The Seventh Annual Research Conference of Jimma University
March 31-April 1, 2016

Book of Abstracts
Grand Theme: Gender Equality in Development and Nation Building: Opportunities and Constraints

Plenary Papers

- Gender and Development: the social and gendered dimensions of poverty reduction, inequality and social injustice
- Gender bias in the academia: experiences of female faculty in public universities in Ethiopia
- Addressing gender inequalities in Ethiopia’s agricultural sector to reduce poverty
- Jimma University Gender Audit Pilot Project
- Conceptualizations of Gender Equality in Amharic: The case of Amhara speech community in Minjar Shenkora District

Organized by Jimma University

We are in the Community!
Theme: "Gender Equality in Development and Nation Building: Opportunities and Constraints"

March 31-April 1, 2016
Jimma
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Opening Session

Welcoming Speech

Dr. Berhanu Belay, V/president for Research and Community Services

Dear Prof Fikre Lemessa
President of Jimma University and Guest of Honor of this conference
Dear Distinguished stakeholders invited in this conference
Jimma University community

Ladies and Gentlemen

It is my pleasure and privilege to welcome all of you to the seventh annual research conference of Jimma University, which brings together our key stakeholders and allies and Jimma University community.

Dear participants of the workshop

It should be very clear from the onset that, the aim of this conference is to create a scientific platform to our researchers so that they can present/disseminate their research finding to the conference participants and beyond. This platform will create the opportunity to get inputs from professionals and pave the way to produce scientific articles, policy briefs and showcasing research finding menus to our esteemed stakeholders that may create demand to stakeholders to utilize our research findings.

In the past six consecutive annual research conferences, we have identified the conference themes that stretched from Quality of Education to Climate Change and Adaptation. A number of research focus areas were identified. We have used the platform to disseminate our research findings through dialogue and discussion, producing book of abstract, publishing of proceedings which are available in our website.

Dear participants of the workshop

This year, we have picked a very crucial and a multidisciplinary topic to advance our inclusive and broad based development plan of nation. The theme of the conference is "Gender Equality in Development and Nation Building: Opportunities and Constraints". Why Gender is a key development issue today in the world? Research has shown that the empowerment of women is a potential for accelerating economic growth and making development results more sustainable. Empowering women and strengthening women’s participation in decision-making is at the heart of socio-economic development. Equal representation of women and men in government administration makes the Government a better employer by enabling diversity to improve its work. Hence, the empowerment of women is not a luxury, it is an untapped potential in the further acceleration of Ethiopian renaissance. Gender equality should go beyond leap service. Gender equality is achieved when women and men enjoy the same rights and opportunities across all sectors of society, including economic participation and decision-making, and when the different behaviors, aspirations and needs of women and men are equally valued and favored.
Dear participants of the workshop
The policy emphases and institutional arrangement in AUC and respective member countries including Ethiopia in gender equality are encouraging and appealing. In Jimma University among other issues, gender is a cross cutting research priority areas and our policy has put forward research innovation fund for young and female researchers, which we are under preparation to implement the policy. In a continental level, there is a commitment to address gender equality in which the AUC has eight pillars for development and pillar 3 is gender equality. European Union has committed to ensure that 75 percent of its aid to Ethiopia to contribute for gender equality and women empowerment and the focal sectors is gender-mainstreaming to ensure that men and women benefit equally and equitably from EU-supported programs, in order to optimize the outcomes of EU investments. Hence, we need to do more to ensure gender equality at each level, especially at grass root level.

Dear participants of the workshop
In this conference 6 invited and cross cutting papers will be presented and serve as a background and/or lead papers. The background papers are strategically selected to address the theme of the conference. Furthermore, 98 papers shall be presented in parallel sessions covering a wide range of disciplines such that: 15 papers in Social Sciences and Humanities, 9 papers in Business and Economics, 14 papers in Natural Sciences, 12 papers in Health Sciences, 15 papers in Engineering and technology, 9 papers from College of Education and behavioral Sciences, 21 papers in Agriculture and Veterinary medicine and 3 papers from college of law and governance. The participants are free to join any of the syndicate group by tracking the topics relevant to their discipline. As a sequel to our previous endeavor, in this conference the outstanding issues picked in each parallel session and the issues that may need immediate research and development effort shall be presented by the organizers of each college. The presentation is aimed at sharing the deliberations of each of the parallel session and also identifies and plan areas that needed a multidisciplinary research and cement the linkage of colleges, departments and our key stake holders. There shall be also a general discussion to address cross cutting issues so as to advance research culture and dissemination of the outcomes in Jimma University in the years to come. We will recognize the best presentation in each of the syndicate groups and present award of recognition.

Dear participants of the workshop
The conference has involved participants from varies institutions such as Ministries, NGO, private and public higher learning institutions, Regional Bureaus and Agencies all having rich experience in research and development. It is my great believe that, we will complement each other to advance economic development through research, teaching and community services. As a sequel of these conferences the proceedings of the conferences shall be produced and distributed to the key stake holders before the next year conference.

Dear participants of the workshop
May I know call up on Prof. Fikre Lemessa president of Jimma University to officially open this Annual Research conference of Jimma University.
Thank you
Opening Speech

Prof. Fikre Lemessa, President of Jimma University

Dear invited Guests
Scholars from various higher education and research institutions
Participants of the Workshop
Ladies and Gentlemen;

I am honored and privileged to welcome you all to the 7th Annual Research Conference of Jimma University. This conference is annually organized by Jimma University in order to promote the dissemination of research findings by scholars from several higher education institutions in the country. It is a great forum that extends opportunities for policy makers, researchers, educators and other stakeholders to meet in one roof and share their views and experiences.

Dear Participants;

JU duly emphasizes the importance of producing high quality research outcomes in order to address the national policy priorities of the country, resolve the problems of the local community and enlarge its contribution as one of the leading higher education institutions in the nation. Research and development are two sides of the same coin and indisputably support to enhance each other. Cognizant of this fact, JU has been registering remarkable achievement to improve the quality and contribution of research findings produced by its staff members.

The university induced fundamental structural reforms on the mechanisms of conducting research. It has exerted efforts to detach itself from the traditions of min – individual research projects focusing on very specific issues to mega research projects targeting on priority thematic areas by way of promoting multi-disciplinary and team based research projects. This will ensure effective and efficient utilization of scarce financial resources and expands the extent to which research projects influence policy priorities and address critical issues in the community. Mega project approach among others enables to address priority research themes, promotes interdisciplinary research in cross cutting issues, ensures relevance and quality of research, helps to attract funds and grants to research projects and most of all combats fragmentation of research efforts. The staff members of JU have also realized the merits of such a splendid approach and are committed to put the research policy of the institution in to practice. Working together in line with the new approach, we have no doubt that we will take the quality and impact of our research to the next level.

Globalization and internationalization are also becoming the guiding principles of higher education systems across regions of the world. One of the major pillars to implant global competitiveness and build positive images of universities is to produce high quality research
outcomes in the areas of science, technology and the social sciences. Internationalization is embedded in the very vision and missions of Jimma University which cannot be realized unless we are in a position to produce high quality research findings of a global standard.

**Dear participants;**

This year’s conference on “Gender Equality in Development and Nation Building: Opportunity and Constraints” paves way to important future developments in research addressing gender as a key factor to development and nation building. As such, it provides an important bridge between gender, development and nation building.

The past themes of the conference were devoted to classic themes of research outputs, the topic of this year’s conference departs somewhat from these themes, as it incorporated a cross cutting issue, gender. I would like to underline that research is very important to mainstream gender into development and nation building activities. It is important in many ways but mostly in the aspect of making sure that women, 50% of the population and their needs are addressed in the development of the nation.

It is very important for a nation to integrate women into the existing development process by targeting them, often in women-specific activities. It is also equally important to focus on intervening to address unequal gender relations which prevent inequitable development and often lock women out of full participation. It is significant for a nation to make sure that both women and men participate, make decisions and share benefits from the economic, political, social and cultural aspects of life.

I am delighted that you are able to join us to make this event a memorable one. I am especially delighted to welcome paper presenters and panelists who worked hard to contribute to this important conference. You will be pleased to know that some of them are new to Jimma University. Indeed this forum will be a great event as it will have nearly 400 participants and eight parallel sessions. I am looking forward to your valuable contributions to this conference.

I won’t wrap up this opening speech before conveying my deepest gratitude for paper presenters, panelists and researchers from other institutions for joining us to share their research findings and professional opinion. I am also grateful to the organizers for putting their utmost effort to make the conference a great success.

Finally I wish you all fruitful, enjoyable, and intellectually stimulating discussions over the next two days.

Saying that, I officially declare the opening of this conference

Thank you
Key-Note Address by Guest of Honor
Plenary Session

Gender and Development: the social and gendered dimensions of poverty reduction, inequality and social injustice

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Abstract
This plenary discussion gives a brief sketch of the integration of gendered perspectives into development projects in the global South, beginning with the “woman in development” paradigm of the 1970s, shifting to “women and development” approaches, and finally “gender and development.” Despite these expansive policy initiatives, we have yet to observe comprehensive empowerment or sustainable social justice for women. African feminists have partially attributed the failure of developmental policies to the imposition of Western gender norms in development projects designed for African societies. These Western frameworks, rather than empowering women, have too often intensified oppressions. Taking the Chad-Cameroon Oil Pipeline as a case study, I illustrate some of the failures of an over-simplified and unproblematized incorporation of gender into pre-existing development practices. The Chad-Cameroon Oil Pipeline was designed (by an oil consortium steered by the directives of the World Bank) to be the first oil extraction project on the African continent that would combine resource profit with the wellbeing of local people. Despite the ambitious scope and social engineering of the pipeline project, it resulted in large-scale aggravations of poverty and hunger, damaged local ecosystems, and exacerbated gender inequalities in the region. This case study demonstrates the importance of considering the gendered distributions of power as well as the ways in which social relations inform the allocation of costs and benefits of large-scale, infrastructural development projects like the pipeline. Drawing from African feminist scholarship, I advance potential resolutions for the promotion and cultivation of social justice and equality on the continent.
Gender bias in the academia: experiences of female faculty in public universities in Ethiopia

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Abstract
The education sector policy of Ethiopia, recognizing the very low proportion of females in faculty positions in the academia (currently standing at 10.8%), advocates for increasing access for females to join faculty positions in Higher Educational Institutions (HEIs). However, there is little analysis and documentation on the opportunities and challenges that female faculty face once they join the academia and less is known about the dimensions of gender equality concerns of female faculty members in HEIs of the country. With the objective of analyzing the experiences of female faculty in the academia thereby exposing the different challenges of female faculty and dimensions of gender equality concerns in selected public universities of Ethiopia, the paper employs qualitative methodology to understand how female faculty construct meanings out of their experiences of being a female faculty in Ethiopia’s HEIs. A total of sixteen in-depth interviews were held with female faculty from selected five universities complemented with one focus group discussion with female faculty members from the selected universities. The findings reveal that challenges of female faculties emanate from complex gender relations that shape societal views and expectations about the proper role and place of women and men in society. Such widely held societal views and practices are by and large woven into the fabric of HEIs pretty much unaltered and unmodified. Governing polices in the education sector particularly on higher education, the institutional culture as well as practices and even personal dispositions of people in leadership deeply reflect this skewed nature of gender relations which often disadvantage women.
Addressing gender inequalities in Ethiopia’s agricultural sector to reduce poverty

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Abstract

Agriculture is the engine of growth and poverty reduction. However, the sector is underperforming in many rural areas in part because of the constraints which affect the productivity of women. In this paper we draw on literature and empirical evidence to demonstrate the implications of gender equalities and inequalities in Ethiopia on the agricultural sector and rural economy. We employ a community capital’s framework to provide a holistic perspective of the stock and interaction between the capitals required by men and women to effectively engagement in the two sectors. Although reform has enhanced women’s access to land tenure, participation in decision making and asset control are yet to be achieved. Female headed households’ farm sizes are smaller compared to those of male headed households. On average men possess more livestock species and numbers than women. Therefore, women have limited access to manure for soil fertility management and adoption of the new practice. Time use studies show that women work longer hours compared to men, affecting their decisions to adopt time and labor intensive technologies. Women participation in rural labor markets also is limited. Due to cultural norms, there are discrepancies in access to information and extension services. Additionally, inadequate access to credit lowers women’s access to farm inputs, such as seeds, tools and fertilizers to invest in irrigation and land improvements. Women have lower membership to farmer-based organizations compared to men, and lesser for women headed households. When women’s membership in informal groups is higher, women can achieve economies of scale in access to markets, build confidence, leadership and security. Women are less represented in higher level research, management and decision-making positions compared with their male colleagues. Infrastructural factors have not been a focus of much of the literature on increasing agricultural productivity. The Ethiopian government has plans to develop the agricultural sector and address the gender issues. Strategies to enforce policies, transform gender constraining norms and increase women’s control of assets need to be in place. The different gender dynamics, affect nutrition requirements and food intake.

Key words: Women, gender, equality, agriculture, community capitals, Ethiopia
Jimma University Gender Audit Pilot Project

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Jimma University

Abstract
‘Jimma University Gender Audit Pilot Project’ assessed gender balances in the university. It introduces how the current JU Women and Youth Affair Bureau reached the current state of affairs. Next, as the topic shows, it reflected the university gender auditing process. The paper, in general, described the participatory and beneficiary balance of female students and employees in the university.

To begin with, the paper assessed and illustrated female students’ academic achievements and attrition rates. It investigated the students’ results classifying into three broad groups; that were the higher (4 – 3.5), the medium (3.49 – 3.00) and the lower (2.99 – 2.00) score groups. Finally it assessed the attrition rate of female students (those detained because of lower grades) based on the female and male students’ enrollment balance. The audit piloted documents as of the ‘2014 – 2015’ JU registrar, plan, and human resource. Accordingly, the issues of more than 19 thousand regular first degree students, where more than 4949 are females, were audited. Consequently, more than 248 female students score 3.5 and above, 804 female students score 3 and above, and 3550 of the total number score 2.99 and below. Finally, the audit showed that 347 female students were detained in one or other case.

In addition, the paper looked into the quantitative and qualitative aspects of the admin and academic female staff. The paper also assessed the leadership balance of the female employees among 4968 administrative staff, which includes 2870 females (JU Human Resource and Plan office, 2014 – 2015). Hence, we got almost all of female employees participate in the lower level management; ten of them participated in the medium level management, and only one participated at the top level, as a senior director, management and decision making roles in the university. Furthermore, there are 1687 academic staff members, among which 216 are females. Their educational backgrounds showed that 129 of them have first – degree, 84 have second – degree and only 3 of them have PhD in their respective fields. Accordingly, we recommend that the office with the university gender sensitive staffs need to work harder to balance the administrative and academic power relation among the male and the female employees that contributes in the issue of gender balance for sustainable development of the university and then the country.

**Key Terms:** Gender, gender audit, Gender mapping, power relation, sustainable development
Conceptualizations of Gender Equality in Amharic: The case of Amhara speech community in Minjar Shenkora District

Alemayehu Negash (PhD)
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Abstract
This presentation reports the result of a critical analysis of conceptualizations of gender equality in Amharic. By adopting a discourse analytic approach, specifically the study endeavored to (a) identify gender ideologies, (b) show the roles played by gender ideologies, (c) reveal cultural gender stereotypes which are socially shared and which account for women’s oppression and marginalization, (d) identify gender-power relations which degrade the status and dignity of women and which limit the economic, social and political participation of women, and (e) reveal how people engage in the reproduction of or resistance to gender-power relations. To this end, data were gathered using different methods: spousal reconciliation cases, FGDs, documents, in-depth interviews and field-notes. The collected data were analyzed qualitatively using critical discourse analysis in tandem with speech act theory.

