the distribution of tsetse and mapping their potential distribution range is important to launch cost-effective and geographically targeted control strategies.

**Objectives:** This paper aimed to determine the ecological and climatic preferences and map the potential distribution range of the major biological vectors of trypanosomes, namely *Glossina morsitans submorsitans*, *Glossina pallidipes*, *Glossina tachinoides* and *Glossina fuscipes fuscipes*, using high resolution environmental datasets and Maxent modeling technique. The second objective is to determine the livestock population at risk of contracting the disease.

**Methodology:** The study is based on Maxent species distribution modeling technique. Maxent estimates species distributions by finding the probability distribution of maximum entropy. It is a presence-only modeling technique that uses background samples of the environment rather than absence locations to estimate environmental relationships. The tsetse occurrence records used in

this study were obtained from the International Livestock Research Institute (ILRI), Programme against African Trypanosomosis (PAAT) and the National Tsetse and Trypanosomosis Control and Investigation Center (NTTIC) annual surveillance report series. Normalized Difference Vegetation Index (NDVI), land surface temperature (LST), precipitation, soil, elevation and land cover data sets were used as environmental data set.

**Results:** The result indicates that, more than 140, 000 km<sup>2</sup> otherwise agriculturally suitable land in the western and southwestern parts of the country is found to be potentially suitable for tsetse. More than twelve million livestock population is at risk of contracting tsetse-transmitted trypanosomosis in Ethiopia. The result further showed that mean annual NDVI, soil group, and mean annual precipitation to be the major limiting environmental variables for the distribution of tsetse flies. The resulting models were validated using an independent dataset. The habitat suitability model developed has a very good performance; the models developed for all the four tsetse species have test AUC greater than 0.90, indicating a very good fit of the model to the data.

**Conclusion:** The tsetse distribution map developed here is suitable for guiding the implementation of tsetse and the trypanosomosis control operations at field level.

**Key Words:** Environmental dataset, *Glossina fuscipes fuscipes*, *Glossina morsitans submorsitans*, *Glossina pallidipes*, *Glossina tachinoides*, Maxent modeling.

#### **FVM 14. Study on Identification and Collection of Traditionally Used Medicinal Plant Species for Animal Disease Treatment in Dembiya District, Ethiopia**

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##### **Abstract**

**Background:** More than 1000 of identified medicinal plant species are reported in the Ethiopian flora, however, many others are not yet identified. About 300 of these species are frequently mentioned in many sources. Ethiopia has a rich medicinal plant lore showing that almost all plants of the Ethiopian flora used somewhere, somehow used medicinally. Other workers, on the other hand, estimated about 60% of the flora to be medicinal, and most sources give about 10% of the vascular flora to be medicinal. Before the introduction of the conventional veterinary practice into Ethiopia, highland and lowland pastoralists alike used to had their animals treated by traditional herbal plants.

**Objectives:** to identify the different types of plant species used as medicinal plant for animal disease treatment in the study area and to investigate the parts of the plant (leaf, barks and/or roots) traditionally used for animal disease treatment in the area

**Research methodology:** The research was conducted in *Dembia* district of North Gondar zone of the Amhara Regional State using a cross-sectional survey. The research was conducted in four kebeles (the smallest administrative units in Ethiopia) known as chilo (PA1) Gebeba Dembosgie (PA2) Jangua (PA3) and Sekelt (PA4). The kebeles were purposively selected consultation with experts and DA's employed in the district. The sample represents all types of agro-ecological areas in the district. A questioner survey was used for discussion with key informants and traditional medicine users living in the kebele. Fifteen practitioners from each kebele were selected and data collected from the survey was administered in excel spread sheet and analyzed by SPSS version 22.

**Results and Discussion:** The research result depicted that around 44 (73.33%) of the respondents used medicinal plants for fasciolosis disease treatment across the four kebeles and 9 (15%) of the interviewees used medicinal plants for anthrax disease treatment, and the remaining 7(11.66%) again used for blackleg disease treatment. Hence, 91.66 and 8.33% of the respondents used root parts and leaf parts of the plant for disease treatment and the administration techniques was also 80%, 25, and 12% oral, piercing the hides of cattle, and anal administration.

**Conclusion:** The research result indicated that most of the practitioners used traditional plants for healing various types of diseases in the study area. The recommendation and future research direction of this research would be, collection of medicinal plant species was not done due to budget constraints. Future scientific studies should address this issue as the collection and identification of the species specimen, evaluation, and extraction of those plant ingredients would be a priority.

**Keywords:** Identification, traditionally, medicinal plants treatment, Gondar

### **FVM 15: Study on Potential of Fenugreek and/or Soybean in Replacing Commercial Feed Additive Lysine in Layers Ration**

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#### **Abstract**

**Background:** Commercial lysine production for animal feed is becoming a major global industry. However, it is not produced in Ethiopia, and thus, imported. High cost and shorter shelf life, due to long time elapsed between production and importation; make lysine and methionine supplementation a bottle neck for commercial poultry producers in Ethiopia.

**Objective:** to study the potential of Fenugreek and/or Soybean in Replacing Commercial Feed Additive Lysine in Layers Ration

**Materials and Methods:** In searching a solution for this problem, fenugreek and soybean were tested as an alternative to commercial feed additive lysine. Six different formulations of poultry ration (with and without commercial feed additive lysine) were tested on 30 Bovans Brown commercial layers in University of Gondar laboratory animals' farm. The hens were arranged in completely randomized designed with six treatment and five replications. After acclimatization

period of two weeks, egg production and feed consumption were recorded for 12 consecutive weeks. Body weight was recorded at the beginning and ends of the research. Finally, the data were analyzed using JMP (10.0.2) software.

**Results:** The research has found that 8.5-18 % Fenugreek inclusion in a layers ration reduced feed consumption and egg production, however; egg weight and body weight change remained unaffected. Replacing one unit of fenugreek with similar unit of commercial feed additive lysine resulted in no significant ( $P>0.05$ ) change in egg production. On the contrary, replacing one unit of soybean with similar unit of commercial feed additive lysine significantly ( $P<0.001$ ) reduced egg production. In this study, the highest egg production was observed in rations with high soybean and no commercial feed additive lysine.

**Conclusion:** Thus, it is concluded that, in areas where commercial feed additive lysine is lacking, soybean can be used as an alternative.

**Key words:** Lysine, replacer, Fenugreek Soybean

#### **FVM 16: Prevalence of GIT helminthes of small ruminants and its associated risk factor in Enemay district in East Gojam, North West of Ethiopia**

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#### **Abstract**

**Back ground:** Sheep and goats harbor a variety of gastrointestinal tract parasites and among these parasites; helminthes are the most important GIT parasites that affect the growth as well as production of the animals.

**Objective:** to determine the prevalence of major GIT helminthes parasites of small ruminants and its associated risk factor in Enemay district in East Gojam, North East of Ethiopia.

**Materials and Methods:** A cross sectional study was conducted on a total of 384 small ruminants fecal samples (248 sheep and 136 goats) were collected by simple random technique and examined using standard parasitological procedures of sedimentation and flotation techniques.

**Results:** The overall prevalence of the major GIT helminthes parasite was 59.63% in small ruminants in the study area. About 63.7% and 52.2 % of sheep and goats respectively were infected with one or more helminthes and higher prevalence was observed on sheep than goats and there was statistically significant ( $P<0.05$ ) between species. The major helminthes parasites identified in the study area were *Strongyle* type (38.42%), *Fasciola* (23.1%) and *Paramphistomum* (11.8%) and *Monesia* (9.6%) species small ruminant. The Female animals

(59.9%) were found to have higher prevalence of helminthes infection rate than male (40.1%) and statically significant ( $p < 0.05$ ) association were observed between sex. Higher prevalence was observed in young animal (67.9%) than adult (53.6%). There was statistically significant ( $p < 0.05$ ) association between age and between body condition for the occurrences of GIT helminths.

**Conclusion:** The small ruminant in the Enemay district were infested majorly by *Strongyle* type, *Fasciola* species, *Paramphistomum* and *Monesia* species of parasite managed under extensive. The animal owner should deworm their small ruminant by different anthelmintics based on order of the veterinarian to avoid drug resistance as recommendation.

**Key words:** Enemay District, small ruminant and GIT helminthes

### FVM 17: A Study on Livelihood in the Wetlands of North Western Lake Tana Delgie Woreda Surrounding, Ethiopia

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#### **Abstract**

**Background:** Wetlands are very important in terms of their ecological, economic, cultural and recreational domains of livelihood. Wetlands act as sponges during dry periods of the year; they regulate run-off and recharge of groundwater resources, and they purify water supplies. The study site has been suffered from the following threats: overgrazing by domestic livestock, sedimentation/siltation and erosion, introduction/invasion of exotic plant species weeds, recovery for agriculture service and deforest vegetation around the Lake. The study was conducted in the North western part of Lake Tana surroundings, specifically in Delgie woreda livelihood in the wetlands.

**Objectives:** to study on types of resources being exploited from the wetland, resource exploitation, knowing agricultural/grazing services and to find out the wetland-people interaction so as to assess the various domains of livelihood that are being supported by wetland to its farmers.

**Materials and Methods:** The study was conducted from October 2013-August 2014 north western parts of Lake Tana surrounding Delgie woreda. Exploratory as well as descriptive research design was performed for the research. For the purpose of formulating problems of Ramsar site for precise investigation was the main agenda of this research. The study population were fishers or farmers of the Lake Tana surroundings. Therefore, 50 respondents were selected using purposive sample which are good representative of the population. The research was qualitative where the interaction and interdependence of the people with wetland was analyzed in a descriptive way.

**Results:** The majority of the respondents ranked fishing as first priority source of income for the family followed by income generated from animals and animal products. Trading and labor are less important source of income, trading appears relatively important. Analysis the livelihood of the respondents gave an overview of the status and the relevance of wetlands in contributing to the livelihood. Of the respondents (Figure 1) 50%, 26%, 1%, 20% and 3% were engaged in fishing, animal husbandry, crop production, petty trade and casual laborer respectively. Fishing was indicated as the first major source of livelihood for 50% of the fishers, and Animal husbandry is the second source of livelihood for 26% of the fishers and the third was crop production (20%) of. Livelihood in the wetlands in North Western part of Lake Tana was constrained by so many factors. A number of frequent rapid field survey supported with group discussion and key informant survey were undertaken and the following problems (Figure 2) were identified in order of importance. Understanding problems and opportunities with priorities is very important for both research and development initiatives. The major problems were Agricultural practice, overgrazing, siltation and erosion, Absence of licensing for fishers, water hyacinth weeds and extension service wetlands are treated in rank respectively.

**Conclusion:** In the North western part of Lake Tana and the nearby Delgie surroundings, the significance of livelihood in the wetlands of many fishers and income generating through fishing, crop and animal husbandry are ranked from first to third, respectively. There were a number of wetland treats in the area of livelihood in the wetlands and sustainable resource utilization, Agricultural practices, overgrazing, siltation and erosion, Absence of licensing for fishers, water hyacinth weeds and extension service. Accordingly, with respect to livelihood in the wetlands the study recommended that different development interventions including awareness creation, facilitation of watershed management, strengthening/ organizing farmers to manage wetlands, facilitating access to capacity building through training, resource monitoring and management. The wetland should have policy to give an appropriate support and attentions for wetlands.

**Keywords:** Wetland, Delgie, Livelihood, Western Lake Tana

## **FVM 18: Prevalence and Drug Sensitivity Pattern of *Campylobacter jejuni* Isolated From Cattle and Poultry in and Around Gondar Town, Ethiopia.**

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### **Abstract**

**Background:** - *Campylobacter* spp. particularly *Campylobacter jejuni* (*C. jejuni*) is one of the leading food-borne causative agent of bacterial gastroenteritis. Antibiotic therapy is required specifically in immuno-compromised patients, but the spread of new generation of infections resistant to antibiotic treatments has serious consequences on public health.

**Objectives:** - the objective of this study was to estimate the prevalence, assess associated potential risk factors and evaluate antimicrobial sensitivity pattern of *Campylobacter jejuni* isolated from fecal samples of cattle and poultry in and around Gondar town, Ethiopia.

**Material and Methods:** - A cross sectional study was conducted from October 2013 to April 2014 to estimate the prevalence and drug sensitivity pattern of *Campylobacter jejuni* from fecal sample of cattle and chickens in and around Gondar town, Ethiopia. A total of 360 fecal samples were collected from cross and local breeds of cattle (N=270) and poultry (N=90) following random sampling method.

**Result:** - The overall prevalence of *Campylobacter jejuni* in cattle and poultry were 21.5% (N=58) and 28.9% (N=26) respectively. Though the difference is not statistically significant, slightly higher prevalence (26.9%, N=28) was recorded in male cattle than in females (18.1%, N=30); in young (22.2%, N=8) than adults (21.4%, N=50) and in cross breeds (22.9%, N=35) than local breeds (19.7%, N=23). All isolates of *Campylobacter jejuni* were challenged with eight commonly used and newly introduced antimicrobials to see the resistance pattern. Isolates from cattle were resistant to Penicillin, Bacitracin, Erythromycin and Cephalothin at the rate of 96.6%, 93.1% 56.9% and 43.1% respectively, but susceptible to Nalidixic acid (100 %), Ampicilin (87.9%), Streptomycin (77.6%) and Tetracycline (69.0%). On the other hand, isolates from poultry were resistant to Penicillin (100%), to Bacitracin (80.8%), to Erythromycin (53.9%) and to Tetracycline (50%) though the majority were susceptible to Nalidixic acid (100%), Ampicilin (80.8%), and Streptomycin (53.9%).

**Conclusion:-** High percentages of resistance to most of the antimicrobials tested may indicate the misuse of these agents in food animal treatment. Therefore, it is necessary to impose strictly the rules and regulations of drug administration and delivery system in the area so as to prevent the community from hazards of drug resistant, zoonotically important diseases.

**Key words:** *Campylobacter jejuni*, Cattle, Drug Sensitivity, Fecal, Poultry



**FVM 19: Prevalence, Economic Importance and Characterization of Cystic Echinococcosis in Cattle Slaughtered at Addis Zemen Town, South Gondar, Ethiopia.**

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**Abstract**

**Background:** Cystic echinococcosis (CE) also called hydatidosis is one of the most common and severe zoonotic parasitic diseases caused by the larval stage of *Echinococcus granulosus* (*E. granulosus*), which affect both human and animal with multiform complications. In Ethiopia, the disease is much more common where dogs and domestic animals live in a very close association and where humans cohabit with dogs fed on raw livestock offal. Though hydatidosis has been known and documented in Ethiopia as early as 1970, the prevalence of the disease in domestic ruminants and dogs remains high and the disease is still one of the major causes of organ condemnation in most abattoirs. Since the disease has serious public health and socio economic implications, developing and implementing efficient prevention and control strategies, detailed epidemiological information are essential.

**Objective:** - The objective of this study is to determine the prevalence of cystic echinococcosis and to characterize the cyst and estimate the economic impact of the disease in the study area for the betterment of prevention and control measures.

**Material and Methods:** - A cross sectional study was conducted from October 2013 to March 2014 to determine the prevalence, economic importance, organ localization, fertility and viability of cystic echinococcosis in cattle slaughtered for human consumption at Addis Zemen town, South Gondar, Ethiopia.

**Results:**- During the study period out of the 384 randomly sampled and examined cattle, 27.6% (N=106) were found infected with hydatid cyst and significant associations ( $p < 0.05$ ) were observed between the occurrences of the disease and origins of the animal, highest in cattle that are originated from the lowland areas than that of mid highland areas (OR =2.078). Though no statistically significant associations ( $p > 0.05$ ) observed within sex and age group of cattle, female cattle (35.5%) were more frequently affected than male (26.1%) and older age group (28.6%) than young (16.1%). Among the 106 hydatid cysts collected from various organs of affected cattle, 66.04% (N=70) were fertile of which 27.36% (N= 29) were viable. In contrast to various organs infested, liver and lung were the most affected ones that harbors 32.1% (18 out of 56 examined) and 19% (4 out of 21 examined) viable cysts respectively. The results of this study showed that bovine hydatidosis pose significant financial losses in the study area with total estimated value of 281,180.07 ETB (14,059.00 USD) per year from the direct and indirect losses.

**Conclusions:** - Strategically designed cystic echinococcosis parasite lifecycle interruption and disease control measures are necessary in order to decrease the financial losses as well as zoonotic risks to humans.

**Keywords:** *Addis Zemen, Cattle, Ethiopia, Hydatidosis, Prevalence, Zoonosis*

## **FVM 20: Temporal and Spatial Distribution of Common Bacterial Disease Outbreaks of Livestock in Selected Woredas of North Gondar, Ethiopia**

**Reta Tesfaye<sup>1\*</sup>, Desse Debebe<sup>1</sup>, Sintayehu Mulugeta<sup>1</sup>, Wudu Temesgen<sup>1</sup>, Seleshe Nigatu<sup>1</sup>, Samson Leta<sup>1</sup>**

### **Abstract**

**Background:** Bacterial diseases are infectious in nature i.e., they can be transmitted from one host to another. Outbreaks of bacterial diseases jeopardize the livestock assets and have public health consequences.

**Materials and Methods:** A retrospective longitudinal study was conducted to assess the spatial and temporal distribution of major bacterial livestock disease outbreaks and to identify risk factors of its occurrence in selected 11 districts of North Gondar. The data were extracted from woreda veterinary clinics' monthly and annual reports of the period from 2009 to 2013. The data were analyzed in relation to temporal and spatial factors.

**Objectives:** to assess the spatial and temporal distribution of major bacterial livestock disease outbreaks and to identify risk factors of its occurrence in selected 11 districts of North Gondar

**Results:** Of the total 254 outbreaks, 132 were due to Anthrax followed by Blackleg (N=61), Bovine Pasteurellosis (N=33) and Ovine Pasteurellosis (N=28). The highest number of outbreaks was reported in the year 2010 (22.45%) while the lowest number of outbreak was registered in 2013 (15.74%). Outbreaks of Anthrax (30.30%, N=40), Bovine Pasteurellosis 14 (42.42%) and Ovine Pasteurellosis (35.71%, N=10) were more common during winter time. The highest number of outbreaks of blackleg (54.09%, N=33) was recorded in spring. Based on agro-ecology, the frequency of disease outbreaks were highest in the midland (54.00%) followed by lowland (28%) and highland (14.17%). Anthrax and Blackleg had similar patterns of distribution in the study areas, and Bovine and Ovine Pasteurellosis had also similar pattern of distribution.

**Conclusion:** Generally, the four studied bacterial diseases were widespread with frequent occurrence in the study areas. Therefore, strategic prevention of outbreaks of the diseases should be implemented before the occurrence of the outbreaks.

**Keywords,** North Gondar, Outbreaks, risk factors, spatial and temporal distribution.

## **FVM 21: Bovine Trypanosomosis: Livestock owners' Perception and its Current Situation in Jabi-Tehnan District in West-Gojam Administrative Zone, Northwest Ethiopia**

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### **Abstract**

**Background:** Animal trypanosomosis is categorized among the most important concerns of livestock and mixed crop-livestock farming in tropical Africa, including Ethiopia. It is estimated that about 38% of African cattle are considered to be at risk of contracting the disease. Annual losses of meat, milk, and hide production, manure, and traction power would amount to US\$ 50 billion annually. Furthermore, treatment costs farmers and government at least US\$35million annually, with an estimated 17.5 million head of cattle treated per year.

**Objectives:** This study was aimed to assess the perception of livestock owners about bovine trypanosomosis and to determine its prevalence in the study sites.

**Methods:** A questionnaire survey was applied to assess the owner's perception while parasitological survey using thin blood smear with Giemsa stain was made to determine the prevalence rate of trypanosome infection.

**Results:** This study demonstrated that about 96% of livestock owners responded as they have familiarity about trypanosomosis although their level of understanding and way of characterizing the disease was different. 91% of the respondents also categorized the disease among the major economically important concerns in the area. Out of the total deaths encountered by the livestock owners in the last year, 66% was due to trypanosomosis which was estimated to be 2,315.2 birr/household loss annually. Owners' also stated that the absence of any control measures in the area resulted in increment in the trend of the disease from time to time, and the only option for treatment, control and prevention of the disease relied on the use of drugs. The overall prevalence of trypanosomosis in the present study was found to be 13.8%. Age, sex, body condition score and study sites were considered as the risk factors of trypanosome infection. Accordingly, body condition of the sampled animals was significantly associated ( $P < 0.05$ ) with trypanosome infection. In respect to trypanosome species, *T. vivax* and *T. congolense* were encountered with a prevalence rate of 53.7% and 46.3%, respectively.

**Conclusion:** This study revealed that trypanosomosis is among the constraints of cattle production in the study area. So, attention should be given for the the development of control strategies of the disease.

**Keywords:** Bovine trypanosomiasis; farmer's perception; Jabi-Tehnan, Prevalence

## FVM 22. Organ Based Comparative Study on Size, Fertility and Viability of Cystic Echinococcosis on Cattle Slaughtered At Gondar Elfora

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### Abstract

**Background:** Echinococcosis caused by *Echinococcus* species is considered to be an important parasitic infection in livestock and human. It poses significant economic and public health problems in many temperate and tropical areas. In animals, it leads to protein and economic loss, and the feeding of stray dogs with offal discarded from various animals slaughtered for human consumption helps to maintain the life cycle of the causative agent.

**Objectives:** The aims of the present study were to: 1) determine the viability, fertility and size of hydatid cyst in slaughtered cattle at Gondar ELFORA abattoir; 2) compare the distribution, size, fertility and viability of the cyst among different visceral organs of infected animals.

**Methods:** An active abattoir survey on slaughtered cattle visceral organs at Gondar ELFORA abattoir was made to determine organ based distribution, fertility, viability and size of hydatid cyst. A total of 362 live animals brought for slaughter purpose were randomly selected to examine for hydatid cyst infection. Prior to slaughtering, identification number was given to each selected animal and in parallel age, sex, breed and body condition score of each selected animal were recorded. Then, from each selected animals, different visceral organs were examined for hydatid cyst using palpation, visual observation and incision. Then, from hydatid cyst infected animals, a total of 83 cysts were collected at different visceral organs for distribution, size, fertility and viability test from 76 infected animals.

**Results:** Out of 362 animals, 76 (21%) were found to be infected with hydatid cyst harbouring one or more cysts involving different vital visceral organs (lung, liver, spleen and kidney). From infected organs, the lung (68.4%) was more frequently involved followed by liver (34.2%), spleen (3.95%) and kidney (2.63%). However, there was no any record about the involvement of heart in hydatid cyst infection. The distribution of hydatid cysts between lung and liver of infected animals was significantly varied ( $\chi^2 = 17.8, P < 0.0001$ ). But kidney and spleen were less affected. Out of 83 cysts collected, 37 (44.6%) were categorized as small cyst, 13 (15.7%) as medium, and 7 (8.4%) as large cyst, and the remaining 26 (31.3%) were calcified cyst. The rate of occurrence of small, medium and large sized cysts was higher in lungs than in liver. The variation in size of cysts of different organs was statistically significant ( $\chi^2 = 37.2, P < 0.001$ ). Of 57 cysts examined for fertility and sterility, 24 (28.9%) were fertile and 33 (39.8%) sterile. The cyst condition by organ involvement was found to be 27 (51.9%) sterile, 18 (34.9%) fertile and 7 (13.5%) were calcified in the lung, 1(3.8%) sterile, 6 (23.1%) fertile and 19 (73.1%) were calcified in liver. However, cysts from spleen and kidney were sterile. In general, fertility status of cysts from different organs had shown a significant variation ( $\chi^2 = 38.6, P < 0.001$ ) with cysts of lung origin being highly fertile whereas more cysts of liver origin were calcified. Regarding

cyst viability, out of 24 fertile cysts, 15 (62.5%) were viable and 9 (37.5%) were non-viable. The viability rate of fertile cysts originated from lung (80%) was significantly ( $\chi^2 = 10.8, P < 0.01$ ) higher than that of liver cysts (20%).