The study uncovered that there were two gender ideologies in Minjar Shenkora District: private/family patriarchal gender ideology and public/social patriarchal gender ideology. As to the roles played by gender ideologies, the study revealed that private patriarchal gender ideology let husbands expel their wives from their cozy homes, beat their wives sadistically and threaten their wives using tools such as a dagger and cudgel. Moreover, the study displayed that private patriarchal gender ideology let some husbands even inflict serious and traumatic physical and psychological injuries on their wives. The study further showed that private patriarchal gender ideology let husbands make major decisions in the house in the district, whereas it made wives to be under their husbands’ thumb and have less power with regard to making decisions over matters found in their home. The study also displayed that private patriarchal gender ideology enabled husbands to exercise coercive power over their wives in the district.

Furthermore, it was found that public patriarchal gender ideology systematically discriminated women from the political sphere, but it let men monopolize the political domain. In this regard, the study indicated that public patriarchal gender ideology enabled men to control the chairmanships and secretary positions exclusively in the district. It was further found that public patriarchal gender ideology even made people think that politics is not necessary for women in the district. The study in general revealed that this gender ideology enabled men to secure their privileged positions and power in the public domains of politics and recreational places in the district. Conversely, it excluded women from public domains of politics and recreational places.

Pertaining to cultural gender stereotypes, the study disclosed that the following cultural gender stereotypes which were socially shared and which accounted for women’s oppression and marginalization in the district emerged:
(a) wives should be submissive or subservient to their husbands, (b) men should not do domestic chores because domestic chore is women’s task, (c) women should be nurturing, (d) men should...
be the major decision makers in the house, (e) women have limited political capacity, (f) a woman cannot lead a Kebele, (g) women do not have the capacity to participate in politics, (h) women do not have an interest in politics, (i) women lack political capacity, and (j) women should not go to recreational places such as in restaurants and bars alone as men do. It was found that the prescriptive gender stereotypes listed from A to D had negative repercussions on women. The study showed that by serving as a base for public patriarchy, they contributed to women’s discrimination in the political domain. Moreover, the study indicated that the gender stereotypes listed from E to J contributed to women’s discrimination in the political domain.

As to gender-power relations, the study showed that many women were victims of gender based violence in the home in the district. In this regard, it was found that husbands expelled their wives from their cozy home when they quarrel with them. Husbands’ assaultive behaviors were also common in the district; and some husbands even inflicted serious and traumatic physical and psychological injuries on their wives. Furthermore, husbands had complete power or dominance over their wives in all aspects in the district. In general, the study indicated that husbands abused their wives physically, psychologically and economically in the home in the district. It was also found that husbands exercised their power over their wives based on the following discursive and non discursive strategies: (a) using force, (b) using dissimulation, (c) holding communal property exclusively, and (d) making the major decisions in the house exclusively. The study further showed that women had been highly discriminated and marginalized in the political domain in the district, albeit they have a constitutional right to participate in politics.

With regard to resistance to gender-power relations, the study indicated that the presence of different contexts at the international, national and local levels directly and indirectly let women highly resist asymmetrical gender-power in the home in the district. However, the study showed that there was no women’s resistance to asymmetrical gender power relation in the public domains. In this regard, the study revealed that women accepted their domination in the public domains of politics and recreational places as if it were natural.

Finally, recommendations have been suggested for concerned bodies based on the findings of the study. Moreover, potential research focuses have been indicated for future researchers.

**Key words:** Conceptualizations, gender ideologies, cultural gender stereotypes, private/family patriarchal gender ideology, public/social patriarchal gender ideology, gender-power relations, resistance to gender-power relations.
Parallel Session 1: Organized by College of Agriculture and Veterinary Medicine

The combined effect of early feeding and photostimulation (in ovo and posthatch) on the growth and muscle development of meat type chicks.

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Abstract

Baby chicks fast for the first 36 to 72 hour because of early hatch time and different activities in the hatchery. This prolonged fasting period results in retarded growth and lower breast muscle weight. Feeding chicks immediately after hatching reduce body weight loss during hatchling process. Moreover different studies suggested that photostimulation (in ovo and post hatch) of baby chicks enhance growth and muscle development of meat type chicks. This study was designed to investigate the combined effect of photostimulation (in ovo and posthatch) and early feeding of gelatin nutrient mix block on the growth and muscle development of meat type chicks. 845 Cobb500 chicks (50 % male and 50 % female) hatched under blue, green, red, white light and dark (control) condition. Equal no of chicken divided in to two groups. One group fed gelatin block the other group held without feed for 30 hrs post hatch inside the hatcher. The chicks were randomly assigned to one of the four posthatch photostimulation groups (blue, green, red and white) in eight environmental and light controlled rearing houses (100 birds /house ). Light intensity was 0.1 W/m² at the height of birds’ heads and was scheduled for 18L: 6D during the experimental period. BW was taken at day 0, and every week until 42 days. At day 21 and 42 autopsies were performed and weight of liver and breast muscle was taken. The IGF-1 mRNA gene expression in liver and breast muscle was evaluated at day 0, 21 and 42. There was interaction effect between in ovo photostimulation and early feeding in the hatchery on the BW, breast and liver weight and IGF-1 mRNA gene expression in both liver and breast muscle. Green fed chicks showed significantly higher BW, liver and breast muscle weight and IGF-1 mRNA gene expression in liver and breast muscle. Interaction effect between in ovo and posthatch photostimulation was only noticed on weight of breast muscle and liver at day 21. Three way interaction effects were observed on IGF-1 mRNA gene expression at day 21 and 42 both in liver and breast muscle. These results suggest that in ovo and posthatch green monochromatic light with early feeding enhance growth and muscle development of meat type chicks.

Key words: gelatin, broiler, growth, photostimulation, IGF-1 mRNA gene expression
Status of agricultural research at Jimma University College of Agriculture and Veterinary Medicine (JUCAVM)

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Abstract
The agricultural year of 1952 marked the beginning of agricultural research in Ethiopia, when Jimma Agricultural Technical School (JATS) and the first agricultural experiment stations were established and planted from May to October 1953. The purpose of this presentation is to highlight some of the research undertakings and achievements of JUCAVM over the last 60 years.

JATS (Currently JUCAVM) was nationally responsible for tertiary level agricultural education, research and extension in those early days of the 1950s. The initial research undertakings were exploratory type, followed by introduction and adaptability screening on wide range of crop varieties and livestock species. The results indicated that historically significant data on the Ethiopian agriculture have been recorded as annual, progress and special reports. Some of the results were published as experimental station bulletin's, miscellaneous publications, laboratory manuals and scientific journals. Others were released as improved technologies including varieties of crops and crops and animals management practices.

JATS was re-named as Jimma Institute of Agriculture (JIA) in 1969 under the Ministry of Agriculture and finally up-graded to agricultural college level under Commission of Higher Education. It is interesting to note that, there was no a single research project conducted at JIA and all the literatures published dealt with the descriptions of human resources, physical facilities, departmental courses, farm units, student affairs, annual budgets etc. Research activities re-initiated in the college, for the first time in 1984/85. Critical examination of research and development efforts of JUCAVM during this period (1984-2002) was reported to have constrained by lack or shortage of research budget, senior faculty members, infra-structural and policy set up, institutional research guide lines and inadequate public respect, scientific literature, laboratory facilities, transportation services, scientific connections.

The establishment of Jimma University by amalgamation of JUCAVM and Jimma Institute of Health Science in December/1999, capacitated postgraduate programs, laid down the foundations of collaborative research and led towards identification of research thematic areas. Thus JUCVM's research performance in the recent years could be rated as good when evaluated on the basis of ICT capacity, financial issues, basic facilities, size of faculty members, number of training programs, list of research projects and size of publications. On the contrary, release or dissemination of technologies and the proportion of research results put into effective use by the farming communities are disproportionately low.
Termite mounds on soil physical and chemical properties and effect on crop yield in Jimma area, Ethiopia

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Abstract
African subsistence farmers are unable to afford mineral fertilizer because of its high price. Consequently, a new paradigm called ISFM has been adapted, that advocates the maximum use of locally available resources. Although termite mound has frequently been suggested as amendment to improve soil fertility, there was lack of comprehensive study. Little is known about the nutrient amount stored in termite mounds, the effects of TMM application rates on crop yield and spatial arrangement of crops performance around termite mounds. Potential and sustainability of mounds spreading also received little attention. To this end, mound abundance was counted and nutrient stored was estimated, and soil samples were collected from internal and external parts of several mounds and adjacent soils at 0.5, 1 and 10 m distances from termite mounds. Soil samples at 10 m distance were considered as reference soil. A Wheat pot growth experiment was conducted on Nitisols with different application rates of termite mound material. Analogously, for a Vertisol, pots were filled with soil from termite mound and adjacent soils. There was no significant spatial variability within the termite mounds for any of the measured physico-chemical properties. In general, on Nitisols termite mounds were not significantly enriched in plant nutrients and organic matter as compared to reference soils, whereas mounds were relatively enriched on the Vertisols. Aggregate stability of adjacent soils was significantly higher as compared to the termite mound materials. On both soil types, the 1 m perimeter surrounding termite mounds is a fertile hot spot. On Vertisols, all measured parameters of wheat were generally higher on samples at the distances of 0.5 and 1 m from termite mounds than on the reference soil and termite mound materials. Although none of the application rates were found to be outstandingly beneficial for all the parameters of wheat measured, grain yield and plant height were relatively higher on full TMM and higher application rate of TMM on Nitisols. Termite mounds constitute a store of 43.15 6.32 kg ha\(^{-1}\) of Nt and 1278 and 204 kg ha\(^{-1}\) of OM on Nitisols and Vertisols, respectively. We suggest spatial arrangement of crop around termite mounds according to soil fertility gradient, crops nutrient requirements and their economic values. The conventional ways of spreading termite mounds seems not feasible. A detail study of soil spatial variability at successive intervals of 0.5 m from termite mounds is needed to delineate the areas of hot spots in fertility that guides spatial arrangement of crops around termite mounds. Furthermore, we suggest spatial variability research for different crops around termite mounds to select the best crop spatial arrangement.
Characterization of benchmark soils in the Gilgel Gibe catchment, South-West Ethiopia

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Abstract
The Gilgel Gibe catchment, located in the highland of southwest Ethiopia, is characterized by rugged topography with slopes subjected to cultivation for many years. Only rudimentary information is available on the characteristics of soils of the catchment. This study was therefore conducted to contribute to the generation of information on the characteristics of the major soils types in the catchment. Six soil profiles were fully characterized in the field along a toposequences that extends from Bore, at the periphery of Jimma town to Dedo and soil samples were collected and analyzed for selected physico-chemical properties using standard laboratory procedures. The study indicated that two soils namely Nitisols and Planosols occur together in the landscape in a well defined landscape positions. The Nitisols, characterized by a well drained profile with an A-AB-Bt-C horizon sequence and diffuse boundaries between horizons which are directly underlain by thick saprolite occupy the upper and middle position of the toposequence in the landscape, while Planosols, characterized by a horizon sequence of bleached, structureless loamy Eg surface horizon abruptly overlying a black clayey Bt horizon subsurface horizon, occupy the poorly drained plains and valley bottoms. The Nitisols were found to be weakly acidic with a pH values varying from 5.8 to 6.4. The organic carbon content is higher than 2% in the topsoil and shows an overall decrease with depth. The cation exchange capacity by 1M ammonium acetate (pH 7) ranges from 27.92 to 41.77 cmol (+)/kg soil. In Planosols, the pH varies from 5.1 to 6.0 and there is no considerable difference between horizons. Organic carbon and total nitrogen both show an overall decrease with depth, but interestingly, jump to higher values just below the textural break. There is an abrupt increase in pH from 11 cmolc kg\textsuperscript{-1} in the Eg horizon to 45.9 cmolc kg\textsuperscript{-1} in the underlying Bt horizon.

Key words: Gilgel Gibe, nitisols, planosols, toposequence
Flood inundation area and hazard assessment mapping of the Awash River Basin in Ethiopia using GIS and HEC-GeoRAS/HEC-RAS model

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Abstract
Awash River Basin has been frequently flooded causing loss of life, property destruction, and crop damage due to short-time intense rainfall in the main rainy season (June-September). Flood generating factors, i.e. slope, elevation, rainfall, drainage density, land use, and soil type were rated and combined to delineate flood hazard zones using a multi-criteria evaluation technique in a GIS environment. The weight of each flood generating factor was computed by pair wise comparison for a final weighted overlay analysis of all factors to generate the flood hazard map. The flood hazard map indicates that 2103.34, 35406.63, 59271.09, 162827.96, and 1491.66 km² corresponds with very high, high, moderate, low, and very low flood hazard, respectively. The low-lying downstream parts of the Awash River Basin are in the high to very high flood hazard zone. The flooded areas along the Awash River have been mapped based on the 5% exceedance highest flows for different return periods using the HEC-RAS model, GIS for spatial data processing and HEC-GeoRAS for interfacing between HEC-RAS and GIS. The areas along the Awash River that area simulated to be inundated for 5, 10, 25, 50 and 100 years return periods. The flooded areas were high particularly from Dubti down to Lake Abe for all return periods. The flooded areas along the Awash River are 117, 107, 84, 68, and 38 km² for 100, 50, 25, 10, and 5 year return periods, respectively when using 5% highest data from the Adaitu gauging station. Inundated areas in the upper and middle part of Awash River Basin are low as compared to the downstream part. Proper land use management and afforestation along the Awash River Basin, is significant to reduce the adverse effects of flooding particularly in the low-lying flood prone areas.

Key words: Awash River Basin, Flood hazard mapping, Inundation along the river, Return period, GIS, Multi-criteria analysis, Weighted overlay, DEM, HEC-GeoRAS and HEC-RAS model.
Screenhouse and field evaluation of an entomopathogenic fungus, *Metarhizium anisopliae*, against vegetable infesting aphids

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Abstract

Aphids are regarded as one of the most important pest problems of vegetable crops worldwide. Most vegetable growers in Africa rely on chemical insecticides for aphid control which have detrimental effects on human, environment and non-targets. Biopesticides are being considered as alternatives to chemicals. This study evaluated the efficacy of two conidial formulations and/or concentrations of *Metarhizium anisopliae* isolate ICIPE 62 against three aphid species (*Aphis gossypii*, *Brevicoryne brassicae* and *Lipaphis pseudobrassicae*) both under screenhouse and field conditions. Screenhouse results showed that application of conidia formulated in aqueous and oil had negative effect on the three a population growth rate on kale and okra plants compared to the control treatments. However, conidia formulated in oil were found to be superior over aqueous formulation, causing mortality up to 93.8% and 95.0% in *Aphis gossypii* and *Brevicoryne brassicae*, respectively. Oil formulation was, therefore, chosen for field efficacy test for two seasons. Accordingly, aphid density was significantly lower in the fungal and standard check (chemical insecticide treated) plots when compared with untreated control plots during the first season. However, no significant variation was observed in aphid density between plots treated with standard check and untreated control during the second season. The reduction in the aphid density resulted in yield increment in both crops except that no significant difference was observed for okra during the second cropping season. Moreover, high proportion of aphid mortality with mycosis was observed and few in control plots. These findings have demonstrated the potential of *M. anisopliae* isolate ICIPE 62 in suppression the three aphid species. The fungal strain is, therefore, the most promising candidate biopesticide for the control of *B. brassicae*, *L. pseudobrassicae* in okra and crucifer cropping systems.
Nematodes: a growing concern for horticultural crops production in Ethiopia

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Abstract
Food security is one of the national priorities in the Ethiopian agricultural development. Despite the diverse and conducive agro-ecological conditions for potential production of horticultural crops, the quantity and quality of yield remains low ascribed to many reasons of which pest damage being of particular issue. Few sporadic nematological researches previously conducted in the country have indicated the prevalence of plant-parasitic nematodes in most field grown crops. However, there exists a serious gap in awareness of crop damage due to nematodes. Here, the current state of damage by different plant-parasitic nematodes on carrot, beet root, roses, hypercom, potato, pepper and green beans in Ethiopia is revealed.
Prevalence and severity of sorghum anthracnose (Colletotrichum sublineolum) along varying agro-ecologies of southwestern and western Ethiopia

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Abstract
Sorghum (Sorghum bicolor L. Moench) is the fifth most important food crop in the world. But its production in Ethiopian is adversely affected by different biotic and abiotic constraints among which sorghum anthracnose caused by Colletotrichum sublineolum, is the major one. In this perspective, it is imperative to assess the distribution and importance of sorghum anthracnose in southwestern and western parts of Ethiopia. At different agro-ecologies sorghum anthracnose was highly prevalent and widely distributed in all sorghum growing regions of the surveyed areas. The disease incidence was 100\% in the farmers’ field. Among the fifteen districts a highly significant difference (P < 0.001) of sorghum anthracnose severity was observed. The highest severity in percentage severity index (87.25 and 87.24) were observed at Nejo and Gumay districts, respectively. Whereas the lowest percentage severity index (59.50) of sorghum anthracnose at the highest mean altitude (2221 m.a.s.l.) at Leka Dulecha district was observed. On the other hand in the lowest mean altitude (1363 m.a.s.l.) at Komesha district, the highest PSI (85.00) of sorghum anthracnose were observed. This could be related with the differences in relative humidity and temperature variations across different altitudes of the surveyed areas. Sorghum anthracnose severity was strongly correlated with altitude (-0.205\textsuperscript{*}), cropping system (-0.279\textsuperscript{**}), weed management (-0.197\textsuperscript{*}) and crop stage (0.268\textsuperscript{**}). Based on severity of sorghum anthracnose clearly depends on interactions of favorable weather conditions, cultural practices and susceptibility of sorghum cultivars farmers’ they cultivated. This strong correlation will help in developing environmentally friend, effective and economically sound management strategies of this disease. Since sorghum anthracnose is highly widely distributed and very important in all sorghum growing regions of southwestern and western parts of Ethiopia, giving do attention in developing effective management strategy is very critical.