**Conclusion:** The results of the current study can make a background data for isolating fertile cysts from different visceral organs in order to isolate suitable antigens for the development of homemade diagnostic kit.

**Keywords:** Cattle slaughtered, cystic echinococcosis, ELFORA, fertility, Gondar, size, viability

### **FVM 23. Retrospective Study on Calf Mortality in Dairy Farms in Gondar Town, Northwest Ethiopia**

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#### **Abstract**

**Background:** - In a dairy farm, the highest morbidity and mortality rates are generally recorded in calves prior to weaning, which negatively affects the productivity of the herd by increasing veterinary costs, limiting opportunity for genetic selection and facilitating spread of infectious diseases. Knowing the extent and cause of death and factors influencing calf mortality are of vital importance in identifying options to improve the health status of calves. Although there are some research works carried out in certain parts of Ethiopia on problems of calf mortality and its economic significance, no study was conducted in Gondar town.

**Objectives:** A retrospective study was conducted on calf mortality in dairy farms in Gondar town from October 2013 to May, 2014 with the objectives of assessing the extent of calf mortality and investigating potential risk factors associated with calf mortality.

**Methodology:** A total of 909 calves born from September 2010 to November 2013 in 20 dairy farms were included in the study. Data on calf mortality and associated risk factors were collected by using a pretested questionnaire and farm records.

**Results:** The overall calf mortality rate was 21.45%. Disease conditions or syndromes recorded or mentioned as cause of calf death were diarrhoea (11.55%), pneumonia (3.74%), septicaemia (3.41%), trauma (1.21%) and other miscellaneous causes (1.54%). Among the 12 risk factors assessed, parity of the dam, feeding of colostrum, calves care takers and their experience, calving pen, bedding and measures taken to treat sick calves were significantly ( $P < 0.05$ ) related to calf mortality. Calves of exotic breed (37.5%) were showing the highest mortality rate. Calves from older cows (30.5%) and heifers (24.8%) also showed high mortality rate. Lower mortality rates were recorded in calves fed with colostrum and having individual calving pen than non-colostrums feeders and calves born in multiple cow calving pens.

**Conclusion:** High calf mortality was observed in the town. Therefore, dairy owners should give prime attention to calf husbandry, especially in controlling calf diarrhoea and pneumonia, and more emphasis should be given to colostrum feeding to reduce calf mortality.

**Keywords:** Calf, Dairy Farms, Retrospective Study, Mortality, Risk Factors, Gondar town

## **FVM 24. An Assessment the Impact of Improved Harness in the Control of Back Sore in Donkeys around Bahir Dar City**

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### **Abstract**

**Background:** Ethiopia had 4.5 million donkeys, and stood 1<sup>st</sup> in Africa and second in the world. Donkeys play a vital role in rural economies through the provision of draught power and transport. Compared to other equid species, donkeys contribute the major proportion of readily available transport needs of poor women and men living in hostile environments, enabling them to integrate into social and economic processes. In addition to their popularity in the transport sector, donkeys are perceived as disease resistant and hardy specie by non-pastoralist communities and even animal health policy makers. Donkeys are preferred to other equines because of their affordability, survivability, docile nature and ease of training and handling. The ability of donkey to thrive on poor quality and minimally supplemented feeds has also made them popular in environments where feed shortages can seasonally become a critical problem. Donkeys have been reported to survive better under drought condition than any livestock species due to their small body size and low dry matter intake requirements minimizing their water and maintenance needs in arid and semi arid areas. There are only few studies done on donkeys' problems in such a country having huge number of donkeys. Therefore, one of the aims of this study is to fill this gap.

**Materials and Methods:** Across sectional study was conducted from October 2014 to April 2015 on randomly selected working donkeys to assess the impact of improved harness in the control of back sore around Bahir Dar city (Meshenti and Yigodi). The study animals were selected randomly. The risk factors site, sex, age, body condition scores, condition and design of packsaddle, working nature (load weight and length of journey) were assessed through questionnaire survey and physical clinical examination from a total of 384 working donkeys.

**Objectives:** to study the prevalence of back sore in donkeys and to assess pack saddle use in donkeys and associated risk factors for back sore development

**Results:** The overall prevalence of wound (13.5%) (n=52) were found. The occurrence were significant among sex, BCS and working nature (load weight and length of journey) of the animal ( $p>0.05$ ). However, the occurrence of wound vary significantly twice in Meshenti than in Yigodi ( $\chi^2=5.2$ ,  $p=0.023$  and  $OD=2.105$ ). Among age group ( $\chi^2= 6.832$ ,  $p < 0.05$ ), higher prevalence was noticed in adult animals (15.3%) than old (6.9%), and young ones (0.000%). Substantial wound prevalence were detected from donkeys with ill signs than healthy donkeys ( $\chi^2=11.857$ ,  $p=0.001$

and  $OD=2.96$ ). More specifically, prevalence of back sore considerably associated with condition of saddling (11.7%,  $n=445$ ,  $\chi^2= 10.771$  and  $p< 0.05$ ) and donkeys which are used with insufficient (15.3%,  $n=189$ ) or without any saddle (27.3%,  $n=11$ ) were almost at a greater risk of twice and three times respectively having back sore ( $\chi^2=9.094$ ,  $p=0.010$ ) than those used with proper saddle (7.1%,  $n=184$ ). When donkeys get wounded (47.6%,  $n=180$ ) these were treated by their owners or by traditional wound healers in the village, but others (52.4%,  $n=204$ ) were treated in veterinary clinics.

**Conclusion:** Community perceptions about the improved packsaddle designed by The Donkey Sanctuary Ethiopia, Amhara Project were positive regards to the reduction of back sore, comfort to the donkeys and affordable price. In general, the study has clearly indicated back sore as a prevailing welfare problem of working donkeys around Bahir Dar city.

**Key word:** - Donkeys, Ethiopia, Meshenti, Yigodi, Prevalence, Risk factors, Back sore.

## ABSTRACTS FROM SCHOOL OF LAW

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## SOL\_A1: An Assessment of the Crime of Corruption among Traffic Police Officers in Amhara Regional State: The Case of Routes from Gondar to Bahir Dar

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### Abstract

*Ethiopia has one of the highest road-accident rates in the world. Some claim that it is due to unworthy roads; others blame the drivers. Increasingly, the general public contends that corrupt traffic officers are the main problem behind Ethiopian's soaring rate of car accidents. Particularly, drivers who acquire driving licenses without appropriate knowledge of driving rules are claimed to have been given green lights from traffic cops in return for the bribes. Corruption among traffic cops may result in insufficient service delivery, impunity and diminished public trust, which is in turn violations of human rights such as the rights to life and property that are guaranteed under the FDRE Constitution. According to the national Survey reports, Amhara Regional state took the lion share of loses of life and property as a result of traffic accidents. However, the existing study on corruption-triggered traffic accident in the country is generally fragmented and confined to Addis Ababa lacking comprehensiveness. Thus, this Study attempts to assess the level of corruption among traffic officers and its contribution to the loss of lives and properties in selected cases of the Amhara Region. Accordingly, the study was conducted in the routes of Gondar to Bahir Dar so that Gondar, Maksegnit, Addis Zemen, Woreta, Hamusit and Bahir Dar were selected as a case study area. The study employs both qualitative and quantitative methods taking into account the nature of the problem and the distribution of respondents. Hence, descriptive survey was administered to gather qualitative information such as opinions, perceptions and experiences of informants. Besides, key informant interviews and observation were employed to triangulate the data. The analysis and interpretation of the data indicates that, of 110 sample respondents (Traffic police, drivers, transport bureau officers) and 20 key informants interviewed, 82.71% of the respondents perceive that traffic police want to take bribes. Besides, 49.36% of the respondents reported that they actually paid bribes to traffic police of which 59.52% for more than five times. The main reason why 81.81% gave bribes for traffic police officers was not to be charged for violations of traffic rules. About 71.60% respondents replied that over speed is the main cause for property losses due to car accident. Furthermore, 47.36% of the respondents reported to have faced with certain kinds of accident of which 63.63% of accidents occurred due to the transgression of maximum speed limit. Besides, 75.30% respondents reported that traffic police commits favoritism. It is concluded that the high level of bribe by traffic police resulted in lenient enforcement of traffic rules and regulations resulting traffic accidents that claims the life and property of many individuals. It is recommended that the responsible state organs should design a mechanism to receive information from drivers to closely supervise the practice of traffic police, and take actions on corrupt traffic police practice.*

**Keywords:** Amhara, car accident, corruption, drivers, life, property right, traffic police, traffic rules

## SOL\_A2: Analyzing the Impediments to Universal Suffrage and the Effective Measures to Enforce the Right to Vote in the North Gondar Zone

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### **Abstract**

*Political participation is the basis of democracy and it is a vital part of the enjoyment of all human rights. The right of all people to vote in elections, without any discrimination, is one of the most fundamental of all human rights and civil liberties. The right to vote, without discrimination, is set out in the International Covenant on Civil and Political Rights (article 25) and the International Covenant on the Elimination of Racial Discrimination (article 5(c)). Both of those human rights treaties bind the Ethiopian government. The right to vote is also set out in the Universal Declaration on Human Rights (article 21). These human rights law provides that, in order to make sure that everyone can practically exercise this right to vote, governments must take effective measures to ensure that all persons entitled to vote are able to exercise that right. Thus, where registration of voters is required, it should be facilitated and obstacles to such registration should not be imposed. If residence requirements apply to registration, they must be reasonable, and should not be imposed in such a way as to exclude the homeless from the right to vote. Voter education and registration campaigns are also necessary to ensure the effective exercise of the right to vote by an informed community. On the other hand, there can be restrictions on who can vote in an election as long as those restrictions are based on objective and reasonable criteria. For example, it is reasonable to restrict the right to vote to the citizens of a country. It is also reasonable to restrict the right to vote to people who are over 18 years old. However, it would be unreasonable to exclude convicted criminals from the right to vote in certain circumstances. Human rights law suggests that any exclusion of prisoners must be 'objective', 'reasonable' and 'proportionate' to the offence and the sentence. It is, in this regard, quite sensible to critically scrutinize if there are fair and equitable legal and procedural frameworks that protect the right of all people to vote in elections without any discrimination in what so ever. In this study, the researchers will employ the qualitative research methodology. The research utilizes primary data through field observation and secondary sources such as statistical data, relevant books, journal articles, laws and warranted websites.*

**Keywords:** Political participation, voter education, voter registration, registration campaigns, residency and durational requirements, reasonable exclusion

**SOL\_A3: The Ambivalence of Taxing Undistributed Dividend in Ethiopia: An Appraisal of Theory, Legal Regimes and Practice**

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**Abstract**

*In the contemporary tax system, double taxation of companies has been challenged by lawyers and economists. While some countries tax corporate earnings only at the corporate level, there are also countries who tax corporate profit both at the corporate and shareholder levels when earned and distributed as a dividend respectively. Yet, the theoretical and legal basis of taxing undistributed profits is subjected to great debate. Ethiopian government recently is embarked in widening the scope of taxation in order to cope up with the development needs of the country. Accordingly, Ethiopian Revenue and Customs Authority has come up with a directive that introduced taxation of companies' undistributed dividends. However, such attempt of the government has infuriated the business community as the legal basis of such taxation is ambivalent. Relying on primary and secondary sources, this study examined the legality of taxation of undistributed dividends in Ethiopia in a comparative perspective in order to address the legal ambiguities. The finding of this research reveals that though the existing legal framework in Ethiopia indicates that companies shall be subjected to double taxation, the Ethiopian Revenue and Customs Authority managed to only collect corporate tax profit so far. It is also argued that the major reason for such futile implementation is contributed to lack of clear legal regimes that adequately regulate undistributed dividends within Ethiopian tax regimes. Finally, it is suggested that in order to avoid companies dividend tax avoidance scheme, the existing ambiguous tax regime relating to undistributed earnings should be redesigned clearly without impacting investor's objective of business expansion resultant from these accumulated earnings.*

**Keywords:** companies, earning, legal regime, revenue, taxation, undistributed dividend, Ethiopia

**SOL\_A4: Diagnosing Medical Errors: The Duty to Disclose Errors to Patients: A Legal Survey of the Experience of University of Gondar Referral Hospital**

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**Abstract**

*Medical errors are growing health problems in almost everywhere. The extent and depth of the problem is immense in the developed world. Ethiopia has not so far made any survey to appreciate the problem. But one can say that medical errors are bound to arise in a poorly served, under resourced and less trained health care service. Above all, no*

*institutional and legal mechanism has been put in place to overlook, regulate and take corrective measures towards medical errors. This research attempted to survey recurring cases of medical errors in the University of Gondar Referral Hospital; investigate the physician-patient relationship as to how errors are managed between them as they occur; and how the institution responds to medical errors. The research used a mixed methods approach; the study area was UoG Referral Hospital and the population was physicians and patients at the Referral Hospital and the sample was taken purposively. As a finding, there was no system of error detection, management, reporting and redress. The legal system fails to distinguish errors from malpractice. Six commonly recurring errors were discovered. It was concluded that the University of Gondar Referral Hospital lacks error detection management, and correction system. The patient-physician relations are not principled, and there is no system of accounting for errors in the Hospital.*

**Keywords:** accountability, diagnosing error, medical errors, mechanisms, error reporting, legal survey, referral hospital, University of Gondar,

### **SOL\_A5: The Need of Laws to Reduce the Impact of Alcohol Marketing on Youth under Eighteen Years old in Ethiopia**

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#### **Abstract**

*The proportion of teenagers who drink alcoholic beverages regularly is increasing, and many young people start drinking from a very young age in Chilga and Werreta towns. There are compelling evidences about the negative impact of drinking by young people not only on their own short- and long-term health but it also is known to be a major contributory factor and in some cases the sole motivation for much of the crime and anti-social behavior carried out by young people. Consequently, reducing the impact of alcohol marketing on young people is not only a public health goal but also a public law goal since underage drinking is a significant contributor to youth alcohol-related crimes, suicide and problems associated with school and family. Young people drink earlier more often and more frequently when exposed to alcohol marketing. There is a link between alcoholic beverages advertising and people's alcohol consumption, particularly those*

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*under the age of 18. This study argues that any advertisement of liquor shall not concentrate on minors or use a minor as an advertisement actor so as to protect minors from negative impacts of alcohol consumption. Besides, the large volume of alcohol advertising practices encountered in Chilga and Werreta towns, the content of the advertisements stand out and are part of a very aggressive marketing strategy, which might be interpreted as unethical. Moreover, in Ethiopia, there is no law that prescribes liability against alcohol manufacturers and sellers, which serve alcohol to a boy or a girl who is under 18 years old. Therefore, the alcohol marketing regulatory framework should be stringent and established by law in Ethiopia. This paper recommends that there should be regulatory legal frameworks on underage alcohol drinking in Ethiopia in general and in Chilga and Werreta towns in particular.*

**Keywords:** alcohol marketing, alcohol related crimes, advertising regulation, Chilga, teenagers, Werreta

**SOL\_A6 (Undergraduate senior Essay): Determining the Scope of Access Right to Rural Land of Peasants and Pastoralists in Ethiopia in Selected Regional States of Amhara, Oromia and Tigray Land Legislations**

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**Abstract**

*The saying goes that if you do not have land, you are nobody and if you have land, you are somebody. This actually rooted in diversify and multitude roles land affords to persons the destiny of whose livelihood and status fall in its mercy. Land, particularly, to countries of small subsistence farmers like Ethiopia determines social, political and economical well beings. It is asserted that failure in access to rural land threatens enjoyment of fundamental rights and freedoms. Given this fact, the Federal Democratic Republic of Ethiopia Constitution (FDRE) recognized access right of rural land to Ethiopian peasants and pastoralists without charge. The government at both federal and regional level further added strips by enacting enabling land legislations to realize it. Notably, however, inconsistencies and other time contradictions, omissions and additions on the subjects, conditions and modalities of access to rural land are evident between federal and state legislations as well as between land legislations visa-vise the Constitution. These things, yet important they are in realizing access right to rural land, they are ignored, if not, accorded less concern. In effect, the main objective of this research is determining the scope of access right to rural land in respect to subjects, conditions and modalities under the Federal Democratic Republic of Ethiopian Constitution along with federal and state land legislations. It employed qualitative methodology by using both primary and secondary sources.*

*Primary data were principally collected from careful cross reading of pertinent laws, which were also substantiated by data collected through interview of farmers and officials in north Gondar zone. The study explored issues in light of conditions, subjects and modalities of access right to rural land in the history of Ethiopian land tenure; it highlighted the federal choice and it evaluated differences between the federal and state land legislation accordingly. Amhara, Oromia and Tigray land legislations are discussed in comparison with one another and with the federal laws too. The basic argument made in this research is that even if the FDRE Constitution recognized land grant as of right for Ethiopian peasants and pastoralists, the right is losing its par value due to omissions and additions in State land legislations and absurdities in the federal land legislation. It is recommended to reconsider subjects and conditions of access right to rural land emphasizing women, ventures made by investors, youths organized to carry out small scale industries and crafts men. It is also important to reconsider modalities such as redistribution of non-irrigable land that accommodate local realities.*

**Keywords:** Access rights, Amhara, Ethiopia, land law, modalities, peasants, pastoralists, rural land, Oromia, Tigray,

## ABSTRACTS FROM SCHOOL OF TECHNOLOGY

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## SOT-A1: Design and Development of Biogas Stove for Injera Baking Application

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### Abstract

Matured biogas production technology has led to the development of a number of biogas appliances for lighting, power generation, and cooking. The most promising among them is the biogas stove, to meet the energy requirement for cooking application at domestic as well as at the community level. The main influencing factors in using biogas as a combustible gas are gas/air mixing rate, flame speed, ignition temperature and gas pressure. Biogas needs less air per cubic meter for combustion. About 5.7 liters of air are required for total combustion of 1 liter of biogas. The jet at the inlet of the burner increases this speed thus producing a draft which sucks air (primary air) into the pipe. The primary air must be completely mixed with the biogas by widening the pipe to a minimum diameter, which is in constant relation to the diameter of the jet. Biogas stoves are relatively simple appliance that can be manufactured by local black smiths or metal workers. This stove is designed by covering surrounding volume of flame under an insulated material. The alternative gas burner are designed based on the demand of energy needed during baking and amount of gas supplied from the biogas plant. Alternatively designed gas burner used to supply pressure equally on the holes of the burner port. Accordingly, the average temperature of mitad ready to bake injera is  $161.43^{\circ}\text{C}$  with standard deviation of 7.345, an average combustion temperature of injera baking  $78.5^{\circ}\text{C}$  with standard deviation of 4.434, an average mass of dough needed for each injera is 581 gm with 60% water and 40% teff, and the amount of rate of energy demand needed for baking one injera is 1.414 KW. Finally by taking efficiency of mirte stove, the amount of the rate energy supplied by burner is 5.656 KW and the biogas flow rate required to bake one injera is  $0.93\text{m}^3/\text{hr}$ .

Heat transfer between burner and mitad by radiation, convection heat transfer between flame and wall and heat flow through insulation is determined. New mitad is developed from a mixture of chip metals and clays. The combination of new mitad, alternative gas burner and insulation system can solve the problem on biogas stove for injera baking. The biogas stove details and assembly drawing procedures are prepared in order to simplify it for manufacturing.

**Keywords:** Ignition, Radiation, Convection



## SOT-A2: Theoretical Predication and Experimental Performance of Vacuum Tube 750 Liter Solar Water Heater

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### Abstract

We are blessed with solar energy in abundance with no cost. The solar radiation incident on the surface on the earth can be conveniently utilized for the benefits of human society. One of the popular devices that harness the solar energy is solar hot water heating systems (SHWS). In this paper we did experimental analysis on Evacuated tube collectors (ETC) based solar water heaters. ETC is made up of double layer borosilicate glass tubes evacuated for providing insulation. The outer wall of the inner tube is coated with selective absorbing material. This helps absorption of solar radiation and transfers the heat to water which flows through inner tube. In Gondar, Florida International hotel has installed a 750 liter of solar vacuum tube water heater. The experiments were conducted on vacuum tube water heater. Theoretical temperature was predicted and experimental results were plotted. The difference of temperature lies within  $\pm 20\%$  and the system efficiency is determined. The major losses were insulation and efficiency loss due to the improper direction of solar water heater.

## SOT-A3: Design, Manufacturing and Testing of Up-Draft Gasifier Stove

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### Abstract

In Ethiopia, energy consumption for cooking is characterized as low energy quality, inadequate in quantity, un-affordability and negative impact on environment. Particularly, domestic cooking relies on traditional sources of energy, for which traditional stoves are often used. Traditional stoves are characterized as thermally and environmentally inefficient. Many types of stoves

(chlahua, downdraft and rocket) are available in developing country. These stoves release smoke, ash and excessive heat creating uncomfortable and unhealthy environment for the user. Combustion rate is not well controlled. The efficiency of these stoves is quite less, generally not exceeding 18-22 %. A natural convection type up-draft gasifier has been developed at the Faculty of Technology, Mechanical Engineering department for cooking purpose. The up-draft gasifier consists of primary air inlet, grate, and Secondary holes for proper combustion of the producer gas, combustion chamber, gas wick, and vessel support. The developed gasifier was tested with composite (paper and sawdust), and wood scrap. The experimental investigations show that the overall thermal efficiency of the gasifier using maize cobs with cover and without cover was 32 and 28 % respectively and in case of saw dust briquettes with cover and without cover was 40 and 38 % respectively. The major advantage of this type of gasifier was that all the energy available in the fuel was used and controlled the fuel consumption rate with the help of primary air inlet. The cost for this stove is 50 birr with life time of 3 years.

**Keywords:** *Cook stove, up-draft gasifier, overall thermal efficiency*

#### **SOT-A4: Despeckling and Fusion of Corrupted Satellite Images using Discrete Wavelet Transform**

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#### **Abstract**

Extracting more information from multi-source images is an attractive thing in remotely sensed image processing, which is recently called the image fusion. Conventional image fusion methods have some drawbacks such as poor spectral quality, but fusion using wavelets transformation has good spectral and geometrical quality. In this paper, speckle noises present in the corrupted satellite images are reduced using Wavelet thresholding method. The image fusion algorithm based on wavelet transform is proposed to improve the geometric resolution of the images in which two images to be processed are firstly decomposed into sub-images with different frequency and then the information fusion is performed using these images under substitutive and

additive fusion rules, and finally these sub-images are reconstructed into the resultant image with plentiful information. Fused images are compared based on their Signal-to-Noise Ratio (SNR).