Keywords: Colletotrichum sublineolum, Disease incidence, Percentage severity index, Sorghum, Sorghum bicolor.
Orange fleshed sweet potato (*Ipomoea batatas* L.) varieties evaluated with respect to growth parameters at Jimma in southwestern Ethiopia

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Abstract

Field experiment was conducted to identify the most promising and adaptable sweet potato (*Ipomoea batatas* L.) variety. Five Orange Flesched Sweet Potato (OFSP) varieties: variety Beletech (192026 II), Birtukanie (Saluboro), Kulfo (Lo-323), Tulla (CIP 420027) and one local variety were used as experimental treatments and arranged in randomized block design with three replications. Data collected on growth parameters were analyzed using the GLM procedure of SAS Version 9.2. Variety had highly significantly affected the growth parameters; number of branches per plant, number of leaves per plant and vine length and also significantly affected fresh weight and dry matter content of sweet potato roots. For the majority of growth parameters variety, Tulla was preferably the best variety compared to the other three improved OFSP varieties as, well as the local variety and significantly the highest number of branches per plant (41.41), vine length (99 cm), fresh weight (1.56 kg) and dry matter content (54.40%) were recorded from variety Tulla. The result of the correlation analysis also indicated that fresh weight and dry matter content of sweet potato roots were negatively and significantly correlated with number of branches per plant. This indicated that sweet potato producers targeting above ground biomass production should use number of branches and leaves per plant as selection criteria, whereas those targeting sweet potato root tubers production, should use the fresh weight and dry matter content of sweet potato roots as selection criteria. Likewise, these growth parameters are important factors for selection of sweet potato and can serve as indicators of adaptability of the crop to the growing conditions of the study area. Therefore, OFSP variety Tulla (CIP 420027) can be used as the most promising and adaptable variety for optimum growth and productivity at the study area, Jimma in the Southwestern part of Ethiopia and combat VAD at community level.

Key words: Orange fleshed sweet potato, growth parameters, sweet potato variety Tulla, varieties (genotypes), vitamin A deficiency (VAD)
Evaluation and association mapping for drought tolerance in sorghum
[Sorghum bicolor (L.) moench]

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Abstract
Sorghum [Sorghum bicolor (L.) Moench] is the fourth important cereal crop after maize, teff and wheat in Ethiopia. However, sorghum production is very much affected by many production constraints especially drought. Drought being a major production constraint, there is a need to develop drought tolerant sorghum varieties which in turn requires identification of genotypes that carry genes or QTLs associated with drought tolerance. Hence, the objectives of this study were to identify and map chromosomal regions associated with drought tolerance and other agronomic traits, identify SSR markers that are tightly linked to these QTLs and to select drought tolerant sorghum genotypes for further breeding work. For this study, two hundred seventy sorghum accessions were evaluated at Kobo and Werer during the off season of 2011-12 using an alpha lattice design replicated three times. The analysis of variance indicated highly significance (p<0.001) differences among the genotypes for days to 50% flowering (DF), plant height (PH), panicle exsertion (PE), tiller number (TN), panicle weight (PW), grain weight per panicle (GWP) and hundred grain weight (HGW). Phenotypic and genotypic coefficients of variations were moderately high at both locations. The population structure analysis revealed four distinct clusters for 151 accessions studied. Linkage disequilibrium (LD) among all loci pairs showed that the majority of loci pairs were highly significant (p<0.001) LD with mean value of $r^2$>0.075. A total of four SSRs were consistently found to be associated with traits. Markers Xtxp278 and msbCIR300 were associated with DF and PE respectively and markers Xtxp136 and Xtxp015 were associated with GYP. These markers were localized with previously identified markers. Hence, the identified markers could be used in future marker-assisted selection programmes or identification of genotypes having genes/QTLs associated with these traits. However, the identified QTLs need to be validated in independent or related populations and in different environments before their use in marker-assisted selection.

Key words: Association mapping, Drought tolerance, Sorghum, SSRs
Current status of coffee berry disease (Colletotrichum kahawae) in major coffee producing regions of Ethiopia

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Abstract
The current status of coffee berry disease (CBD) caused by \textit{Colletotrichum kahawae} was assessed and examined across localities in the major coffee growing regions of Ethiopia. The prevalence, incidence and severity of CBD were recorded in 152 sample coffee farms from 22 districts (weredas) in 7 administrative zones that represented the eastern, western, southern and southwestern part of the country. The results showed that coffee berry disease was prevalent with significantly (p < 0.001) varied intensity of damage among coffee fields, districts and zones. The highest disease incidence was recorded in Hararghe, Jimma and Gedeo zones, with respective values ranging from 62 to 80\%, 38.9 to 75.6\% and 64 to 66.7\%. Similarly significantly (p < 0.005) higher CBD severity levels of 32.0, 42.7, and 46.7\% were recorded in Jimma, East Hararghe, and Gedeo, respectively. While moderately low disease severity of 18.7 and 22.7\% were estimated for Borena and Ilubabor, respectively. The overall average incidence and severity of coffee berry disease was 52.5 and 29.9 percent that indicated the present status of the disease is remarkably on increasing trend. The study revealed that the increased intensity of CBD was strongly associated with greatly reduced disease management practices (no fungicide use on farmers cultivars “coffee landrace” and reduced diffusion rate of CBD resistant varieties) and existence of more susceptible coffee cultivars. This empirical evidence updated that coffee berry disease is upsurging and remain the major challenging constraint to organic Arabica coffee production in Ethiopia.

Keywords: Arabica coffee, CBD, fungicide, organic
Pathogenicity of Colletotrichum spp. isolates collected from Southwestern Ethiopia on different mango (*Mangifera indica* L.) varieties.

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**Abstract**

Mango (*Mangifera indica* L.) is considered as one of the most popular fruits among millions of people and grown throughout the tropical and subtropical regions of the world. Colletotrichum spp. is the most important and prevalent disease in all mango growing area, which cause fruit damage and production losses, directly affecting the tropical fruit producers. The aim of research to investigate pathogenicity test of Colletotrichum species isolates associated with mango and pathogenic variability on existing and commercially cultivated mango varieties and host response in southwest Ethiopia. Samples of infected mango leaf, panicles and fruits were collected from mango home gardens in nine districts south west of Ethiopia. Eight representative isolates of Colletotrichum spp. were isolated and identified using morphological characters. Colletotrichum isolates were selected for inoculation on detached mango fruit, leaves and attached mango seedling leaves for pathogenicity and a virulence test on mango varieties Tommy Atkins, Keitt, Kent, Apple mango, Vandyke and locale mango. Artificial wounds inoculations were performed. The pathogenicity test result on detached mango fruit showed that the virulence variability of Colletotrichum isolate grouped in to three 62.5% highly pathogenic, 25% pathogenic and 12.5% mildly pathogenic. Among these Gm-F, was identified as highest virulent isolate based on lesion diameter, per cent disease index and virulence index produced on inoculated detached fruits, leaves and attached mango seedling leaves (39.6mm,11.2mm, and 7.9mm) respectively. Colletotrichum isolates were further used to test the varietal susceptibility of six different mango varieties on inoculated attached seedling leaves and found that local mango cultivars, Kent and Vandyke were susceptible variety, Tommy Atkins, Keitt and apple mango were intermediate susceptible. Among mango cultivars showed varying response in reaction to the infection and there was no variety found to be resistant against the mango anthracnose disease.

**Key words:** Colletotrichum spp, pathogenicity, mango, Keitt, Kent
Split application of nitrogen in rice: its influence on soil nitrogen balance, crop nitrogen content, growth and yield of the crop at Jimma, South West Ethiopia.

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Abstract
Synchronising timing of N fertilizer application with rice crop N demand is an important factor in determining soil N availability, crop N content and uptake capacity, dry matter and yield of upland rice (*Oryza sativa* L.), and there is limited information available on optimal timing of N application for rice in south west Ethiopia. A 2-year field experiment in rain-fed Nitisol was designed to study the effect of timing and splitting of nitrogen on soil nitrogen balance, crop nitrogen content, growth and yield on three rice genotypes (Andassa, Hidassie and Nerica-4) at the Jimma University, College of Agriculture and Veterinary Medicine research site. A single rate of 64 kg N/ha was splitted in different growth stages of the crop in various proportions between sowing, active tillering and panicle initiation: N₁ (½- ½- 0), N₂ (¼ - ½- ¼), N₃ (¼ -¼ -½), and N₄ (¼ -¼ -¼ -½). The experimental treatments were arranged in a completely randomized block design with 3 replications. A control plot receiving zero N was also included to calculate uptake efficiency. Soil samples were collected before treatment application and after crop harvest to evaluate residual N quantity and movement in soil relative to N rate and time of application. Straw and grain samples at harvest were collected to determine the treatment effects on tissue N concentration. Significant grain yield increases were achieved with split applications of N fertilizer when N was top dressed during tillering stage in 2006 as compared to all remaining timing. Split N application at panicle initiation produced greater yields than application at during sowing in 2008. Nitrogen uptake efficiency was greatest with split application of N when N was applied at tillering stage. Soil N concentration was significantly higher when N was applied at tillering stage as compared to other application in both years. Application of N fertilizer to rice preferably as top dressing between active tillering and panicle initiation, is a strategy to be recommended from the standpoint of both the environment and of farmer returns. Therefore, taking the findings of the present study into consideration, it may be tentatively concluded that farmers at the study area may use ‘Andassa’ variety with the recommended dose of mineral fertilizer applied in three splits and applying 25% at sowing, 50% at active tillering stage and the remaining 25% at panicle initiation to improve the crop N uptake efficiency as well as grain and biomass yields of upland rice cultivated on Nitisols under rain-fed conditions.

Keywords: Upland rice, dry matter, soil N, N fertilizer, panicle, spikelet.
Optimization of pectin extraction conditions and determination of total polyphenol and antioxidant capacity of Red Coffee Pulp (*Coffea arabica* L.)

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1*

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**Abstract**

In this study, two consecutive experiments were conducted to investigate the possibility of extracting pectin from fresh coffee cherry pulp of wet processing plants and determine total polyphenol and antioxidant capacity of the pulp extracts as bioactive compounds. In the former experiment, central composite design (CCD) of RSM was applied to study the effects of extraction parameters on the yield (%), equivalent weight (EW, g/mol), methoxyl content (MC, %), Anhydrogalactorunic acid content (AUA, %) and degree of esterification (DE, %) of pectin. The independent variables used were extraction temperatures of (50, 60 and 70°C), pH (1.6, 2.2 and 2.8), and time (80, 90 and 100 min). The yield, EW, MC, AUA and DE of extracted pectin at different conditions varied from 0.180.63%, 715.79-3851.54 g/mol, 3.41-9.67%, 24.64-62.712% and 66.04-87.56% respectively. Results showed that temperature, and pH were the most important factors that affected yield and characteristics of the coffee pulp pectin as it exerted highly significant influence (p < 0.05) on all the dependent variables. The optimum conditions were temperature of 70°C, pH 1.8 and time 80 min resulting in 0.565% extraction yield, 2902.2 g/mol EW, 8.41% MC, 55.88% AUA and 87.56% DE. On the other hand in experiment 2, effect of coffee pulp varieties (Ababuna, Dessu, 741 and 74110) and extraction solvents (ethanol, methanol and acetone) on total polyphenol and antioxidant capacity were examined. Total polyphenol content was determined by Folin-Ciocalteu reagent method, while antioxidant capacity was evaluated using 2, 2-diphenyl-1-picrylhydrazyl (DPPH). The result showed that the interaction effect of variety and solvent had highly significant effect on TPC and total antioxidant capacity of coffee pulp (p≤0.001). The maximum phenolic content was measured from sample extracted in the 80% methanol of Ababuna variety (1809.9 mg GAE/gm) followed by 80% acetone extract of Dessu (1709 mg GAE/gm) and the lowest value was obtained from 80% ethanolic extract of 741 variety (489.5 mg GAE/gm). The lowest IC50 values 0.4 mg/ml based on the DPPH radical scavenging activity was obtained when hybrid variety of Ababuna was extracted with methanol followed by acetone extract of Dessu variety (1.1 mg/ml). The highest IC50 value (22.6 mg/ml) was obtained when 741 was extracted with ethanol which indicated least potent of antioxidant activity. In general red coffee cherry pulp discarded as a waste from wet coffee processing plants can be used as a raw material to extract pectin and certain bioactive components to be used as an input in food and pharmaceutical industries.

**Key words:** Coffee pulp, Pectin, characterization, Optimization, Polyphenol, Antioxidant.
Effect of coagulants’ type, concentration and soybean variety on the physicochemical and sensory properties of tofu

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Abstract

Absence of scientific data on the performance of soybean varieties in a variety of soy products that meet food preference of consumers hampered wider utilization of soybean in Ethiopia. This study evaluated the effect of coagulant types, concentration and soybean varieties on nutritional and sensory properties of tofu. Standard methods were used to conduct biochemical analysis and sensory evaluation of tofu. Results indicate that the interaction effect of coagulants’ types, concentration level and soybean varieties were significant effect (P < 0.05) on moisture, ash, protein, fat, carbohydrate content, gross energy value, pH, TTA, mineral content (calcium, iron and zinc). The moisture content, protein, fat, ash content, carbohydrate content, gross energy value, calcium, iron, zinc, pH and TTA of tofu ranged from 5.20-9.17 %, 38.64-51.17 %, 20.40-30.13 %, 3.41-3.98 %, 8.14-27.02 %, 418.30-549.48 Kcal/100g, 21.33-35.93 mg/100g, 6.68-9.96 mg/100g, 0.54-1.14 mg/100g, 3.12-5.31 and 0.06-0.56 % respectively. The yield, hardness, cohesiveness, chewiness and springiness of tofu ranged from 10.29-33.69 %, 567-986.07 g, 0.17-0.51 gs, 48.07-356.70 and 0.46-0.89 mm respectively. Functional properties (bulk density and foaming capacity) and anti-nutritional factors (phytate and tannin) were affected at p < 0.05 by the interaction of the three factors. The bulk density, foaming capacity, phytate and tannin values varied between 0.74 to 0.85 g/mL, 4.49 to 5.98 %, 159.90 to 428.34 mg/100g and 8.62 to 13.69 mg/g respectively. Color, taste and overall acceptability of tofu were affected by the interaction of the three factors. Aroma of tofu was less influenced by the three factors interaction. The composition of tofu varied with the coagulants, concentration levels and soybean varieties.

Key words: Coagulants, Concentration level, Soybean genotypes, Tofu
Diversity, composition and nutrient adequacy of diets of lactating mothers in Jimma Zone, Southwest Ethiopia

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Abstract

Background: Optimal nutrition during lactation is important for the health and wellbeing of the mother and the infant. Studies have shown that access to nutrient-rich foods during lactation is critical as inadequate stores of micronutrients can have adverse effects on the mother who is required to produce sufficient breast milk to feed the baby. We assessed the diversity, composition and nutrient adequacy of diets of lactating mothers in Jimma zone, Southwest Ethiopia.

Methods: Community based cross-sectional survey was carried out in three districts of Jimma Zone from March to May, 2014. A multistage stratified clustered sampling technique was used to select 558 lactating mothers. Data were collected using structured interviewer administered questionnaire. Dietary diversity score (DDS) was calculated by summing the number of food groups consumed over the last 24 hours from a scale of seven food groups. The DDS was converted into terciles. The proximate, mineral and anti-nutritional compositions of 12 commonly consumed foods were analyzed using standard methods. Nutrient adequacy ratio (NAR) was calculated as the ratio of subject’s intake of a nutrient (per day) and recommended daily allowance of the nutrient. Mean adequacy ratio (MAR) was calculated by truncating NAR at 1 and dividing the sum of NARs by the number of nutrients.

Results: The mean (±SD) DDS of the study participants was 4.51(±1.1). Bivariate analysis showed that the prevalence of “low DDS” was significantly (P<0.05) higher among informally educated, rural mothers, who reside in lower household wealth status, and living in dominantly cereal crop producing district. The proximate composition and calorific value of the sampled foods ranged between 24.8-65.6%, 7.6-19.8%, 2.1-23.1%, 2.0-27%, 1.0-21.2%, 0.9-45.8%, 124.5-299.6 Kcal/100g for moisture, protein, crude fat, crude fiber, total ash, total carbohydrate and energy content, respectively. The mineral and trace element contents ranged between 9.5-52.5mg, 2.2-4.2mg, 42.6-318.2mg, 150.7-379.9mg for iron, zinc, calcium and phosphorus, respectively. The anti nutritional factors contents ranged between 11.1-178.9% and 3.7-315.9mg for phytate and tannin, respectively. The nutrient adequacy calculations showed that all the commonly consumed maternal foods were not sufficient to meet the energy, fat and protein requirements, (NAR<1). On the other hand, all diets provided adequate iron and majority of the
cereal based foods provided adequate carbohydrate, zinc, calcium and phosphorous. The overall nutrient adequacy MAR was below the cut-off point for all food types.

Conclusion: The diversity, composition and nutrient adequacy of diets of lactating mothers in the study area were below the recommendations. A community based nutritional education based on multi-sectoral approach is needed to curb the problem of malnutrition among lactating mothers in the study area.

Keywords: Mean adequacy ratio; dietary diversity score; recommended dietary allowance

Nutritional enhancement of quality protein maize based complementary food with anchote (Coccinia Abyssinica), carrot and soya bean blends

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Abstract

Plant-based complementary foods are commonly used in resource poor setting in developing countries; however, they are characterized by poor nutritional quality and high contents of anti-nutrients which hamper nutrient absorption. In this study, aimed to development nutritionally, enriched sensorial and functional accepted and economically affordable QPM based complementary food from locally available food sources. Seventeen formulations of the composite flours were prepared using D-optimal mixture design with the aid of, Design-Expert software version 8.0 with a range of QPM 45-85%, anchote 10-20%, carrot 5-15% and soya bean 0-20%. Standard methods were used to conduct chemical analysis and sensory evaluation of the complementary foods. The major response variables of nutritional composition, anti-nutritional factors, and functional (Physical) proprieties and sensory acceptability of formulations after cooking were investigated. Result showed a significant difference (P<0.05) in fat, protein, carbohydrate, energy, beta carotene, calcium, phytate and tannin content of porridge prepared from different blending ratio of ingredients. Furthermore, result showed that protein, carbohydrate, energy, beta carotene, calcium, phytate and tannin content of porridge increased from 10.25-19.01%, 58.05-70.32%, 368.38-398.7 kcal/100g, 1165-2215μg/100g, 101.69-204.80 mg/100g, 2.02-5.99mg/100g and 2.205-3.250 mg/100g. Increasing trend was observed in the protein content (10.25-19.01 %, of the complementary food with an increase in the proportion of soya bean (from 0-20%) in the composite flour. In similar manner, there is an increasing trend in the β-carotene content (1165-2215 µg/100g) of the porridge with an increasing proportion of carrot from (5-15%) in the composite flour. Results also indicate that an increase in the proportion of anchote flour (10-20%) in the composite flour resulted in parallel increase in the calcium content (101.69-204.80 mg/100g) of porridge. Increasing trend was observed in the carbohydrate content (58.05-70.32%) of the complementary food with an increase in the proportion of QPM from (45-85%) and anchote from (10-20%) in the composite flour. In similar fashion, there is an increasing trend in the energy value (368.38-398.7%) of the porridge with an increasing proportion of soya bean from (0-20%) in the composite flour. Results also indicate
that an increase in the proportion of QPM flour from (45-85%) and anchote from (10-20%) in the composite flour resulted in parallel increase in the phytate (80.58-97.31) and tannin content increase from (8.92-14.66 μg/mL) increasing the proportion of anchote from (10-20%) and soya bean (0-20%) of the porridge. Analysis of sensory evaluation using five point hedonic scales showed that the mean score of overall acceptability ranged between 3-4.78. The optimum point for (protein (16-19%), carbohydrate (50-65%), fat (7-9%), calorie (370-390kcal), β-carotene (1500-2200μg), calcium (100-200mg/100), high overall acceptability of the porridge were obtained with in a range of (3-4.78) QPM, (55%) soya bean, (20%) carrot (15%) and (10%) anchote blending ratios. Overall, it can be concluded that locally available and low cost food ingredient used in the present study have high potential in development of complementary foods with enhanced nutritional value and acceptability for resource-poor households to combat the prevalence of malnutrition among infants and children in rural Ethiopia. Therefore, the outcome of this research will not only be determining the best formulation of the food product, but also to provide valuable research based information for consumers, researchers, manufacturers and policy makers.

**Key words:** Complementary food, Nutrition, D-optimal Mixture Designs four component, Composite flour Porridge, Optimization.
Optimization of drying condition for better bioactive and nutritional contents of sweet potato flour

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Abstract
Sweet potato is one of the most important staple crops in densely populated parts of eastern Africa and is becoming an important supplementary staple in the southern part of the continent. Natural bioactive compounds and their antioxidant power present in orange flesh sweet potatoes can be used for developing functional foods which could be a very good vehicle for addressing some health related problems and serve as food security. Available evidence for Africa suggested that postharvest processing and subsequent storage of sweet potatoes need further research to explore the ways by which the crops could be used for industrial and export purposes. In line with this, research was initiated to optimize drying conditions for the nutritional and some bioactive compounds from orange fleshed sweet potato using response surface methodology. A face-centered cubic design was used to investigate the effects of three independent variables namely drying temperature of 55–65°C, citric acid concentration of 1–3% w/v and soaking time of 1–3 min. optimization of the responses making the drying parameters in range were performed by Minitab software version 20. Accordingly, the optimal drying conditions for independent variables were temperature 59°C, Citric acid concentration 2.82%, and soaking time 1 min. Under the above mentioned conditions, predicted responses for beta carotene, total phenolic, antioxidant activity, and ascorbic acid content were 60.278mg/100g, 71.66mg/100g, 56.045%, 17.034mg/100g respectively. Additionally optimum response for protein, carbohydrate, crude fat, moisture, crude fiber, kilocalories and ash contents were 3.056%, 85.607%, 1.47%, 5.86%, 1.573%, 367.899 kcal and 3.286% respectively. The results showed that the sweet potato flour have relatively high carbohydrate and bioactive compounds which can be composited with cereal flours. Therefore, optimum conditions could be used to enhance the nutritional, bioactive and antioxidant activities of the flour. With high levels of carbohydrates, beta-carotene and vitamin C it can be used as functional ingredients to impart desired textural properties and bioactive content in processed food products.

Keywords: sweet potato, bioactive compounds, proximate composition, antioxidant
Anti-toxoplasma antibodies prevalence and associated risk factors among HIV patients attending treatment and counseling package at Agaro town health center in south western Ethiopia

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Abstract

Objectives: Toxoplasmosis is a major public health concern mainly among immunocompromised individuals and the objective of this study was to assess the seroprevalence and associated risk factors of toxoplasmosis among HIV patients in Agaro Town Health Center of Jimma zone.

Methods: It was a cross sectional study based in public health center and convenient sampling was used to collect blood samples from 135 patients attending anti-retroviral therapy from February to March 2015. Serum samples were tested for anti-T. gondii antibody by using latex agglutination test. Structured questionnaire was used to collect data on socio-demographic and risk factors associated with toxoplasmosis.

Results: Overall seroprevalence of toxoplasmosis was 80.7% (109/135, CI:74.04 - 87.36). In multivariate analysis significant association was observed between anti T. gondii seropositivity and raw meat consumption (OR: 3.514, CI: 1.167 -10.581, P=0.025), knowledge about toxoplasmosis (OR: 5.225, CI: 1.382, P=0.015) and sex (OR: 4.023, CI; 1.382-19.762, P=0.015).

Conclusion: Immunocompromised patients showed high rate of seropositivity and thus, it is highly advisable to introduce routine anti-T. gondii antibodies serological screening test prior to ART commencement.

Key words: Toxoplasma gondii, HIV, LAT, Seroprevalence
Seroprevalence and risk factors of toxoplasmosis in sheep and goats in south-western Ethiopia

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Abstract

Background: Toxoplasmosis is a global zoonotic disease caused by an obligate intracellular parasites Toxoplasma gondii. It is considered as the most neglected tropical zoonotic sub Saharan countries disease. The exact sero-epidemiological distribution and risk factors for the infection of food animals and humans in Ethiopia are unknown but, such studies are important. This is because consumption of raw meat is common and a popular tradition in Ethiopia. The objectives of the present study were to estimate the seroprevalence and assess risk factors for T. gondii infection in sheep and goats in south-western Ethiopia.

Methods: Cross sectional study was conducted from November 2014 to March 2015 in South west Ethiopia in five selected districts of Jimma zone (n=368). Slide agglutination test (Toxo-latex) was used to study to detect anti-toxoplasma anti bodies. Logistic regression was used to assess potential risk factors.

Results: An overall seroprevalence of 57.60% (212/368) was detected. 58.18% (148/252) and 55.18% (64/116) seroprevalence was found in sheep and goats respectively. Multivariable logistic regression analysis showed that the risk of T. gondii infection was significantly higher in adult sheep and goats [(sheep: Odds Ratio (OR)=2.5, confidence interval (CI): 1.19-5.23; p=0.015), (goats: OR=3.9, confidence interval (CI):1.64-9.41: p=0.002)] than in young sheep and goats, in female [(sheep: OR=1.93, CI: 1.11-3.36, p= 0.018, (goats: OR=2.9, CI: 121-6.93, p=0.002)] than in males sheep and goats, in Highland [(sheep: OR=4.57, CI: 1.75-12.66, p=0.000, (goats: OR=4.4, CI: 1.75-13.66, p=0.004)] than sheep and goats from lowland.

Conclusions: The present study indicated high seroprevalence of anti-Toxoplasma gondii antibody in south-western Ethiopia. The present prevalence studies indicated the possible public health importance of meat of sheep and goats as source of infection for humans. Prevention of the disease through enforcing hygienic standard measure is indispensable.

Keywords: Toxo-latex, Sheep, Goat, Toxoplasma gondii, Seroprevalence, Jimma
Nitrogen and phosphorus fertilizers and tillage effects on growth and yield of maize (Zea mays L.) at Dugda District in the Central Rift Valley of Ethiopia

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Abstract
An experiment was conducted at Dugda district in the Central Rift Valley of Ethiopia under field conditions to determine the impacts of tillage levels, N and P fertilizers on growth and yield of maize (Zea mays L.). Two tillage levels; (1) Conventional and (2) Minimum tillage and four N and P fertilizer levels; (1) No fertilizer (control treatment), (2) 64 kg N ha\(^{-1}\) (139 kg urea ha\(^{-1}\)), (3) 20 kg P ha\(^{-1}\) (100 kg TSP ha\(^{-1}\)) and (4) 64 kg N ha\(^{-1}\)+20 kg P ha\(^{-1}\) (100 kg DAP ha\(^{-1}\)+100 kg urea ha\(^{-1}\)) were laid out in split plot design by assigning tillage levels to the main plots and fertilizers to the subplots and replicating three times. Data collected on growth and yield parameters was analyzed using the GLM procedure of SAS Version 9.2. N and P fertilizers had highly significant effects on growth parameters: plant height and leaf area. They also significantly affected yield parameters: biomass yield and grain yield of maize but the effects of tillage levels as well as the interaction between tillage levels and fertilizers were not significant. For the majority of the growth and yield parameters, the treatment with 64 kg N ha\(^{-1}\)+20 kg P ha\(^{-1}\) (100 kg DAP ha\(^{-1}\)+100 kg urea ha\(^{-1}\)) outperformed the remaining three treatments. Accordingly, significant and highest plant height (178.24 cm), leaf area (431 cm\(^2\)), biomass yield (11925 kg ha\(^{-1}\)) and grain yield (3678.8 kg ha\(^{-1}\)) were obtained from the application of fertilizer treatment with 64 kg N ha\(^{-1}\)+20 kg P ha\(^{-1}\) (100 kg DAP ha\(^{-1}\)+100 kg urea ha\(^{-1}\)).

The results of the correlation analysis also indicated that biomass yield was significantly and positively correlated with grain yield and grain yield was also significantly and positively correlated with harvest index. This indicated that N and P fertilizer treatments with higher biomass yield and harvest index could result in higher grain yield of maize. According to the current results, it can be concluded that N and P fertilizers significantly affected the growth and yield of maize but tillage levels have no significant effect. Therefore, the use of 64 kg N ha\(^{-1}\)+20 kg P ha\(^{-1}\) (100 kg DAP ha\(^{-1}\)+100 kg urea ha\(^{-1}\)) and minimum tillage could be recommended for optimum growth and yield of maize and also save the precious soil, money and time of resource poor small holder farmers, of the study area.

**Key words:** N and P fertilizers, minimum tillage, growth, yield, Zea mays L.
Parallel Session 2: Organized by College of Health Sciences

Achieving alignment in academic health science centers in Ethiopia: The case of four Teaching Hospitals

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Abstract

Background: Academic health science centers (AHSCs), today represent a unique fusion of traditional academia, hospital functions, several levels of education, and, above all, patients. They are complex organizations trying to discharge an often conflicting mélange of responsibilities. This complexity has grown in recent years with the increasingly rapid rate of change, stressing both faculty and leadership. There is a paucity of information on how this complex relationships works in Academic Health Science Centers in Ethiopia.