**Keywords:** *Despeckling, Image Fusion, Wavelet Transform, Multispectral, Resolution, Signal to Noise Ratio*

## ABSTRACTS FROM SCHOOL OF EDUCATION

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## **SoE-A1: Teachers Attitude towards Continuous assessment, Practice and Its effect on Students' Academic Achievement: The Case of North Gondar Administrative Zone High Schools**

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Department of Educational Planning and Management

### **Abstract**

*This study examined secondary school teachers' attitudes and actual practices of continuous assessment and students' academic performance. The participants of the study were 80 teachers and 150 students in Amba Georgies, Debarq, Wokin, Kokit, and Azezo Secondary Schools in North Gondar, Ethiopia. Simple random sampling method was used to take samples from the population and multiple instruments that included questionnaires, interviews and document analysis were used to gather data. Frequency and percentage were used to analyze the data. The findings indicated that teachers have positive attitude towards continuous assessment though they are still practicing differently. Teachers gave students class work and assignment not for assessment for learning rather for assessment of learning. Again, not often they are implementing quiz to evaluate their achievement of the learning objectives but to collect marks for final grading of students. Besides, the findings showed that students believed that continuous assessment improved their academic achievement. Based on the findings, it was concluded that teachers did not properly practice continuous assessment in their schools. So, it was recommended that teachers should be given on-job training on continuous assessment for its effective utilization in schools.*

**Key words:** Continuous Assessment, teachers' attitude, students' achievement

## **SoE-A2: An Assessment of the Current Practices of Play Based Learning in the Preschool Education of North Gondar, Gondar, Ethiopia**

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### **Abstract**

*This study is basically aimed at assessing the current practices of play-based learning in the preschool education of North Gondar, Ethiopia. This issue is important because of the recent movement for a more academic focus in preschool education. Therefore, this study first examined the teachers' perceived emotional and social developmental value of play-based learning in the preschool education. Second, it examined and discussed the role of teachers in implementing play based learning. This is because understanding the significance of play based learning could make teachers to be less worried while implementing it, and it enables them to answer questions regarding the value of play for social and emotional development of preschool children. Third, it assessed the physical learning environment including the indoor and outdoor play materials and*

equipment of the preschools. Those things that were investigated by the study may contribute their lions' share in enhancing the effective implementation of play based learning in preschool education. As a means, mixed research method was employed to analyze both the collected qualitative and quantitative data. Comparative study was used to compare the government and private kindergartens (KGs). It involved 34 preschool teachers, drawn from 6 pre-schools (24 % of the study population) and 6 preschool coordinators, selected using simple random sampling and purposive sampling techniques respectively. Data were collected by questionnaire from preschool teachers, interview guide from the preschool coordinators and observation check list of the preschool physical learning environment. Thematic data analysis techniques were used to analyze the gathered qualitative data; whereas the quantitative data were analysed by using statistical techniques of t-test. The study found out that most teachers do not fulfill some of the roles specified to them in implementing play based learning in the preschool education. Moreover, the result of the one sample t-test analysis displays that there was no appropriate integration of play based learning both in the private and government owned KGs. The study also revealed that there was better indoor and outdoor materials and equipment in the private KGs than the government KGs. However, as the independent sample t-test result indicated, there is no statistically significant difference among the private and government owned KGs in implementing play based learning. Finally, pertinent recommendations were drawn from the findings and the conclusions of the study.

**Keywords:** Play, Play based learning, Current Practice, Early Childhood Education

**SoE-A3: የኢትዮጵያ አጠቃላይ ሁለተኛ ደረጃ ትምህርት ማጠናቀቂያ የአማርኛ ቋንቋ ፊትና በመማር ሂደቶች ላይ ስለሚኖረው ተጽዕኖ የተማሪዎች ግንዛቤ (Perceptions)**

በአገኘሁ ተሰፋ (ዶ/ር) ፤ ሳምራዊት ዘወዱ ፤ እና አስቴር አስራት

**አጠቃሎ (Abstract)**

የዚህ ጥናት ዋና ዓላማ የኢትዮጵያ አጠቃላይ ፪ኛ ደረጃ የአማርኛ ቋንቋ ማጠናቀቂያ /በሂራዊ ፊትና በተማሪዎች በመማር ሂደቶች ላይ የሚኖረውን ተጽዕኖ በሚመለከት የአጠቃላይ ፪ኛ ደረጃ ትምህርት ቤቶች ተማሪዎች ያላቸውን ግንዛቤ (Perceptions) በአማራ ክልል ትምህርት ቤቶች መነሻነት መመርመር ነው። ይህን ዓላማ ለማሳካት መረጃዎች በጥናቱ በተካተቱ አራት አጠቃላይ ፪ኛ ደረጃ ትምህርት ቤቶች ከሚማሩና በእድል ሰጪ ንዋና ዘዴ ከተመረጡ የ9ኛና የ10ኛ ክፍል 271 ተማሪዎች፣ በዓላማ ተኮር ንዋና ዘዴ ከተመረጡ ሦስት ርዕሳነ /ምክትል ርዕሳነ መምህራንና ሦስት የአማርኛ ትምህርት ክፍል ተጠሪዎች ተሰብስበዋል። ከእነዚህ ተሳታፊዎች መጠናቂያ መረጃዎች በተማሪዎች የጽሑፍ መጠይቆች፣ ዓይነታዊ የሆኑት ከሁለት ትምህርት ቤቶች 24 የዘጠነኛና የ10ኛ ክፍል ተማሪዎች በተተካሪ የቡድን ውይይቶች፣ እንዲሁም ከሦስት ርዕሳነ/ ምክትል ርዕሳነ መምህራንና ሦስት የአማርኛ ትምህርት ክፍል ተጠሪዎች በቃለ መጠይቆች፣ ከሰነዶች ደግሞ ከመርህ ትምህርቶችና መማሪያ መጽሐፎች፣ ከ9ኛና የ10ኛ ክፍል ተማሪዎች ስምንት ደብተሮችና ከፖሊሲ ሰነዶች ተሰብስበዋል። በእነዚህ የመረጃ መሰብሰቢያ

መሳሪያዎች የተሰበሰቡት መረጃዎችም ዓይነታዊ የሆኑት በጭብጠቻቸው መሰረት በተለያዩ ክፍሎች እየተመደቡ፣ መጠናዊ የሆኑት በገላጭና ድምዳሜያዊ ስታቲስቲክስ (በቁጥር፣ በመቶኛ፣ በአማካይ፣ በተዛምዶና በሀብረ-ድሀረት) ዘዴዎች ተተንትነዋል። የጥናቱ ግኝቶች እንዳመለከቱትም እንደኛ የማጠናቀቂያ ፈተናው በተማሪዎች ግንዛቤና ተግባራት ላይ በአብዛኛው ጠንካራ የሚባል ተፅዕኖ እያሳደረ ነው። ይህም ተጽዕኖ የመማር-ማስተማር ሂደቶቹ ፈተና ተኮር እንዲሆኑ ያደረገ ነው። በፈተናው ጫና የሚደርስባቸው ዋና ዋና የትምህርት ምድቦችም የትምህርቱ ጊዜ አደላደል፣ የማስተማሪያ መሳሪያዎችና የትምህርቱ ይዘቶች ናቸው። ይህም የቋንቋው ትምህርት፣ ሥርዓተ ትምህርቱ በተመሰረተበት ተግባቦታዊ የቋንቋ ትምህርት ፍልስፍናና መርሆዎች እንዳይመራና የትምህርቱ ዋና ጉዳይ የሆኑት የቋንቋው ክሂሎች ችላ እንዲባሉ እያደረገ ነው። ለእንደዚህ ያሉ የፈተና ተጽዕኖ ገፅታዎች መከሰትም በጥናቱ የተመረመሩት አብዛኞቹ የፈተና ተጽዕኖ መከሰቻ ምክንያቶች (ለምሳሌ የተማሪዎች የክፍል ደረጃ፣ በፈተናው ስኬታማ ለመሆን ያላቸው ጉጉት፣ ስለፈተናው ያላቸው ዕውቂያ፣ ስለፈተናው ጠቀሜታ ያላቸው ግንዛቤ፣ ስለፈተና ያላቸው አመለካከት የተማሪዎች የክፍል ደረጃ ወዘተ.) ላቅ ያለ፣ በአብዛኛውም አሉታዊ የሆነ አስተዋፅኦ እንዳበረከቱ የጥናቱ ውጤት አሳይቷል። በጥናቱ የተገኙት አሉታዊ የፈተና ተጽዕኖ ገጽታዎች የትምህርት ሥርዓቱን በሚመሩ ወገኖች የማስተካከያ እርምጃ እየተወሰደባቸው እንዳልሆነም የጥናቱ ውጤት አሳይቷል። ከእነዚህ የጥናቱ ግኝቶች ላይ በመመስረትም በባለድርሻ አካላት ምን ምን ተግባራት ቢከናወኑ ችግሮቹን ማቃለል እንደሚቻል የመፍትሄ ሀሳቦች ተጠቁመዋል።

**SoE-A4: An investigation of Job Satisfaction and Retention of primary School teachers of North South Gondar Zone**

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**Abstract**

*The purpose of this paper was to determine the level of job satisfaction and retention of primary school teachers in North Gondar Administrative Zone. A descriptive survey research design was applied. The sample consisted of 210 primary School teachers. Mixed method involving qualitative and quantitative approaches were used to generate data. Both close ended and open ended questionnaires were administered to teachers to collect the necessary data. The study revealed that majority of primary school teachers in the selected schools were not satisfied with the school administration, students behavior, work condition, society's attitude toward teachers' job and their salary and benefits. The study also found that the sampled teachers are likely to leave their job if they could get opportunity of better job. The major factors causing dissatisfaction of teachers were lack of students interest to learn and their misbehavior, undemocratic and poor school management, heavy workload due to additional accountability and responsibility, negative attitude of the society to the teaching profession and low salary and benefit. The study recommends that school administration should be democratic. The voice of teachers should be taken in to consideration when important decisions are made. The school and concerned body should work hard to change the attitude of the society to understand teaching as*

a key job to shape the future citizens. Moreover, school principals and other responsible bodies should work hard to help students develop desirable behavior toward their teachers and their learning. It is high time to the government to rethink the salary and incentives for teachers. If teachers do not have enough income, they will not stay in their job, instead they can leave their job whenever they get better paid job. Hence, the government should design different incentive schemes. More importantly, the government should improve the salary of teachers. Without adequate income or salary, it is difficult to retain teachers in their current job.