Objective: To explore the governance status and alignment across governance, strategy, economics and management of academic health science centers in Ethiopia.

Method and materials: Case study was conducted on four selected teaching hospitals in Ethiopia from April 20/2015 to May 10/2015. Interviewer administered structured questionnaires; focus group discussion and in-depth interview guides were used for data collection. Descriptive statistics like frequency tables, graphs descriptive summaries and narrative texts were used to describe the results.

Result: Out of the 17 respondents, more than three fourth were male. Only less than half of the respondents perceived that there is fully integrated strategy across all mission and entities. All of the selected teaching hospitals have governing board with defined term of reference. But, only one among the AHSCs under study was governed by a single unified board, while the three remaining AHSCs have two separate governing boards, hospital governing board and university board. Regarding economic alignment, more than half of the respondent reported that their centers use structured methodologies plus explicit funding for strategic priorities across their centers. Concerning the extent to which management structures for clinical activities are integrated, nearly one third of participants responded that there is separate management structure for physicians. The overall alignment measured as the mean score of the means of the four key dimensions of AHSC alignment, is 3.4 and 2.25 for AHSCs with high alignment and AHSCs with low alignment respectively on 1 to 5 scales. Overall AHSCs alignment corresponds with higher levels of alignment in all of the four key dimensions.

Conclusion: Though the need for alignment is high among the AHSCs, the overall alignment is low. Therefore, the AHSCs should have to assess the current state of alignment in their
institution and develop a definition of success in alignment that is consistent with their unique mission and strategic vision, and then routinely monitor performance against these metrics.

**Key words:** Alignment, academic health science center, Teaching hospital, Governance.

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**Prevalence of Chronic Malnutrition (Stunting) and associated factors among children aged less than 24 months in East Wollega Zone, Western Ethiopia**

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**Abstract**

**Background:** Poor growth especially stunting is associated with impaired development which is apparent in the relationship between growth status and school performance and intellectual achievement. Thus, previous studies in Western Ethiopia were not addressed factors associated with stunting.

**Objective:** To assess prevalence and associated factors of stunting among less than 24 months children in East Wollega Zone, West Ethiopia.

**Methods:** A community based cross-sectional study design using two-stage cluster sampling survey was conducted on 593 households from April to May, 2014 in three randomly selected districts of East Wollega Zone to assess factors associated with stunting. A structured and pre-tested questionnaire was used to obtain information on demographic and socio economics characteristics, feeding practices, dietary diversity and anthropometric measurement of children aged less than two years. Bivariate and multivariable logistic regression models were fit to identify significant predictors of stunting at P<0.05.

**Results:** Prevalence of stunting and severe stunting were 15.7% (95% CI: 12.7-18.7) and 0.3% (95%CI: 0.1-0.5) for children aged between 6-23months. Stunting was associated with illiterate mothers (AOR = 3.84; 95% CI 1.49-9.91) and nonexclusive breast feeding (AOR = 2.12; 95% CI 1.19-7.79). Children who consumed vegetables and fruits (AOR =0.51; 95%CI 0.28-0.95) and boiling drinking water (AOR = 0.61, 95% CI: 0.39 - 0.97) were significantly reduced odds of being stunted.High dietary diversity scores (DDS) was associated with reduced the risk of being stunted compared to low dietary diversity scores (COR = 0.51; 95%C: 0.26-0.99). However; the other important determinant factors (age, sex, wealth index, low birth weight, birth order and family size) were not associated with stunting in the study area (P>0.05).

**Conclusion:** The prevalence rate of stunting in the study area was found low. Stunting was significantly associated with the illiterate mothers and non-exclusive breastfeeding practice. Thus, an organized effort should be made at all levels to improve maternal education and exclusive breastfeeding practice of the poor rural population particularly mothers to curb the problems of chronic undernutrition (stunting) in children, especially in the first two years of life.

**Keywords:** Stunting, Under 24months, Western Ethiopia
Quality of medicines commonly used in the treatment of soil transmitted

Food insecurity and common mental disorders during late adolescence:
Structural equation modeling analysis from JLFYS Data

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Abstract

Background: Although the consequences of food insecurity on physical health and nutritional status of adolescents have been reported, its effect on their mental health remains unexplored. Therefore, the main aim of this analysis is to examine the mechanism by which food insecurity can affect common mental disorders during their late adolescence, 17-21 years of age.

Methods: We used data from Jimma Longitudinal Family Survey of Youth (JLFYS) collected in 2009/10. A total of 1,521 adolescents were included for this analysis. We measured food insecurity using 5-items Likert scale and common mental disorders using the 20 item Self-Reporting Questionnaire (SRQ-20).Structural equation modeling analysis using maximum likelihood estimation method was performed to evaluate the pathways between food insecurity and common mental disorders.

Results: The prevalence of common mental disorders in this sample was 20.8%. This study showed food insecurity was linked with adolescent common mental disorders (β= .324) (P<0.05). The SEM analysis showed 94.1% of the effect of food insecurity on adolescent common mental disorders is direct and 5.9% of their relationship was indirectly influenced by physical health. In addition, self-rated health (β= .356)(P<0.05), high socioeconomic status (β=-.078)(P<0.05), parental education (β=.170) (P<0.05), living in urban area (β=.193) (P<0.05); female-headed household (β= .205)(P<0.05) were independently associated with adolescent common mental disorders.

Conclusions: Our study demonstrated that food insecurity is directly associated with adolescents’ common mental disorders. Intervention aiming to improve mental health status of adolescents should consider strategies to improve access to sufficient, safe, and nutritious food.
Helminths and Giardia in Ethiopia: A nationwide survey

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Abstract

The presence of poor quality medicines in the market is a global threat on public health, especially in developing countries. Therefore, we assessed the quality of two commonly used anthelminthic drugs [mebendazole (MEB) and albendazole (ALB)] and one antiprotozoal drug [tinidazole (TNZ)] in Ethiopia. A multilevel stratified random sampling, with as strata the different levels of supply chain system in Ethiopia, geographic areas and government/privately owned medicines outlets, was used to collect the drug samples using mystery shoppers. The three drugs (106 samples) were collected from 38 drug outlets (government/privately owned) in 7 major cities in Ethiopia between January and March 2012. All samples underwent visual and physical inspection for labeling and packaging before physico-chemical quality testing and evaluated based on individual monographs in Pharmacopoeias for identification, assay/content, dosage uniformity, dissolution, disintegration and friability. In addition, quality risk was analyzed using failure mode effect analysis (FMEA) and a risk priority number (RPN) was assigned to each quality attribute. A clinically rationalized desirability function was applied in quantification of the overall quality of each medicine. Overall, 45.3\% (48/106) of the tested samples were substandard, i.e. not meeting the pharmacopoeial quality specifications claimed by their manufacturers. Assay was the quality attribute most often out-of-specification, with 29.2\% (31/106) failure of the total samples. The highest failure was observed for MEB (19/42, 45.2\%), followed by TNZ (10/39, 25.6\%) and ALB (2/25, 8.0\%). The risk analysis showed that assay (RPN = 512) is the most critical quality attribute, followed by dissolution (RPN = 336). Based on Derringer’s desirability function, samples were classified into excellent (14/106,13\%), good (24/106, 23\%), acceptable (38/106, 36\%), low (29/106, 27\%) and bad (1/106,1\%) quality. This study evidenced that there is a relatively high prevalence of poor quality MEB, ALB and TNZ in Ethiopia: up to 45\% if pharmacopoeial acceptance criteria are used in the traditional, dichotomous approach, and 28\% if the new risk-based desirability approach was applied. The study identified assay as the most critical quality attributes. The country of origin was the most significant factor determining poor quality status of the investigated medicines in Ethiopia.

Key words: Anthelminthic, Antiprotozoal, Quality, Ethiopia.
Assessment of efficacy and quality of two Albendazole brands commonly used against Soil-Transmitted Helminth infections in school children in Jimma Town, Ethiopia.

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Abstract
There is a worldwide upscale in mass drug administration (MDA) programs to control the morbidity caused by soil-transmitted helminths (STHs): Ascaris lumbricoides, Trichuris trichiura and hookworm. Although anthelminthic drugs which are used for MDA are supplied by two pharmaceutical companies through donation, there is a wide range of brands available on local markets for which the efficacy against STHs and quality remain poorly explored. In the present study, we evaluated the drug efficacy and quality of two albendazole brands (Bendex and Ovis) available on the local market in Ethiopia. A randomized clinical trial was conducted according to the World Health Organization (WHO) guidelines to assess drug efficacy, by means of egg reduction rate (ERR), of Bendex and Ovis against STH infections in school children in Jimma, Ethiopia. In addition, the chemical and physic-chemical quality of the drugs was assessed according to the United States and European Pharmacopoeia, encompassing mass uniformity of the tablets, amount of active compound and dissolution profile. Both drugs were highly efficacious against A. lumbricoides (>97%), but showed poor efficacy against T. trichiura (~20%). For hookworms, Ovis was significantly (p < 0.05) more efficacious compared to Bendex (98.1% vs. 88.7%). Assessment of the physico-chemical quality of the drugs revealed a significant difference in dissolution profile, with Bendex having a slower dissolution than Ovis. The study revealed that differences in efficacy between the two brands of albendazole (ABZ) tablets against hookworm are linked to the differences in the in-vitro drug release profile. Differences in uptake and metabolism of this benzimidazole drug among different helminth species may explain that this efficacy difference was only observed in hookworms and not in the two other species. The results of the present study underscore the importance of assessing the chemical and physico-chemical quality of drugs before conducting efficacy assessment in any clinical trials to ensure appropriate therapeutic efficacy and to exclude poor drug quality as a
factor of reduced drug efficacy other than anthelminthic resistance. Overall, this paper demonstrates that “all medicines are not created equal”.

Key words: Anthelminthic, Efficacy, Quality, Jimma

Malaria related perceptions, seeking care after onset of fever and anti-malarial drug use in malaria endemic settings of South West Ethiopia

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Abstract

Background: Prompt care seeking and appropriate use of anti-malarial drugs are critical components of malaria prevention and control. This study assessed malaria related perceptions, care seeking behavior and anti-malarial drug use in malaria endemic settings of Ethiopia.

Methods: Data were generated from a community based cross sectional study conducted among 798 households during January 2014 as part of a larger household behavioral study in three malaria endemic districts of Jimma zone, Southwest Ethiopia. Both quantitative and qualitative data were generated from the study and analyzed by SPSS 17.0 and STATA 12.0

Results: Only 76.1% of the respondents associated malaria to mosquito bite and incorrect beliefs and perceptions were noted. Despite low level of comprehensive knowledge (mean =58.1%, SD=17.1%), quite high favorable attitude towards malaria prevention was (Mean =92.2%, SD=7.0%) recorded. Among study participants with fever, 86 (74.1%) sought care where all of them consulted formal health care system. However, only 17 (19.8%) of them sought the care within 24 hours after onset of fever. The frequency of seeking care was higher (77.8%) and quicker (28.6%) for children although statistically significant difference did not exist (p > 0.05). However, higher median time of seeking first care was observed for people who are affiliated with Muslim religion and among people who did not attend school (p < 0.05). Inappropriate use of anti-malarial drugs such as saving and sharing was reported. Irregular availability of anti-malarial drugs and frontline health workers; misconceptions contributed to delayed care seeking and irrational use of anti-malarial drugs.

Conclusions: Although care seeking behavior for febrile illness was common in this community, the habit of prompt seeking care was very limited. Thus, malaria prevention and control programs need to take into account local misconceptions and wrong perceptions, and health system factors to achieve optimal health seeking behavior in such malaria endemic settings.

Keywords: Malaria, malaria related perceptions, fever, seeking care, anti-malarial drug use, Oromia, Ethiopia
How does community volunteers and formal health care provider work together in provision of Prenatal Care? A qualitative assessment from two districts in Oromia, Ethiopia

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Abstract
Background: Currently, Ethiopia mobilizes and organizes various community volunteers and health workers to promote maternal health services. This study examined the current interactions among different community health volunteers and the formal health care providers in reference to caring for pregnant women.

Methods: The study was conducted as part of a larger study on prenatal micronutrient supplementation in two adjacent districts (Ada’a Berga and Meta Robi) of Oromia region, Ethiopia in June 2013 and April 2014. The data were collected through in-depth interviews from forty two purposively recruited health care provider, health volunteers, and pregnant women. Data were analyzed using ATLAS.ti7.

Results: Various care related workers were involved in pregnancy care at community level. At health post and through house visits, Health Extension Workers (HEWs) provide health education on healthy practices in pregnancy and provides preventive services such as iron supplementation and vaccination. The one-to-five women group was the most active community volunteers closely collaborating with HEWs. They identify and link pregnant women to health system. However, criticism among network members and resistance to join the network are limited their effectiveness. Traditional birth attendants (TBAs) are another important source of maternal care in the community; in fact they are preferred still by most women. Due to the new women group approach, TBAs have been discouraged by nurses; women groups also strongly disapprove them while HEWs still want them to remain active, reflecting poor linkage and coordination among those community volunteers and health workers. Moreover, weak and informal referral chain between the health post and health center; lack of job aid cards and HEWs’ limited awareness on how to use it; absence or non-functionality of basic equipments, job overburden, lack of job motivations and community resistance affected effective antenatal care provided at community level.

Conclusions: While the contributions of all health related workers are vital in improving prenatal care, weak and informal interactions and referral chains remains critical challenges calling for re-orienting and strengthening collaborative efforts.

Key words: Health extension program, community-based health volunteers, Traditional Birth Attendants, antenatal care, pregnancy
Gender inequality among tuberculosis patients

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Abstract
Background: Tuberculosis (TB) continues to be a serious threat to public health worldwide. Help and treatment seeking by men and women suffering from tuberculosis is largely determined by how he/she and those around them perceive the causes, regard the diagnosis, accept the treatment, and adhere to the treatment.

Objective: To study the socio-cultural determinants of help and treatment seeking patterns among TB patients from a gender perspective in Jimma, Ethiopia

Methods and Materials: The study was conducted in Jimma, south west Ethiopia. Facility based comparative cross sectional study was conducted in selected health facilities in Jimma town using quantitative and qualitative methods. A total of 60 men and women (M=30 & F=30) TB patients were included. Mixed methods namely questionnaire (EMIC) interview and secondary data from registry were used. The quantitative data were entered into epidata 3.1 and exported to STATA version 12 for the analysis whereas MAXDA was used for the qualitative data. Descriptive analysis and chi square test were performed. The result was presented in tables and in narratives.

Result: The median age of respondents was 25 years. Very few (5%) patients had identified their condition as TB before they were diagnosed at a clinic. Physical symptoms were the most prominently reported categories of distress. Significantly more females perceived cold climate or weather as the cause of TB whereas more males reported bacteria. Significantly high numbers of males seek government health services as first outside help whereas females went to private practitioners. The patient delay for reporting to first modern help seeking was 29 days whereas prevalence of provider delay was 40 days for diagnosis of TB after onset of symptoms to diagnosis. There was no significant difference between men and women for the overall stigma index (P = 0.07). Treatment success rates were higher for females than for males in the study site.

Conclusion and discussion: Men and women presented similar signs and symptoms at first help seeking. Significant number of females seeks help with private practitioners compared to males. TB was diagnosed with less number of days in males compared to females who were detected late compared to males. As intensive phase treatment became burden to both – male but more too female and patients also preferred private practitioners to get treatment, there is urgent need to decentralize treatment to be more accessible to patients. This calls for involvement of private practitioners in TB program.

Key words: Tuberculosis, Gender, Ethiopia
Application of lots quality assurance survey (LQAS) to monitor household behavioral practices in response to malaria educations interventions via school communities and religious leaders

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Abstract

Background: Promoting community’s appropriate behavioral practices is a critical component of malaria prevention and control activities. This study assessed effect of malaria education through school communities and religious leaders on communities’ malaria prevention and control behaviors in Jimma zone.