**Key words:** job satisfaction, retention,

### **SoE-A5: An assessment of the practice of active learning methodologies by teachers of teacher training Colleges of Begemidir and Gondar.**

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Department of Special Needs and Inclusive Education

#### **Abstract**

*The teachers' practice of active learning (student-centered) methodologies were collected through questionnaire, interview and observation. From eighty two (82) College teachers of both Begemidir Teacher Training College and Gondar Teacher Training College of North Gondar Percentage, 1 sample T-test, Pearson correlation, regression (Multiple linear regression and stepwise) and qualitative analysis were used to analyze data. Results revealed that teachers are practicing active learning methods. The practice of active learning was attributable to statistically significant factors the practice of assessment, positive attitude of teachers towards active learning methods, adequate pre-service and in-service training of teachers in active learning methodologies, availability of administrative and material support to teachers from the administration of the two Colleges. There was also an effort to know the predictor of the practice of active learning methods of teachers. Hence, assessment, attitude, pre-service and in-service training and input (administrative and material support) availability independent variables together explained about 25.1% of the variance in practice of active learning methods by teachers of the two Colleges, while assessment practice ( $t_{4, 77} = 2.542^*$ ,  $p < 0.001$ ) and in-service training ( $t_{4, 77} = 2.501^*$ ,  $p < 0.001$ ) had statistically significant effect on the practice of active learning methods, while attitude of teachers and input availability were not statistically significant. And, the important variables that significantly predicated practice of active learning methods were pre-service and in-service training and assessment practice. However, though the teachers are practicing active learning methods, it is not without challenge, and the teachers are facing large content coverage, rigidity of time table of classes, and lack of full access of resources and administrative support. Finally, pertinent to the findings of the study, feasible conclusions and recommendations were drawn and forwarded.*

**Key words:** Active learning, teacher education, pre-service training, in-service training



**SoE-A6. Program Relevance and Curriculum Implementation practices during launching new Academic programs of Higher Education against HERQA's standards set at national level: The case of Higher Education Institutions located in Amhara Regional State**

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**Abstract**

*This study has surveyed and tried to evaluate the program relevance and curriculum Implementation practices during launching new Academic programs of Higher Education against HERQA's standards set at national level: The case of Higher Education Institutions located in Amhara Regional State. To carry out this research, Quantitative research approach along with Survey study design was employed to comprehend the general picture of the programs under implementation. Questionnaire was mainly used to gather data from 90 respondents among which 41 responded and gave back the questionnaire to the researcher. These respondents were University instructors who are currently offering courses for masters degree level students, department heads, postgraduate directors/coordinators. Vice presidents were also given checklists to fill it all from their due teaching experiences ever gained plus working as decision makers during adopting the post graduate programs, policies when launching these academic programs of University of Gondar as main senators. Descriptive statistics was processed to analyze quantitative data obtained through the questionnaire and the checklist. Thoroughly, it was revealed that the university has launched many postgraduate programs at Master's degree level and the majority of university instructors and postgraduate directors and coordinators have assured that proposals on limiting the number of master's students admitted to individual majors are made and taken in to account and submitted to the university senate; need assessment is done before the program is opened. Most of them agreed that the program is a logical continuation of undergraduate curriculum; it is carefully done and fulfills the standards and requirements of higher education; students are also selected based on their academic achievement in undergraduate program and the admission requirements and processes are clear and transparent, Professional qualifications, equality and fairness are considered during selecting the master's degree new entrants. It is also agreed that the program has been well organized and it is in accordance with defined learning outcomes and with diverse teaching methods. It has been also strongly agreed that students while learning in the program have the opportunity to involve themselves in teachers' research work and engage in their own research under an advisor's guidance. However, still the university has not established opportunities or access for these students to acquire international experience by making it easy for them to spend part of their time during studies at foreign education institutions and; especially self-sponsored students do not involve themselves in assistance in teaching at undergraduate level. Most programs also promote students acquisition in addition to specialized academic knowledge of general and practical knowledge ; the departments have desirability of letting students present their final research projects and publish them; and hence, generally perform program evaluation which gives students opportunities to show to what extent they have acquired and adopted the knowledge,*

skills of relevant course and major. Generally, from these all understandings, it has been even handedly concluded that the Master's degree programs launched and being implemented in the selected institution and their curricula can be considered as relevant. The study entirely recommends that the University has to organize and perform program evaluation per annum in order to let all the programs and their curricula become more effective and relevant

**Key words:** program relevance, academic program, curriculum implementation, higher education

### **SoE-A7: A Study on the Relationship between Organizational Culture and Job Satisfaction of Secondary School Teachers in North Gondar Administrative Zone**

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#### **Abstract**

*The purpose of this research is to assess the relationship between organizational culture and job satisfaction of secondary school teachers in North Gondar Administrative Zone. Co relational research design was used. The major source of primary data was self-administered questionnaire and secondary data like journals, books, articles, master thesis, dissertation and internets. The researcher went and collected first hand information about teachers' population from archives of the schools in January 2013 G.C. The administrative zone holds 22 general secondary schools with a total of 480 teachers of which, 383 and 97 were males and females respectively. Out of the 22 schools in the zone, seven Secondary schools in North Gondar Administrative Zone, namely, Koladiba, Shahura, Chuahit , Tekldengay, Edigetfeleg , Dabat and Gorgora were selected by using random sampling through lottery system. 214 teachers in the selected schools were selected by using the same technique. It is used to make sure that every teacher of the selected secondary schools in north Gondar Administrative Zone has an equal chance of being chosen because it enables to make generalizations from the findings. Out of 214 teachers of the sample schools, there were 37 teachers (30 males ,and 7 females) at Koladiba, 31 (26 males, and 5 females) at Shahura, 20 teachers (16 males, and 4 females) at Chuait, 25 teachers (20 males, and 5 females) at Tekldingay, 42 teachers (35 males, and 7 females) at Edigetfeleg , 33 teachers (26 males ,and 7 females) at Dabat ,and 26 teachers (18 males, and 8 females) at Gorgora. After the questionnaires had been collected, two types of statistics were used these were: Descriptive statistics (mean and standard deviation) and inferential statistics (Pearson correlation and Multiple correlations). Based on the data analyzed and interpreted in the study, the following conclusions and recommendations are presented. The level of independent variables of overall organizational culture ( $M=2.81$ ) and its dimensions such as organizational supportiveness ( $M=3.10$ ), innovation ( $M=2.79$ ), and stability and communication ( $M=3.2$ ) are within the moderate level, which signal that there is no enough level. But, emphasis rewards ( $M=2.4$ ) and performance oriented ( $M=2.52$ ) are at lower limit. These clearly demonstrate that the cultures provided are not pleasing signal as there is enough level of teachers' job satisfaction. The extent of dependent variable of teachers' job satisfaction is ( $M=2.38$ ). It undoubtedly reveals that the majority of staff have low degree of job satisfaction. With regard to the level of relationship,*

overall organizational culture and its dimensions namely organizational supportiveness, emphasis of rewards and performance oriented have significant positive relationship with teachers' job satisfaction. However, innovation( $r=0.0.23$ ,  $p>0.05$ ) and stability and communication( $r=0.0.37$ ,  $p>0.05$ ) have insignificant positive relationship with teachers' job satisfaction. The result also clearly shows that emphasis rewards is the dominant culture that affects the teachers' job satisfaction. From these findings, the researcher concludes that organizational culture and job satisfaction are interdependent and have an impact on one another to achieve positive results. Similarly, when organizational culture increases, especially emphasis of rewards, performance orientation and organizational supportiveness, the teachers' job satisfaction will increase, and the vice versa.

**Key words:** organizational culture, job satisfaction, performance

SoE-A8: የኢትዮጵያ አጠቃላይ ጀኛ ደረጃ ትምህርት የአማርኛ ቋንቋ ማጠናቀቂያ ፈተና ከአዕምሯዊ ምድብ የትምህርት ዓላማዎች ጋር ያለው ተጣጥሞሽና በመማር ማስተማር ሂደቶች ላይ ሊያሳድረው የሚችለው ተጽዕኖ

**በአገኘሁ ተስፋ (ዶ/ር)**

**አጠቃሎ(Abstract)**

የዚህ ጥናት ዋና ዋና ዓላማ የኢትዮጵያ አጠቃላይ ጀኛ ደረጃ ትምህርት የአማርኛ ቋንቋ ማጠናቀቂያ ፈተና ከአዕምሯዊ ምድብ የትምህርት ዓላማዎች ጋር ያለውን ተጣጥሞሽ/ ተዛምዶ፣ የተዛምዶ ደረጃና በመማር ማስተማር ሂደቶች ላይ ሊያሳድረው የሚችለውን ተጽዕኖ ለመፈተሽ ነው። ይህን መሰረታዊ ዓላማ ለመሳካትም ከ2002-2004 ዓመተ ምህረት ባለው ጊዜ የተዘጋጁትን የሦስት ዓመታት የማጠናቀቂያ ፈተናዎች፣ 270 ጥያቄዎች በዌር እና ሌሎች (1990) እና አልደርሰንና ሌሎች(1995) ዓ.ም ስራ በተመለከተው የማዛመጃ ዘዴ መሰረት የባለሙያዎችን ጽኑነት( Expert Judgment) በመጠቀም ከአዕምሯዊ ምድብ የትምህርት ዓላማዎች ጋር እንዲዛመዱ ተደርገዋል። የፈተናዎቹን ጥያቄዎች ከአዕምሯዊ ምድብ የትምህርት ዓላማዎች ጋር በማዛመድ የተሳተፉት ባለሙያዎችም አራት ሁለተኛ ዲግሪያቸውን በሥርዓተ ትምህርትና ማስተማር፣ በትምህርታዊ ሥነ-ልቦናና በምዘናና ግምገማ የሰሩ የኮሌጅ መምህራን ናቸው። ከፈተናዎች ኤጀንሲ ኃላፊዎችና የአማርኛ ቋንቋ ፈተና ዝግጅት ባለሙያዎች ደግሞ በቃለ መጠይቆች ተጨማሪ መረጃዎች ተሰብስበው ተተንትነዋል። በእነዚህ በተለይ በባለሙያዎቹ የተካሄደው ምደባ ውጤት ትንተና እንዳሳየውም፣ የፈተናዎቹ ጥያቄዎች ከአዕምሯዊ ምድብ የትምህርት ዓላማዎች ጋር ያላቸው ዝምድና አሉታዊ ነው። በብዙ ጥያቄ ሊወከሉ የሚገባቸው ዋናዎቹ የትምህርቱ ጉዳዮች (ትግበራ፣ ትንተና፣ ቅንብራና ግምገማ) በፈተናዎቹ እየተወከሉ ያሉት ከ10% በሚያንሱ ጥያቄዎች ብቻ እንደሆነ የጥናቱ ውጤት አሳይቷል። በአንጻሩም በትምህርት ፖሊሲ ሰነዶች ትኩረት ያልተሰጣቸው (ሊሰጣቸውም የማይገባቸው) እውቀትና ግንዛቤ ከ90% በላይ በሚሆኑ ጥያቄዎች የመወከል እድል እንዲያገኙ እየተደረገ እንደሆነ የጥናቱ ውጤት አሳይቷል። ይህም ተማሪዎች በመማሪያ መጽሐፎቻቸው የቀረቡ መተግበርን፣ መተንተንን፣ ማቀናበርንና መገምገምን የሚጠይቁ የክህላል ትምህርቶችን ተግባራዊ የማድረግ ፍላጎት እንዳይኖራቸው የሚያደርግ ነው። በተለይ ከክህላሎች ጋር የተያያዙ በተግባር እንዲጸፉ፣ እንዲወያዩ፣ እንዲከራከሩ፣ ንግግር እንዲያደርጉ ወዘተ. የሚያዘትን መልመጃዎች ፈቃደኛ ሆነው እንዳይሰሩ የሚያበረታታ ነው። የዚህም አንድምታ

የፈተናዎች ኤጀንሲ አንደኛ፣ የሚመርጣቸው ጥያቄ አውጭዎች/ ጸሐፊዎች እነዚህን ዓላማዎች ያገናኙ ጥያቄዎች የማውጣት/ የመጻፍ አቅም/ ክህሎት የላቸውም፣ ሁለተኛ፣ በኤጀንሲው ለየትምህርት ዓይነቶቹ ፈተና ዝግጅት ባለሙያዎች በተደጋጋሚ እየተሰጠ ያለው የፈተና አዘጋጅነት አቅም ማሳልበቻ ስልጠና በባለሙያዎቹ ላይ የሚፈለገውን ለውጥ አስገኝቶ ፈተና አዘጋጆቹ (ጥያቄ ጸሐፊዎች) የሚያወጧቸው ጥያቄዎች፣ እነዚህን ዓላማዎች በፖሊሲውና በቋንቋው ትምህርት በተሰጣቸው ትኩረት መሰረት የሚወከሉበትን አቅጣጫ ማሳየት አለባቸውም የሚል ነው። ከጥናቱ ግኝቶች በመነሳትም የሚከተሉት አስተያየቶች ተሰጥተዋል፤ አንደኛ የሚዘጋጁት ፈተናዎች ከትምህርቱ ጋር የሚጣጣሙ እንዲሆኑ ማድረግ የሚያስችሉ ትምህርቶችና ስልጠናዎች ለፈተና አዘጋጆችና የፈተና ዝግጅት ባለሙያዎች የሚሰጥበትን መንገድ ማመቻቸት። ሁለተኛ፣ ለችግሮቹ መከሰት አንዱ መንስኤ ፈተናው በምርጫ ብቻ የሚቀርብ በመሆኑና በምርጫ ፈተና ከፍተኛ ደረጃ የአዕምሯዊ ችሎታዎችን መጠየቅ የተለዩ ልምድንና ችሎታን ሊጠይቅ ስለሚችል በአንዳንድ ሀገሮች እንደሚደረገው፣ በኢትዮጵያም አንድ ወቅት ተሞክሮ እንደነበረው፣ የክፍል ትምህርት ምዘና ውጤቶች ከማጠናቀቂያ ፈተናዎቹ ውጤቶች ጋር አብረው የሚደመሩበትን ሥርዓት (አሰራር) መፍጠርና ከትምህርት ቤቶቹ የሚወሰደው ውጤት ግን በማጠናቀቂያ ፈተናው በአግባቡ መካተት ያልቻሉት ችሎታዎች ብቻ እየተለዩ የሚሆንበትን ሥርዓት መዘርጋት ቢቻል።