Methods: The data were obtained from a larger interventional study conducted to promote communities behavioral practices on malaria prevention and control in five districts of Jimma Zone. The project was started in Jan 2014 and run for three years. As part of preparatory activities, baseline data were collected in Jan 2014 on community perceptions and behaviors related to malaria. The interventions included health education activities through school communities and religious leaders. To monitor progress on key indicators, Lots Quality Assurance survey was conducted in June 2015. Households were sampled from five districts following LQAS sampling methods. In this report, we compared baseline indicators to results obtained from LQAS. The data were analyzed by SPSS 17.0 and STATA 12.0

Results: The study indicated that 64.2% of the target population had exposed to school based malaria education activities; meaning received malaria related information through school students or school teachers/school clubs. On the other hand, nearly of the populations (54.7%) also received malaria related information through religious based activities. For both exposures, no supervision areas showed lower performance. The result indicated that the interventions resulted in large improvements in community’s knowledge, attitude and key malaria prevention behaviors at household level. Accordingly, mean knowledge and attitude score was increased by 6.8 and 7.1 respectively. Likewise, long lasting insecticide treated net use was increased from 38.0% to 62.0% (among households members); from 66.3% to 73.7% (under five children); from 42.9% to 76.8% (pregnant women), and ratio of LLIN use to access was increased from 70.2% to 82.0% leading to narrowed behavioral failure gap in net use. On the other hand, seeking care within 24 hours after onset of fever was increased by 14.9% (from 19.8% to 34.7%). However, the result did not show improvement in rational use of anti-malaria drugs.

Conclusions: The study showed a good performance towards meeting the project objectives for most of the project indicators. However, some indicators such as rational use of anti-malarial drugs have not been improving, calling for attention and further investigations.
Process evaluation of infection prevention program in public health facilities of Nekemte Town, West Ethiopia

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Abstract

Background: Health Care Acquired Infection is a major problem for both patients and Health Care Providers that requires simple and effective strategies to reduce the burden.

Objective: To assess the process of Infection Prevention in Public health facilities of Nekemte town in the year 2014 to determine the level of its implementation on the basis of the national standard.

Method: Facility based case study was conducted in one hospital and two health centers in southwest Ethiopia from June 15-July 15, 2014. 249 Health workers were surveyed using self-administered questionnaire and 89 were directly observed for their compliance to standard precaution from purposely selected departments. Resource inventory was done to evaluate the availability. Furthermore members of infection prevention committee were interviewed. Epi-Info version 3.1 and SPSS version 20 software were used for data entry and analysis. Ethical approval was obtained from College of Health Sciences of Jimma University ethical committee.

Indicator selection: Process indicators were set based on national guideline for infection prevention and control of Ethiopia after a thorough review the process of infection prevention. Then a total of 20 indicators were selected; 7 indicators for availability dimension and 13 indicators for compliance dimension.

Result: Resources needed to implement the program were somewhat available in the hospital, but there was shortage in health centers. Compliance toward Standard Precaution was 71.2% in hospital and 41.9 in health centers. The overall Infection Prevention process was 73.3% in hospital and, 41.8% in health centers.

Conclusion: The overall Infection Prevention process in the hospital was found to be fair, requiring improvement on major and minor parts. Comparably, the health centers implementation was poor and thus needs urgent and much more considerations.

Key words: Infection Prevention, Nekemte town, South West Ethiopia
Process evaluation of abortion service in public health facilities of Bishoftu Town, Oromia Region, Central Ethiopia

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Abstract

Background: Abortion is a complex and argumentative issue with religious, moral, cultural, and political dimensions. Moreover it is a public health concern over the world. Ethiopia is one of those countries facing different challenges to deliver accessible and quality service. However, the service requires continuous, comprehensive evaluation to help the service adapt in response to evolving knowledge, client needs, technology and legal ground.

Objective: To assess implementation status of abortion service in public health facilities of Bishoftu town, Oromia region, 2015.

Method: The evaluation was conducted in public health facilities of Bishoftu town from March 09 to April 07/2015. Case study design was used focusing on process of abortion service provision. All facilities which provide the service were involved and 178 clients who came seeking the service during study period were surveyed. Record of clients was reviewed from July 01 to December 30/2014. For qualitative data, 12 purposively selected key informants were interviewed and 30 client-provider interactions observed. Data were collected using structured questionnaire, check list, and semi structured interview guide. SPSS software version 21.0 was used to analyze quantitative data and descriptive statistics were done. Qualitative data were analyzed manually using thematic analysis.

Results: All facilities were providing medical abortion, surgical (MVA) abortion and family planning service. Among, all facilities only 33.3% had post abortion waiting room and provides the service 24 hours. Almost all (99.4%)surveyed clients received pre-abortion counseling, 96.1% signed consent form, 99.3% received induced abortion service within 3 days, 99.4% received post abortion family planning counseling and 97.2% received family planning. With regards to the service they obtained, 104(58.4%) and 70(39.3%) clients were satisfied and very satisfied respectively. During observation; 53.3% of providers wear eye goggle and 40% wear mask during procedure.

Conclusion: The overall implementation status of abortion service in public health facilities of Bishoftu town was very good, but there are areas under availability and compliance which need improvement.

Key words: Abortion service, process evaluation, Bishoftu town.
Client satisfaction and it’s determinants with anti-retroviral therapy (ART) services in public Hospitals of West Wollega Zone, Ethiopia: a cross Sectional Study

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Abstract

Background: Highly Active Antiretroviral Therapy (HAART) represents the single most important advance in the treatment of HIV infection since the onset of the HIV/AIDS pandemic. Client satisfaction has long been considered an important component of care outcomes. Satisfied and dissatisfied patients behaved differently and causes of client dissatisfaction may multifaceted. The objective of this study was therefore, to assess factors associated with level of Clients satisfaction and it’s determinants at ART Clinics.

Methods: health facility based cross sectional study was conducted on 266 ART users of three Public Hospitals in Western Wollega Zone, West Ethiopia. A total sample was proportionally allocated and individual study participant was identified from consecutive clients who full fill the inclusion criterion (PLWHAs aged 18 and older). Data was collected using Exit interview by instruments translated into the local language and was analyzed using SPSS for Windows version 20.0. Factor score was computed for items that were identified to represent the satisfaction scale by varimax rotation method. By using this regression factor score, Multivariate linear regression analysis was performed and the effect of independent variables on the regression factor score was quantified.

Result: The three extracted underlying latent factor have reliability coefficients ranging from 0.709 to 0.820 with overall satisfaction level of 57.62 %. Predictor variables like monthly income, consultation time and perceived level of stigma and discrimination and satisfaction factor scores had strong statistically significant association. Study participants who consulted for 15-30 had an average of 0.758 units increase in their satisfaction scores as compared to respondents who consulted for less than 15 minutes as explained by reliability and responsiveness satisfaction factor score. Some of the explanatory variables like perceived current health status and waiting time were not statistically significant with satisfaction score.

Conclusion: This study identified 57.2 % overall level of ART client satisfaction. Client provider interaction and assurance, reliability and responsiveness and tangibility were the three underlying latent factors that determine level of client satisfaction towards ART services. Therefore, health care providers and peer educators should work towards improving the level of client satisfaction.

Key words: client, satisfaction, underlying latent factors, factor analysis.
Parallel Session 3: Organized by College of Natural Sciences

Antimicrobial and anti-quorum sensing activities of selected medicinal plants of Ethiopia: Implication for development of potent antimicrobial agents

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Abstract

Background: Traditional medicinal plants have been used as an alternative medicine in many parts of the world, including Ethiopia. Some studies also show anti-quorum sensing activities of medicinal plants. To our knowledge, however, there is no report on the anti-quorum sensing potential of traditional medicinal plants of Ethiopia. As many of the opportunistic pathogenic bacteria depend on Quorum Sensing (QS) systems to coordinate their virulence expression, interference with QS could be a novel approach to control bacterial infections. The aim of this study was, therefore, to evaluate selected medicinal plants from Ethiopia for their antimicrobial activities and to assess the interference of plant extracts on cell-cell signaling (quorum sensing) in bacteria.

Methods: Antimicrobial activities of the extracts were evaluated following standard agar diffusion techniques. The minimum inhibitory concentrations (MIC) of potent extracts were determined using 96 well micro-plates and optical densities were measured using an ELISA plate reader. The interference of quorum sensing activities of extracts was determined using E. coli based reporter strain.

Results: Petroleum ether extract of seed of Nigella sativa exhibited the highest activity against both the laboratory isolated Bacillus cereus (inhibitory zone (IZ) 44 mm) and B. cereus ATCC 10987 (IZ 40 mm). Similarly, oil from mature ripe fruit husk of Aframomum corrorima and mature unripe fruit of A. corrorima revealed promising activities against Candida albican (IZ 35 mm) and Staphylococcus aureus (IZ 25 mm), respectively. Antimicrobial activities of oil from husk of A. corrorima and petroleum ether extract of seed of N. sativa were significantly higher than that of the control antibiotic (Gentamycin sulfate) (IZ 25-30 mm). Furthermore, oil extract from unripe fruit of A. corrorima had observable activity against S. aureus DSMZ346 (IZ 25
mm). The lowest MIC value (12.5 mg/ml) was recorded for oil from husk of Ethiopian cardamom against *Pseudomonas aeruginosa*. Of the total eighteen extracts, two of the extracts interfered with cell-cell communication most likely by interacting with the signaling molecules (N-acylated homoserine lactone) of the reporter strain used in the study.

**Conclusion:** Traditional medicinal plants from Ethiopia could continue serving as potential source of alternative medicine for the local community and an area of research for the scientific community in searching for alternative drug to cope up with the challenges associated emerging antibiotic resistance. Furthermore, the quorum quenching activities observed in two of the plant extracts calls for more comprehensive evaluation of medicinal plants for control of many of bacterial processes and phenotypic behaviors such as pathogenicity, swarming, and biofilm formation.

**Key words:** alternative medicine, drug resistance, Ethiopia, medicinal plants, MIC, Quorum sensing
Shade tree selection and management practices by farmers in traditional coffee production systems in Ethiopian moist evergreen Afromontane forests

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Abstract
There is a traditional practice of forest management in coffee producing communities in Ethiopian moist Afromontane forests to increase coffee production. The management involves removal of big canopy trees with excessive shade and selectively retaining specific tree species as preferred shade trees. This study was initiated to assess farmers’ traditional coffee shade tree selection and management practices, where the activity was practiced for a century. Data on shade tree selection and management was collected through semi-structured interviews (120 individuals) and focus group discussions (two) in two localities with distinct coffee forest characteristics. Farmers’ decision in the removal and retention of canopy trees is based on their knowledge of the tree species attributes such as height, crown architecture, leaf size and deciduousness, leaf decomposition rate, impact on soil fertility, effect on coffee bean quantity and quality. Based on these criteria, *Albizia schimperiana*, *A. gummifera*, *Acacia abyssinica* and *Millettia ferruginea*, all nitrogen fixing leguminose species with spreading crowns, intermediate and manageable height, small deciduous compound leaves and fast rate of litter decomposition were considered as preferred coffee shade trees by farmers. Coffee shrubs growing under the shade of these trees are considered by farmers as having higher productivity and superior cup quality. In areas of high population pressure, the shade tree selection is so intense that only the preferred shade trees are available in the coffee forests, while in areas where population density is sparse, there is a compromise between coffee production and other ecosystem services such as honey production, where some trees such as *Schefflera abyssinica* are retained for their flowers for foraging bees and *Olea welwitschii* for their height and shape for putting traditional beehives.

**Key words:** Coffea arabica, shade tree, traditional coffee management, coffee quality
The spawning response of African catfish, *Clarias gariepinus* (Claridae: Teleost) exposed to different piscine pituitary and synthetic hormone

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Abstract
African catfish (*Clarias gariepinus*) is generally considered to be one of the most important tropical fish species for aquaculture. However, its production has faced limiting factors like shortage of induced breeding technique, seasonality in availability and lack of good quality seed (fingerling) supply to farmers and producers. The present study was conducted to evaluate the spawning response of *C. gariepinus* exposed to different piscine (*C. gariepinus* and *Cyprinus carpio*) pituitary extracts and synthetic hormone (Luteinizing hormone releasing hormone + Domperidone). Nine *C. gariepinus* gravid females were divided in to three treatment groups and injected with hormones intramuscularly. Data on spawning fecundity, fertility rate (%), hatchability rate (%) and induction hour (hrs) were calculated. The highest mean in spawning fecundity (9731.6 eggs/g body weight/female) was observed in groups injected with pituitary extract of *C. gariepinus* followed by the group injected with pituitary extract of *C. carpio* (5813.8 eggs/g body weight/female). The lowest mean spawning fecundity (5666.6 eggs/g body weight/female) was observed in groups injected with synthetic hormone. However, the spawning fecundity/g body weight/female did not show significant difference (p = 0.073) among the groups. The highest mean fertility rate (84.3 %) was recorded in groups injected with pituitary extract of *C. gariepinus* followed by the groups injected with pituitary extract of *Cyprinus carpio* (80.6 %) and synthetic hormone (74.9 %). The mean fertility rate recorded in this study showed no significant variation (P = 0.069) among the groups. The mean hatchability rate recorded in this study was high (73.3 %) in groups injected with pituitary extract of *C. gariepinus* and followed by the group injected with pituitary extract of *C. carpio* (63.5 %). The lowest (51.5 %) mean hatchability rate was observed in groups injected with synthetic hormone. The mean hatchability rate showed significant difference (P = 0.04) among the groups. In general, the present experiment indicated that the use of pituitary extract from *C. gariepinus* was more effective for induction of spawning in *C. gariepinus* during artificial reproduction as compared to *C. carpio* pituitary extract and synthetic hormone.

**Keywords:** African catfish, artificial propagation, pituitary hormone, synthetic hormone
Development and validation of one-step ultrasound-assisted extraction for simultaneous determination of multiclass fungicides in soils

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Abstract

A rapid, efficient, and simple one-step ultrasound-assisted extraction (UAE) method was developed for the analysis of seven fungicides (cymoxanil, metalaxyl, mandipropamid, folpet, chlorothalonil, kresoxim-methyl, and famoxadone) in horticultural soils. Analytes in the samples were determined by HPLC with variable wavelength detection. Key parameters that influence the UAE procedure were optimized, such as the nature and volume of extraction solvent, number of sonication steps, and sonication time. The highest extraction efficiencies in the range of 61.1−87.8% were obtained by using only 7.5 mL of ethyl acetate–hexane (1+1, v/v) and sonicating for 10 min. At 0.5 and 2.0 μg/g fortification levels, satisfactory recoveries (>60%) with RSD <13% were obtained for each analyte, except for folpet (>52%). The method was linear over the range of 0.005 to 10 μg/g and the correlation coefficients \((r^2)\) obtained ranged from 0.9955 to 0.9992. The LODs \((S/N = 3)\) varied from 0.0015 to 0.006 μg/g. The proposed UAE procedure was compared to classical extractions (shake-flask and Soxhlet extraction) and showed satisfactory extraction efficiencies using shorter time and smaller amounts of organic solvents, thereby minimizing the costs of the analysis and the disposal of waste solvent.
Speciation and mobility study of selected heavy metals in Kofe open dumpsite of Jimma Town

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Abstract
In this study, speciation and mobility of selected heavy metals including Cd, Pb and Fe were investigated in the soils of Kofe dumpsite of Jimma Town, Jimma, Ethiopia. To study the speciation and vertical mobility of the target metals in the soil profiles, soil samples were randomly collected at three depth profiles comprising surface soil (0-10 cm), sub-soil (20-30 cm), and bottom soil (40-50 cm) using soil auger. Similarly, for horizontal mobility assessment, soil samples were collected at 5 m variation, i.e., at 5 m, 10 m and 15 m, starting from the edge of the dumpsite, in all directions. Control soil samples were also collected at the same depth profiles, from 200 m distance away from the study area. Then, the collected samples were mixed and homogenized at the sampling site based on their profiles and subsequently, about 1 kg of their composite samples were taken into pre-cleaned polyethylene bags. Afterwards, the samples were transported to laboratory, where they were air dried, sieved, grounded before extraction utilizing four steps, Community Bureau of Reference (BCR) sequential extraction procedures. The fraction of the target metals in the extracted samples were then determined utilizing flame atomic absorption spectroscopy (FAAS). The mobility factor (%MF) of the target metals was then investigated in both vertical and horizontal variations, and the obtained results demonstrated that the studied metals have different vertical and horizontal mobilities. The texture, organic matter and pH of the collected samples were also analyzed for correlation study. The obtained results, among % MF and concentration, were evaluated using statistical tools ANOVA and F-test. It was observed that the total concentrations of the target metals at the dumpsite were greater than the control soil, indicating the presence of anthropogenic sources for the target metals in the dumpsite soil. With the exception of Cd, at the upper surface of the dumpsite soil, the level of target metals investigated were below soil contamination level recommended by WHO.

Keywords: mobility, speciation, sequential extraction, heavy metals.
Stability analysis of Cournot model with Delay Differential Equations

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Abstract
In this paper the dynamic equation of duopoly production game in certain two firms was considered. The existence of best responses that can maximize profit and stability conditions are analyzed when one of the players or both of them have delayed information and delayed actions. A system of nonlinear delayed differential equations and different techniques of nonlinear stability analysis are employed. It is ascertained that, in the case of equal and fixed information delay in both the firms, the delay causes oscillatory process in the system and does not affect the qualitative behavior of the solution (no effect on the stability of the Nash equilibrium point), but only changes the transition process. On the other hand, when one of the firms has implementation delay and the rival player makes decision without delay, it leads to instability of the dynamic system which may result in inflation, deflation or chaos. The same result is obtained when one of the firms has implementation and the other information delay. Numerical simulation using MATLAB2012a is used to confirm the accuracy of the results.

Key words: delay differential equations, duopoly model, lyapunov method, method of linearization, nash equilibrium, nonlinear dynamic system, stability.
Boundary layer flow of a nanofluid over a stretching sheet with variable Brownian and thermophoretic diffusion coefficients

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Abstract
In this paper we investigated numerically, steady laminar boundary layer flow of a nanofluid over a stretching sheet with variable Brownian and thermophoretic diffusion coefficients in the presence of thermal radiation and suction/injection. Using suitable similarity transformations, the governing partial differential equations are reduced into a set of nonlinear ordinary differential equations. The system of ordinary differential equations is then solved by Keller box method. The physical parameters taken into consideration for the present study are: Prandtl number Pr, Lewis number Le, Brownian motion parameter Nb, thermophoresis parameter Nt, radiation parameter Nr and suction/injection parameter s. In addition to these parameters, two new parameters namely: variable thermophoretic diffusion coefficient parameter $\varepsilon$ and variable Brownian motion diffusion coefficient parameter $\beta$ are introduced. Effects of all these parameters on temperature, volume fraction of the nanoparticles, surface heat & and mass transfer rates are discussed and presented graphically. To validate our method, we have compared the present result with some previously reported results in the literature. The results are found to be in a very good agreement.
E-learning usage experience in teaching mathematics course at Jimma University

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Abstract
The fast development of technology currently is influencing (if not dominating yet) our life and daily activities in which we are to be involved whether we like it or not. Education is one of the entities of the influence whereby universities are the vanguard since they are responsible for producing the new technological generation with improved quality. Hence the usage of the technology in teaching learning activities at university level focused on mathematics, science and technology courses so that qualities could be improved supporting the current conventional learning system. My presentation is therefore focused in sharing my research based experience on the usage of the technology (e-learning to be specific) in one of the university mathematics courses which was done following ADDIE model of instructional design. The presentation consists of conceptual understanding of e-learning, preliminary survey outputs from which the e-learning instructional model is designed, the instructional design attached to the selected platform (Moodle in my case), the experience of the e-learning usage in the actual classroom activities, the design evaluation result or the influence of the e-learning model on students achievement and general recommendation for possible way outs to implement e-learning in other courses. If the situation allows the presentation is expected to be followed by the audience participation in drafting a sort of SWOT analysis that could help to start/motivate or share the experience of e-learning usage in other represented institutions.

Key words: e-learning usage, blended learning design, model platform, effect of e-learning usage
Entanglement formulation in the framework of electrically pumped laser cavity for quantum information processing

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Abstract
One of the most fundamentally interesting and intriguing phenomena associated with a composite quantum system is entanglement. In recent years, the topic of continuous variable entanglement has received a significant amount of attention as it plays an important role in all branches of quantum information processing for the development of communication technology. The efficiency of quantum information schemes highly depends on the degree of entanglement. We analyze electrically pumped atomic cavity coupled to a two-mode vacuum reservoirs via a single-port mirror whose open cavity contains N non-degenerate three-level cascade atoms. We carry out our analysis by putting the noise operators associated with a vacuum reservoir in normal order. It is found that unlike the mean photon number, the quadrature squeezing and the degree of entanglement do not depend on the number of atoms. This implies that the quadrature squeezing and the degree of entanglement of the cavity light do not depend on the number of photons. We have also shown that the light generated by the three-level laser is in a squeezed and entangled state, with maximum quadrature squeezing and degree of entanglement being 50%. Moreover, the mean photon number of the system in which the laser operating at threshold and above threshold does not depend on the spontaneous decay constant.

Keywords: Entanglement, Bipartite, Continuous Variable (CV).
The effects of pre-event warm up protocols on some selected physical fitness components of junior soccer players of ambo FIFA goal project academy

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Abstract
This study was aimed to investigate the effects of pre-event lower limb massage, traditional warm-up and the combination of massage with a traditional warm-up on some selected physical fitness components such as explosive power, speed, agility and flexibility. The study was takes place in the FIFA goal project academy, which is found in Ambo town, Oromia Regional State of Ethiopia from January to May, 2015. Experimental study design was employed with six weeks intervention for each warm-up protocols. Thirty five (35) junior soccer players (19 male and 16 female) were included as a subject using purposive and availability sampling technique. Descriptive statistics was produced for each of the parameters. The results presented as mean ± SD. Paired T-test was used to compare the pre-test values with the three conditions. The significance level was set at P< 0.05 for each of the statistical tests. The SPSS 20 software was used for the statistical analysis. The mean age of male and female soccer trainees was 17.89 and 16.81 years old respectively. The mean BMI of male and female soccer trainees was 19.9 and 20.4 kg/m² respectively. The mean value of male trainees explosive test after traditional, pre-event massage and combined warm-up protocols were 2.06m, 2.07m and 2.10m respectively and in female trainees 1.66m, 1.70m and 1.79m respectively. The mean value of male trainees speed test after traditional, pre-event massage and combined warm-up protocols were 4.60s, 5.12s and 4.02s respectively and in female trainees 5.51s, 6.10s and 4.97s respectively. The mean value of male trainees agility test after traditional, pre-event massage and combined warm-up protocols were 16.8s, 16.5s and 14.5s respectively and in female trainees 18.3s, 18.7s and 17.08s respectively. The mean value of male trainees on sit and reach test after traditional, pre-event massage and combined warm-up protocols were 14.02cm, 15.42cm and 15.66cm respectively and in female trainees 18.91cm, 20.01cm and 19.37cm respectively. According to the present results, traditional warm up intervention showed significantly degraded performance on standing broad jump in both male and female, speed test in male, and agility test in male trainees. In contrast, significant increases the performance on speed test in female, agility test in female and sit & reach test in both male and female trainees. However, pre-event lower limb massage can show significant increases of performance in standing broad jump both in male and female and sit & reach test in both male and female trainees. In contrast, significant degraded of performance in speed test in both male and female, and agility test in both male and female trainees. The combined warm-up protocol significant increases of performance in standing broad jump in female, speed test in both male and female, agility test in both male and female and sit & reach test in both male and female trainees. In contrast, significant degraded of performance on standing broad jump in male trainees. According to the present results and conclusion, massage should not be recommended for warm-up separately. Further studies
should examine the effectiveness of shorter duration and various types and frequencies of massage manipulations for their utility immediately prior to activities.

**Key words:** massage, warm-up, performance, traditional warm-up

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**An Analysis of Sports Competition Anxiety of Jimma University Male Players**

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**Abstract**

The purpose of the study was to analyze and compare the Sports Competition Anxiety between Jimma university players. For the purpose of this study 50 players (Football, Basketball, Table Tennis, Athletics and Gymnastics) were selected from Jimma University, Ethiopia as the subject. All these players were practicing for representation of Jimma University in 9th Ethiopian Governmental Higher Institutions Sports Festival in 2016. For this study sports competition anxiety test (SCAT) questionnaire was used to measure sports competition anxiety. Descriptive Statistic (Mean, Standard Deviation), Independent t-test and ANOVA were applied to analyze and compare the degree of sports competitive anxiety between Jimma university male players. The level of Significance was set at 0.05. Results indicated that there is no significant difference found between Jimma University male players in their Sports Competition Anxiety.

**Keywords:** Competition, Anxiety, Football, Basketball, Table Tennis, Athletics and Gymnastics
Demographic, anthropometric and physical fitness as a predictor of running performance of athletics project trainees

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Abstract
The purpose of present study was to investigate demographic, anthropometric and physical fitness as a predictor of race performance of Burayu, Legatafo & Sebeta town athletics project trainees. For the purpose of this study 151 athletes (50 athletes from Burayu, 50 from Legatafo and 51 from Sebeta town) were selected as the subject. Cross-sectional, stratified, systematic sampling techniques were used to collect the data. Mean, tables, charts, standard deviation, Pearson product moment correlation coefficient, stepwise multiple regression analysis was used for statistical treatment. An important finding emerged in this study was that athlete’s leg explosive power and their leg length showed significant low relationship with athlete’s personal best time. In contrary to our expectations, this research did not find significant relationship with age, height, weight, marital status, muscular endurance, hamstring and low back flexibility and speed. It was also found in our study that only leg length of an athlete is explaining 6.2% of athlete’s personal best time. On the basis of the findings of this study we can conclude that age, height, weight, marital status, leg explosive power, muscular endurance, hamstring and low back flexibility and speed of the athlete did not explain athlete’s personal best time.

Keywords: anthropometric, demographic, hamstring, physical fitness and race
Developing a knowledge based system for diagnosis and treatment of malaria

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Abstract
Malaria is a serious and fatal disease caused by a parasite that can infect a certain type of mosquito which feeds on human blood. It is a public health problem in Ethiopia and a major cause of illness and death. More than 75% of the total land of Ethiopia is malarious affecting more than 68% of the population, making malaria the leading public health problem in Ethiopia. Consequently, more than half a million microscopically confirmed cases and 5-6 million clinical cases of malaria are reported annually from public health facilities in the country. In an effort to address such problems, it is important to develop knowledge based system that can provide advice for health professionals and patients to facilitate diagnosis and treatment of malaria patients. Experimental research design was used to evaluate the performance of developed prototype system. Purposive sampling technique was used to select domain experts for knowledge acquisition. The domain experts are selected from Jimma special hospital, Adama hospital and Agaro health center. The knowledge was acquired using both structured and unstructured interviews from domain experts and represented by production rule, (if- then method). The user’s acceptance of the prototype system by visual interaction method that by showing the prototype system to the domain experts was conducted result is 83.21%. In addition, performance of the prototype system was evaluated using case testing method. The test result of a prototype system performance testing is 82.3%. It is promising to save the life of people in rural area where there is scarcity of health professionals and apparatus. In addition, it is possible to reduce time and cost of diagnosis and treatment in health center by applying knowledge based systems. Developing in local languages, good interface programming language and in other techniques are the future works of the study.
Towards the sense disambiguation of Afan Oromoo words using hybrid approach (unsupervised machine learning and rule based)

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Abstract

Word Sense Disambiguation (WSD) is a technique in the field of Natural Language Processing (NLP) where the main task is to find the correct sense in which ambiguous word occurs in a particular context. It is found to be a vital to help applications such as Machine Translation, Text Summarization, Question and Answering and Information Retrieval. The main contribution of this work is to allow the users to make ample use of the available technologies since the ambiguities present in natural language applications provide great difficulty in the use of information technology. This a real challenge as ambiguous words in human language that occur in a particular context can be interpreted in more than one way depending on the context. The main objective of this study is to develop hybrid word sense disambiguation which finds the meaning of words based on surrounding contexts combining unsupervised approach with rule based. Hence, this work presents a WSD strategy which combines an unsupervised approach that exploits sense in a corpus and the manually crafted rule using hybrid methods. The idea behind the approach is to overcome the problem of a bottleneck for the machine learning approaches and lack of training data, while hybrid methods can improve the accuracy and suitable when there is scarcity of training data. A fundamental problem with corpus-based approach is sparse of the training contexts for ambiguous word for assigning appropriate senses. This makes our approach suitable for disambiguation of languages when there is lack of resource and sense definitions. The meaning and context of a given word are captured using term co-occurrences within a defined window size of words. We have conducted experiments to define the optimal window size in this research. We conclude that the window size for extracting semantic contexts is window 1 and 2 words to the right and left of the ambiguous word achieved the best result. The similar contexts of a given senses of ambiguous word are clustered using hierarchical and partitional clustering. Each cluster representing a unique sense. The partitional clustering has shown better result as compared to hierarchical clustering for Afan Oromo context clustering. The achieved result was encouraging; despite it is less resource requirement. Yet; further experiments using different approaches that extend this work are needed for a better performance.

Key words: Word Sense Disambiguation, Afan Oromo, Ambiguous Word, Disambiguation, Rule Based, Hybrid.
Parallel Session 4: Organized by College of Social Sciences and Humanities

An investigation of participatory governance embedded in Gadaa system: manbadhaa general assembly of the Arsii Oromo in focus

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Abstract
This paper reveals participatory governance rooted in Gadaa system by focusing on manbadhaa general assembly of the Arsii Oromo. To this effect, interview, FGD and observation were used to procure data. The participants were recruited through purposive sampling. The data for this study was qualitatively analyzed through descriptive and interpretative approach. The finding of this research revealed that Gadaa system is participatory when analyzed from roles of age grades, decentralization approach and being open for the mass. The concept ‘manbadha’ (literally meaning wide house) is used by the Arsii Oromo to mean Gadaa general assembly. The procedures of Manbadha are designed in a way that differing views are entertained. On the other hand, highly ritualized and long blessings accompany the starting and end of the assembly implying that Gadaa system is rooted in religious philosophy of the Oromo. The murticha (judge), Qora miilaa, qora mataa and the mass are important social actors on Gadaa general assembly of the Arsii Oromo. Based on this fact, it is logical enough to conclude that the way age grades and political parties are designed, the means by which peoples are involved in the process of governance and opposing views are integrated all validate the fact that Gadaa system of the Arsii Oomo is participatory. Therefore, current polity of the country shall utilize Gadaa system of the Oromo to boost the democratization process of the country and enhance peoples’ engagement in decision making.