**SoE-A9: The Situation of Gifted and Talented Children in Addis Ababa Preschools: Conception and Support System**

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**Abstract**

*The main purpose of this study was to investigate the situation of gifted and talented young children in terms of teacher's conception and support in preschools and home using a mixed research design. The data gathered via universal non-verbal intelligence test-UNIT, interview, teachers and parent nomination scales were analyzed using thematic phenomenology, independent t-test, and chi-square. The result of the IQ and TNS indicates that among 116 students, 22 (20%) of them are identified as gifted children. There are various teachers' conceptions of gifted and talented children in preschools. Based on their conception, they can only be able to identify 13.63% gifted children correctly. In terms of teachers' recognition, gifted students who act as an adult misbehave in the class and poor in their academic performance are not recognized and supported. Non-academic special talents like art, music and bodily-kinesthetic are not encouraged and capitalized. The relationship between socioeconomic status and giftedness has been investigated based on family income, education level, job, and annual educational expenditure. The result also shows that except family income, the rest have insignificant contribution for gifted children when it is compared to non-gifted children. With regard to teacher's support, it ranges from doing nothing to accelerating the next level. Parent recognizes their children's giftedness and they support them by providing stimulating materials.*

**Key Words:** Gifted, talented, intelligence, preschool, non-academic,

### **SoE-A10: An Innovative Practice to Improve the Quality of Education– An Experimental Study**

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#### **Abstract**

*It is very much necessary to improve the quality of education at every level of the present educational system. The definition of education emphasis unfoldment of every ability enfolded in the germ or child. It clearly states that every child has all the abilities and the duty of educational system to unfold it. If we see the present educational system, I have no doubt that it is not in state of unfold the abilities of the child. Because to unfold every ability of a child, educational system first consider individual differences in the children. In olden days, education was nothing but imparting 3R's. That is R-READING, R-WRITING and R-ARITHMETIC. It means if a person can read, write and do some arithmetic, he was no doubt educated. But at present; in this competitive world, the three things mentioned above were enough. But our present educational system is suitable to the definition of our olden days. So there was a need to improve quality of education. So, present educational system seriously considers the individual differences in the germ and encourages research to develop student-centered methods in teaching-learning process to improve the quality of education. The difference in human beings are referred to as individual differences in the languages of Sociology and Psychology. According to "Dictionary of Education" by Carter B. Good (1959), individual difference stands for "the variations or deviations among individuals in regard to a single character or a number of characteristics". It also stand for "Those difference which in their totality, distinguish one individual from another". If we build a workable definition with reference to whatever we discussed earlier in the following words. "The differences among individuals that distinguish or separate them from one another and make one as unique individual may be termed as individual difference". For the present study achievement in the subject has taken as the basis for dividing the students in a classroom into groups and specific subject multiple choice achievement test with only correct answer type (Pre-Test) are given. Each Test consists of 25 objective type questions in the subject. According to scores obtained in the Pre-Test in each subject for total students, the entire class is divided in to three groups in a particular subject by calculating Quartile Deviation. The Groups were named as Group-1, Group-2 and Group-3. The researcher conducted five tests per each year: Pre-Test, Interim Test-1, Interim Test-2, Interim Test-3, and Post Test. The scores obtained were analyzed using the statistical techniques: Mean, Standard Deviation, and ANOVA to know the improvement of quality between the groups and within the groups. For the present study, students of Grade VIII were taken and the experiment was conducted for three years by taking a total 464 students.*

**Key words:** Individual differences, Quality of education, Ability grouping, Student centered teaching method

## ABSTRACTS FROM FACULTY OF AGRICULTURE

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## FoA-A1: The Roles and Prospect of Alatish National Park for Sustainability of Livelihoods

By Genanew Agitew, Assefa Abelieneh and Kibrom Adino

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### Abstract

*Mutually supportive relationships between communities and nearby protected areas are critical to the long-term success of conservation efforts. There is a complex relationship between environment and livelihoods particularly, for those whose production and economy is predominantly dependent on agriculture. With the aim to assess the roles and prospects of Alatish National Park (ANP) for sustainability of livelihoods including attitudes and practices of local community towards the park along with the implication for environment, the study used cross-sectional survey using different techniques of data collection from primary and secondary sources. The data were collected using household survey, focus group discussion, interviews and observation and it was analyzed using both quantitative and qualitative methods. The results of the study indicated that the relation between ANP and the local livelihoods is found to be strong as the local people access different natural assets. Consequently, diversified livelihoods of the community are conditioned and shaped, but the park and surrounding area do not receive the required conservation and protection from the local people. The quantitative and qualitative evidences of the study also revealed that the local community have positive attitude towards ANP and significant proportion of households have participated in various ways and different activities. However that active involvement and multidimensional participation of the local community recognized to be decreasing. The internal problems such as illegal hunting of different wildlife by the local community, outbreak of fire, uncontrolled movement of people inside the park, absence of road connecting different parts and overgrazing of buffer zones and external factors including the movement of "Felata" community, who are mainly nomadic in their way of living, "Rutana" and "Mesalit" with their devastating and unwise exploitation of natural resources are found to be the challenges of ANP. Consequently, resulted in disturbance and migration of wild animals to nearby conserved area especially to Dinder National Park of Sudan. Despite, higher expectation of local people from establishment of the park, it has compromised different livelihood options available and even become source of insecurity. Taking various environmental, economic and social indicators based on evidences taken from different source, the implication of ANP for sustainability of livelihoods of people around the park and environment is questionable. Based on the results of the study, it is highly recommended that linking the local livelihoods with the conservation of ANP in a way that it ensures sustainability; freeing the park from external and internal poachers; re-demarcating the boundary of park based on consensus of local community; constructing road, which connects different parts; and trans-boundary parks conservation agreement and action with Sudan are paramount important to meet the multidimensional anticipated objective.*

**Key words:** Alatish National Park, Livelihood, Conservation

## FoA- A2: The Dynamics of Agriculture Based Livelihood Strategies in Response to Land in Quara District, North-West Ethiopia

By Genanew Agitew, Degsew Melak, Sisay Yehuala & Haimanot Atinkut

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### Abstract

*The livelihood of the people is highly dependent on the availability, access and control over assets such as natural, human, social, financial and physical assets and livelihood strategies devised and experienced. Land is the most essential resources for the farm households on which the means of living and livelihoods security are founded and shaped. With the aim to investigate the dynamics of livelihoods strategies of farm households in response to land specifically, land ownership and pattern of use, relationship of land with other assets, factors leading to emerging livelihoods and prospects of new livelihoods strategies in ensuring sustainability, the study used cross-sectional survey addressing both quantitative and qualitative aspects. Techniques such as household survey, focus group discussion, key informant interview and observations using different tools were used to generate data. The analysis was conducted using both quantitative involving descriptive and inferential statistics, and qualitative methods. The results of the study show that the land ownership of most farm households in the study area is emanated from traditional land ownership system and there exist very high disparity among households. Formalizing land ownership and use is also found to be unfinished business of the study area. The land used pattern is dominated by agricultural activities using traditional ways. The study also revealed that land as critical resources is the source of differences in livelihood portfolios of farm households and demonstrated by positive correlation between land and household income. Land and associated problems as pushing factors and market, support from government system, availability infrastructure and irrigable land as attracting factors have conditioned and shaped the livelihood activities and strategies of farm households. The dynamics of livelihood activities and strategies are demonstrated by the change within agriculture such as intensifying land use, diversifying the portfolios combining the agricultural and not agricultural activities on season basis. Another change in agricultural activities is found to be complete change from agriculture to non-agricultural sector. Sustainability of the emerging livelihoods in terms of meeting both productivity and environmental demands is yet questionable research agenda. Based on evidences based findings, the study recommends land registration and certification, promoting and environmental friendly alternative livelihoods, investing on non-agricultural sectors by creating and consolidating conducting policy environment to be priority areas of intervention.*

**Key words:** Land, livelihood, household, strategy



FoA-A3: Adoption of Dairy cattle production technologies in Gondar town, North Gondar zone, Ethiopia

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**Abstract**

Livestock production in the developing countries is increasing rapidly in response to the fast growing demand for livestock products resulting from increasing population especially that of urban areas, and rising consumer income and the sector is found to play an increasing role in peri urban systems. Breed improvement programs for dairy production in Ethiopia were started by importing pure temperate breed of cows during the Italian occupation and since then a number of governmental and non-governmental institutions has practiced crossbreeding using temperate breeds and indigenous breeds. In the study area, crossbreed animals, fodder technology production, use of AI services were introduced, training also offered to farmers to increase the knowledge in milk production, management, handling and processing. Even though such efforts have been made, the supply of milk for milk processing factory, for urban dwellers and for milk cooperatives is very low. This study, therefore, explored the dairy technology adoption decision behavior of smallholder farmers and the factors which affect the technology adoption in Gondar town of the Amhara Regional State. A multistage sampling procedure was used to identify peasant associations and then households. In the first stage of sampling from 6 PAs practicing dairy technology, 4 PAs were selected using systematic sampling based on the number of dairy farming participants. A total of 140 household heads were selected randomly using probability proportional to size from the identified PAs. Both qualitative and quantitative data were collected from the sampled households. While the qualitative data were generated from focus group discussions and key informants using check lists, quantitative data were collected from sampled households using structured interview schedule. The structured interview schedule was pre-tested, revised and then administered by well-trained enumerators recruited from the study area. Descriptive statistics such as mean, standard deviations and frequencies were used to summarize the data while binary logit model were fitted to identify the most important variables influencing Dairy technology adoption decision behavior of sample households. Study results revealed that 52% of sample farmers adopted DT during the study year. Results of the econometric (binary logit) model indicated that experience in dairy farming, education, frequency of contact with extension agent, and perception of technology were found to have positive and significant influence on adoption of Dairy cattle technology further signifying the importance of appropriate communication strategies in technology adoption. Generally, the result of this study indicates that adoption of Dairy technology is a result of an interplay of several factors, which should be given due attention in the generation and transfer of agricultural technologies including Dairy cattle production.

**Key Words:** Adoption decision, dairy technology, milk cooperatives

FoA-A4: Diversity of and farmers' perception towards native/indigenous tree species in the Eucalyptus-dominated agricultural landscapes of Northern Ethiopia:

Implications for Conservation

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**Abstract**

*This study was conducted in Chiliga and Dabat districts of North Gondar zone. It assessed the diversity and regeneration status of the remaining on-farm native tree species, as well as the existing and future options of integrating and managing native tree species through Agroforestry systems. The study utilized both primary and secondary data. Secondary data, particularly data on socio-economic profile and physical description of the study area, was collected from the office archives and reports. Primary data was obtained using such methods as, formal household survey, group discussion, observation, key informant interview, and woody vegetation inventory. A total of 128 sample households were randomly selected and administered to structured questionnaire. On the other hand, a plot based woody species inventory was conducted on farm lands (on all farm plots of each sample household), riverines (on 24 plots), state or communal plantations (on 18 plots), and remnant natural forest (on 24 plots). The qualitative data, mainly from key informant interview, group discussion and physical observation was organized, summarized and analyzed narratively. Household survey data was analyzed by means of descriptive statistics, including mean, frequency, percentage and ranking, using MS Excel 2007 software. Data from tree inventory was analyzed by computing the abundance, frequency, density, diversity indices, and by making regeneration trend analysis. Heterogeneity of the land uses and native species was determined using Shannon-Weiner diversity and Evenness indices. Comparisons were made between the land uses, study sites, and the two districts. A total of 34 and 26 woody species was recorded in Chiliga and Dabat district, respectively. The number of native woody species was 29 at Chiliga and 22 at Dabat. In both study sites, highest number of native woody species was found in natural forest, followed by riverine land, farm land and plantation forest. The major on-farm niches of woody plant species were home gardens, crop/cultivated fields, boundary plantings and woodlots. Even though the farm land in the study areas were home to different native woody species higher in number than exotic species, the abundance/density of the native species in the farm was by far fewer than that of exotic. More than 64 and 85% of the individual trees in farm lands of Chiliga and Dabat district belonged to a single exotic tree species, *E. globulus*. The study suggests that actions are necessary to prevent the rapid replacement of indigenous woody plant diversity by a monoculture of non-native trees. The fact that remnant native tree individuals are currently growing with in the agricultural landscapes is an indication of the opportunity for integrating and managing native tree species through Agroforestry systems.*

**Key words:** Agroforestry; Diversity; Eucalyptus; Farmland; Native woody species; Natural forest; Plantation

### FoA-A5: Evaluation of storm water management in Gondar city, North Gondar Zone, Ethiopia

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#### Abstract

Gondar town with a total population of 207,044 (CSA, 2007) is suffering from severe erosion by storm water runoff. The high rain fall, presence of hilly areas in the vicinity, lack of proper drainage facilities and their low capacity to carry flood peaks result in storm water problem. This study is aimed at evaluating the surface runoff generated in the watershed and the size of drainage structures to carry this storm. Providing more accurate surface runoff information for the municipality is very important for proper storm water management. Many methods are used to estimate the runoff from a watershed. The curve number method, also known as the hydrological soil cover complex method, is a versatile and widely used procedure for runoff estimation. This study employed SCS curve number method to estimate surface runoff generated in the town. As delineated by Arc-GIS10.1 the total area of the town including the new master plan area is 4950.8 ha of which 2175.5 ha is densely populated with commercial and business area. The rest 2775.3 ha is the newly established town with Agro-pastoral land use. In this study two sample sub-watersheds namely *Arada sub-watershed (774 ha)* and *Dashen sub-watershed (241 ha)* was evaluated. As clipped from Tana basin by the project area the soil type is chromic luvisol which is a type of silty clay loam soil. 44 percent of the land use is urban whereas 56 percent is agro-pastoral. The surface runoff generated in the watershed is *88.18 mm*, and the volume of surface runoff generated in Arada and Dashen sub-watersheds are *682513.2 m<sup>3</sup>* and *212513.8 m<sup>3</sup>*.

**Key words:** *Watershed, SCS curve number method, surface run off*

### FoA-A6: Evaluation of Improved Varieties of Haricot Bean in West Belessa, Northwest Ethiopia

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#### Abstract

Haricot bean (*Phaseolus vulgaris* L.) is one of the most important food legumes of Ethiopia and it is considered as the main cash crop and the least expensive source of protein for the farmers in many lowlands and mid altitude of the country. Low production and productivity, which is mainly associated with lack of access for improved varieties, was one of the major problems. Ten haricot bean (*Phaseolus vulgaris* L.) varieties and one local check were evaluated in 2013 and 2014 cropping seasons at the Arbaya experimental station of University of Gondar, West Belessa in northwest Ethiopia. The objective of this study was to evaluate the performance of varieties in the study area. The trial was laid out in the randomized complete block design with three replications. Combined analysis of variance (ANOVA) showed significant variability among varieties for all the parameters studied such as number of pods/plant, number of seeds/pod, plant height, seed yield, total biomass and 1000 seed weight. The varieties Nasir and Dimtu were found to be high yielding varieties with mean seed yield levels of 2866.8 and 2709.3 kg ha<sup>-1</sup>,

respectively. These two varieties have a respective yield advantage of 331.9 and 313.7% over the local check. Therefore these two varieties are recommended for future use in the study area and similar environments.

**Keywords:** Haricot bean, Seed yield, Variety, Evaluation

#### FoA-A7: Evaluation of Improved Varieties of Teff in West Belessa, Northwest Ethiopia

*Daniel Tadesse, Teferi Alem, Tesfaye Wossen*

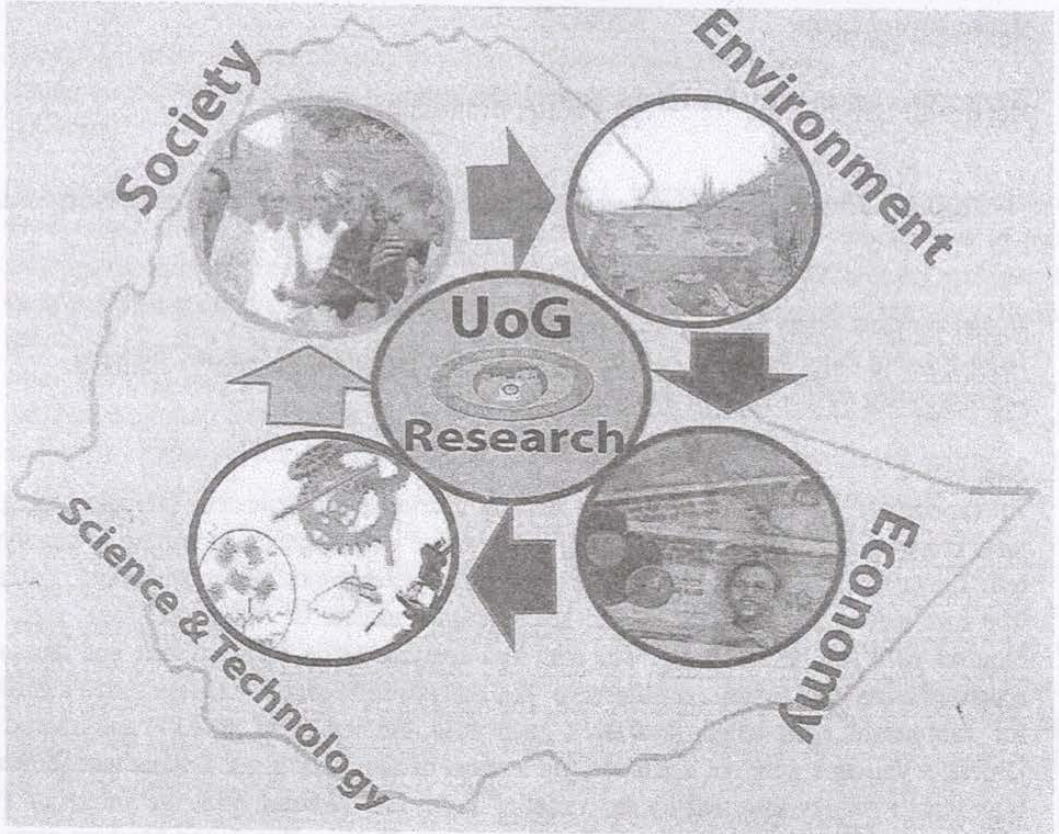
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#### **Abstract**

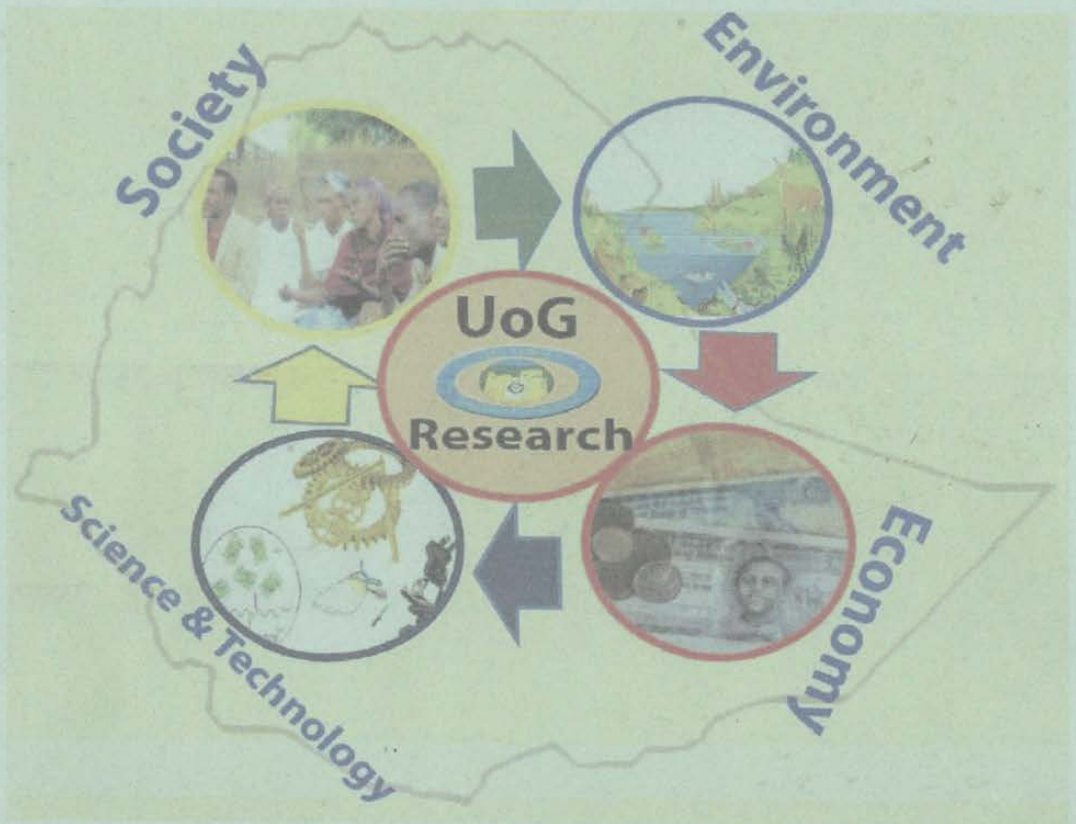
An experiment was conducted at West Belessa district of Northwestern Ethiopia during 2013 main cropping season in order to identify and promote well adapted and promising genotypes of teff. The experiment was laid out in a randomized complete block design with three replications. The data recorded were plant height, spike length, number of tillers per plant, grain yield, biomass yield and harvest index. The data was analyzed using SAS software and means were separated using least significant difference. The analysis showed that varieties varied significantly for plant height, spike length ( $P < 0.001$ ), grain yield, biomass yield ( $P < 0.01$ ) and harvest index ( $P < 0.05$ ). Varieties were not significant for number of tillers per plant. Dukem was shown to be high yielder variety followed by the varieties Boset and Mechare with the values of 1963.7, 1772.0 and 1743.7 kg ha<sup>-1</sup>, respectively. The varieties Dukem, Kunch and Mechare were found to be having high biomass with the values of 6111.3, 5833.3 and 5555.3 kg ha<sup>-1</sup>, respectively. Dukem was superior in almost all the agronomic traits evaluated while the local varieties Awra tef and Bunign were out performed by most of the improved varieties of teff tested. The varieties evaluated had a wide genetic background for the studied traits, thus showing grain yield ranges from 1012.0 to 1963.7 kg ha<sup>-1</sup>. Therefore, based on objectively measured traits, the variety Dukem was found most promising having the potential to increase the average yield of tef in West Belessa district and is therefore recommended for general cultivation.

**Keywords:** tef, variety, grain yield



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