Keyterms: Arsii/ Gadaa/Manbadha/ Participatory /Qora Mataa//Qora Miilaa
Teachers’ and students’ awareness about the role of vocabulary knowledge and metacognitive strategies in developing reading comprehension skills: The case of preparatory schools in South Western Oromiya region

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Abstract
The research aimed at investigating preparatory school EFL teachers’ and students’ awareness about the role of vocabulary knowledge (VBK) and metacognitive strategies (MCS) in developing reading comprehension skills. Comprehensive sampling and systematic random sampling were used to select the teacher informants and preparatory level students from the sample schools. Questionnaire, interview, classroom observation and document analysis were used to collect the data. The findings indicated that the teachers and students were not aware of vocabulary knowledge and metacognitive strategies, and their roles in developing reading comprehension skills. This has resulted in the teachers’ failure to implement the vocabulary teaching strategies and to encourage the students to use the strategies to develop their comprehension. The study also revealed MCS and vocabulary learning strategies were not explicitly taught. Reading comprehension activities were confined to the identification of explicitly stated information. The vocabulary tasks in the textbooks were de-contextualized mechanical exercises. Lessons for the explicit teaching-learning of vocabulary and metacognitive strategies were completely overlooked by the textbook. The finding also shows that students’ poor background, lack of interest, teachers’ knowledge gap in using vocabulary teaching strategies and the utilization of MCS in reading, lack of experience and exposure to further reading and poor reading habits, and the level of the difficulty of the textbooks were the main barriers to the reading skills development. Based on the findings, the researchers have forwarded some vital recommendations.

Keyterms: EFL teachers/ Metacognition/ Strategy/Vocabulary knowledge/Reading comprehension
Exploring traditional wedding ceremony of Majangir

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Abstract
This study attempted to describe the most important cultural elements of the traditional wedding ceremony of Majangir, which is called wawan, its performances and its value system. Data were collected through direct observation, photographing and video recording, key man informant interview, and focused grouped dissuasion. The data were analyzed qualitatively based on their types. The finding revealed that, in the Majangir’s culture (1) the consent between the would be husband and wife (i.e. the girl and the boy) is a common practice, (2) early marriage is not exercised, (3) sex before marriage is prohibited, and (4) the preparation for the wedding ceremony and the bride wealth are simple and easily affordable. Nevertheless, by now, as the finding shows, all of these traditions are completely changed due to the influence of the surrounding cultures and the missionaries with Christianity; the young generation does not know what was happening in the past and consider the traditional practices as if they are outdated, and are coping the habits and practices of predator cultures. The study suggests to record and archive all the necessary information with good description so that the previous knowledge and wisdom of the social construct can be availed in the future for the existing and coming generations.

Key terms: Majangir /Tradation/Wawan/Wedding
Variations of dialect based spelling and words in Afan Oromo composition: The case of students in the Department of Afan Oromo and Literature

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Abstract
This research intended to investigate the students’ usage of dialect-based spelling and word variations in Afan Oromo composition and the teacher’s perception in correction of such variations. The researchers used questionnaire, interview, FGD and analysis of students’ composition to collect data. Students (n=152) who took composition courses, from different dialect background were selected. Available sample of 13 Afan Oromo composition teachers were included. The result showed that there is a significant variation in using spelling and lexical level dialect variations by students’ in Afan Oromo formal compositions. For instance, for the expression ‘She cried’ in English, 66, 64, and 22 students used booche, boosse, and bootte respectively in Afan Oromo from different dialects. Similarly, for the English word “outside”, the researchers found urufa (36), badhee (48), ala (27), diida (36) and 5 students used interchangeably. As a result, there are practical problems like communication gap and misunderstanding among readers in written communication. The interview and FGD data showed that teachers are (1) aware of language standardization, (2) are reserved to give feedback on such variations when correcting students’ composition for there is no standard reference to correct dialect variations. It is advisable if the issue of word diction /choice includes dialect variation and the usage of standard word in the case of Afan Oromo composition course content so that the teachers can contribute to the process of standardization in Afan Oromo.

Key terms: Afan Oromo Composition/ Dialect based spelling/Word variation
Early grade reading assessment in the East Wollega Zone of Oromiya: A Study on mother tongue reading competence of Grade 4 pupils

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Abstract
This study investigated Grade 4 students’ reading ability in Afan Oromo with particular focus on selected schools in East Wellega Zone of the Oromiya Regional State, Ethiopia. Specifically, the study traced the reading proficiency of Grade 4 students and identified the factors that influence reading outcomes. A total of 389 Grade 4 randomly selected students participated in the study. All the teachers who were teaching Afan Oromo language in the selected schools were purposively selected. Quantitative data were collected from the sample of Grade 4 students through standardized test and pre-tested questionnaire, while qualitative data were gathered from their Afan Oromo teachers via open-ended questionnaire. Quantitative data were analyzed using mean, standard deviation and t-test, while qualitative data were analyzed qualitatively through the methods of description and interpretation. The results indicated that the majority of the students had serious problems in identifying letters, understanding phonological patterns, dealing with new words encountered in texts and comprehending longer texts. While differences in reading scores between boys and girls were not statistically significant, statistically significant differences were observed between urban and rural students. It is thus recommended that educational bureau officials, school administers, and Afan Oromo teachers take necessary measures to enable students to master the basic literacy skills before they join Grade 4.

Key terms: Early grade reading/ Reading assessment/ Reading competence
Indigenous institutions for sustainable development: Buttaa Ritual and Gadaa Laws in Macca Oromoo

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Abstract

GADAA is Oromoo politico-religious system. Each of its eleven age grades has eight years across which groups move from one to the next successively. To study this, structuralism (Levi-Strauss), social drama (Victor Turner), and thick description (Clifford Geertz) are used. The data mainly originate from Macca between May 2006 – Oct. 2013 using observations, interview, focus group discussions, case studies, documents and life history analyses. Gadaa power is at sixth (gadaa) grade, during which a number of rituals occur explicating the laws and practices. Buttaa, a mid-way and powerful ritual in Macca gadaa, reveals intricate laws, values, principles, and procedures so that members learn and follow to create just society, to maintain peace and harmony, and to concentrate on development and prosperity. Buttaa organises gadaa classes and social groups around and fix time scale for activities. The festivity reflects social relations, interactions, momentum, and the evolvement of other performances. Roles, places, and rights of participants are realised, of which duuban kora is performed by the next generation implying the approaching of Ofkaltii in four years. Gadaa system is fair, egalitarian, and participatory across age, gender, and humanity with check and balance. It protects the vulnerable and powerless, incorporates aliens, and invites groups. The law touches all life aspects and is functional throughout Oromoo nation. The Oromoo have germinated, nurtured, enriched, and maintained marvellous system. The exploration, investigation and revitalization of such systems promote the creation of justice beyond political multiplicity and pluralism.

Key terms: Buttaa/Gadaa/Indigenous system/Law/Macca/Oromoo/Political anthropology/ Ritual/ Siiqqee/
Students’ leisure time reading preferences and its analysis: The case of Natural Science and Social Sciences students, Jimma University

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Abstract

The role of reading in today’s modern world is significant. In universities and colleges, reading helps the reader not only in academic areas, but also in various aspects; among which a means of sharing information and ideas are the major ones. Since reading is a vital in a modern society, it is an activity, which cannot be ignored. Thus, the students reading experiences and interests need appropriate attention and reconsideration. This research aimed to identify students’ leisure time reading preferences. The study population is the students of the Faculties of Natural Science and Social Science, among which the study sample is selected randomly. Questionnaire and interview were used as the main research instruments in data collection. The research identified the reading materials preferred by students as leisure time reading. It also identified differences of reading preferences among male and female University students. The analysis indicates that most students prefer watching TV/Films to reading leisure time reading materials. The research asserts that the lack of appropriate leisure time reading rooms and reading materials in the libraries have contributed to the shifting from leisure time reading to watching TV/Films. Finally the research suggested what the JU libraries have to fulfill to attract students who have not yet developed leisure time reading experiences in particular and reading experience in general, and to enhance the reading interests of those who retain the leisure time reading interests.

Key terms: Leisure time/ Reading/Reading experience /Reading interest
The Oromo indigenous women empowering institution: The case of Wijjoo among Waayyuu of Arsii

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Abstract
This article tried to describe Wijjoo, the Oromo indigenous women empowering institution. Observation, interview, focus group discussion and secondary sources were used to collect data. The finding showed that that Wijjoo is an exclusive assembly of women in which social problems are discussed and butter is collected. Stretching itillee (cowhide used as a sleeping mat) on ground between utubaa (pole in a house to support roof) and gulanta (pole laid on the floor to divide the two parts of a house) to seat on is the first procedure. Then coqorsaa (a strong grass) is put down on itillee to symbolize fertility of women and strong relationship between them. After that, gabataa (large wooden basin) is placed on that coqorsaa. Following that little amount of butter is added onto gabataa to symbolize wetness and fullness. As all members are presented, they discuss different issues regarding their life. After plenty of discussions, the leader of Wijjoo start pouring butter from woman’s cases to a material (container) of Wijjoo, to measure the butter. At the end, the collected butter is taken, by one of her neighbors, to the house of present Wijjoo holder. Overall, the study concluded that Wijjoo plays a prominent role in ensuring the empowerment and autonomy of women and the improvement of their political, social and economic status. Therefore, recognizing and using this indigenous institution is vital in future policy formulation in the country for the fact that gender issues are central to the realization of sustainable development.

Key terms: Butter of wijjoo / Haadha gabataa / Wijjoo / Waayyuu Oromoo / Women institution
The role of “Hiikkannaa” peacemaking practice in conflict resolution among Macca Oromo, Eastern Wallaga Zone, Ethiopia

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Abstract

This thesis aimed at exploring the customary procedure of “hiikkannaa” practice in settling disputes and rebuilding peace among Macca Oromo of Eastern Wallagga Zone. During data collection, the researchers employed ethnographic methods such as observation, focus group discussions and semi-structured interview. In data analysis, they used interpretive method to discuss the collected data. The analyzed data shows that “hiikkannaa” peacemaking practice has vital role in resolving conflict and perpetuating peace of the study area. The “hiikkannaa” practice helps disputing parties to come to one stage and to forgive each other. It could uproot conflicts stayed in the community for decades or century that passed from generation to generation. The “hiikkannaa” peacemaking has been practiced at the center of Akke Risa since the Oromo started to live in the area. At the center of Akke Risa, there are actors such as salgee or shanee and Abba Sida who facilitate the procedure of “hiikkannaa” practice. The thesis concludes that the “hiikkannaa” practice is the peace making procedure in which the conflict parties pardon each other for the past offenses whenever it happened.

Key terms: Ethiopia/ Hiikkannaa / Limmu Oromo / Macca branch /Peacemaking practice
A feminist deconstructionist reading of Esayas Hordofa’s  *Hawwii*

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**Abstract**
Oromo creative writings are developing fast. However, the critical studies conducted are far behind. More specifically, critical studies conducted in the area of portrayal of women are not exhaustive. The objective of this study is to critically examine a novel in *Afan Oromo*, namely *Hawwii* (2003), from feminist perspective to examine how the protagonist *Hawwii* is depicted to be assuming multiple positions. I employed textual analysis as it best fits to this study. Using textual analysis, I closely examined contents of the texts or their structure and discourse. Furthermore, I used feminist deconstructionist approach to analyze the selected novel. It is a theory which has at its core a self-reflexive discourse which is aware of the tentativeness, the slipperiness, the ambiguity and the complex interrelations of meanings. The critical examination has shown that the protagonist is shown to oscillate along the continuum of subject, object and abject positions. From the study, I concluded that meaning is multiple, polymorphous, and at times undecidable.

**Key terms:** Abject/ Feminist deconstruction/Object/Polymorphous subject/Undesirability
Assessing oral communication apprehensions of undergraduate third year Business and Economics Students in Ethiopian public universities

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Abstract
The research aimed to examine the English Oral Communication Apprehension (OCA, hereafter) among business and economics graduating students who have attracted considerable negative criticisms in their oral communication capabilities. Purposive convenience stratified sampling was used to choose three Ethiopian public universities. Using questionnaires, focus group discussions and in-depth interviews data was gathered from 254 participants out of 750 graduates. The descriptive analyses showed that participants of all fields in BECO experienced high OCA, with 74.42 mean score. The results also indicated a positive relationship between the students’ OCA and the disciplines from which they were likely to graduate. While only Economics graduates were average and less apprehensive, those belonging to the rest departments were highly apprehensive in the four oral communication contexts. Findings from the qualitative data reaffirm the data secured through questionnaire. The findings indicated the need for intervention strategies by EFL instructors and the host faculty members to create conducive environments where students have opportunities to practice and master communication skills and strategies thereby build up confidence, manage stress and become less apprehensive in diverse communications contexts. The findings are hoped to provide insightful implications for ways to increase new graduates’ communication competence and thereby employability opportunities, should the OCA hindering their effective communications received appropriate attentions and acted upon in universities.

Key terms: Communication apprehension /Oral communication apprehension/ PRCA-24 - Personal report of communication apprehension
Globalization and aid from African perspective: A critical review

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Abstract
Globalization as the world phenomenon has long history and the magnitude of its preponderance in the political and economic arena of the world is becoming irreversible. It highly attached with international aid. To conduct this review, document analysis was used as the entire method. The scholarly written works on Globalization and Aid were checked and counter checked from different perspectives. The review concluded that unless African countries manage the disadvantages of Globalization and aid, they could be indulged in to socioeconomic and political problems that they could not survive its impact at their home.

Key terms: African Perspective /AID/Globalization

Exploration of Oromo cultural responses to thunder lightening: The case of Maccaa Oromo

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Abstract
The paper investigated the cultural response of Maccaa Oromo to thunder lightning and the socio-cultural factors affecting their performance. The paper examined and described different rituals and taboos in the study area and strategies used by the communities to minimize risk that caused by thunder. There are different spiritual and physical responses performed during and after thunder. These responses are full of different types of cultural rituals and taboo. Grieves and sorrows are expressed with more acceptable taboo words such as using euphemisms and metaphoric expressions. The paper also argues that, these processes are conditioned by the cultural and religious norms of the society. Each and every activity is directed by spiritual leaders and community elders. Explanation for why ritual is important and certain words and activities are considered taboos in the society and why certain taboo is accompanied by particular cultural rituals are presented. The ritual participants and types of sacrifice are also mentioned in this paper. During the ritual different community members are assigned as main actors. The roles of actors in performance ritual are mentioned. At the end the paper discussed about the changes and continuities observed regarding the ritual and its process or Araara waaqa.

Keywords: Araara waaqaa/ Hoola araaraa/ Maccaa /Oromo/ Sacrifice/ Taboo’ Thunder
Address terms of Somali Speakers: The case of Jijiga and Shinile Districts of Ethiopia Somali

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Abstract

This study intended to describe the address terms and addressing systems of Somali speakers at Jijiga and Shinile districts of Ethiopian Somali. To conduct the study, the ethnographic and the descriptive research methods were applied. The researcher collected data using mainly participant observation, interviews, and focus group discussions. The elicited data were transcribed using the International Phonetic Alphabet (IPA), and glosses were given in English and Amharic. To analyze the collected data, address terms were categorized in to different social contexts and described based on different social contexts. The study revealed that the Somali speakers use prestigious titles, second person pronouns, proper nouns and kinship terms to address individuals in different social contexts. Moreover, kinship terms that used to address “Male” relatives (kinship term for an uncle, i.e. father’s brother, but not mother’s brother) is frequently used to address any elder in the society. Finally, the finding asserted that prestigious titles that are used to address tribal leaders and kinship terms are associated with high social status, and reflect social and psychological values.

Key terms: Address terms/Addressing systems/Kinship terms/Prestigious titles/ Psychological values /Social class/ Social values
Inflectional morphology in Oromo

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Abstract
This study provides relatively detailed descriptions of inflectional morphology in the Oromo language. It identifies occurrence patterns of morphemes and draws rules for inflections in the language. Although it focuses basically on inflectional morphology, it, in some ways, deals with derivational processes and syntactic structures for comparison and relational analysis. A degree of fusion of morphs and morphological occurrences of inflectional formatives have been thoroughly dealt with. The thesis describes the inflectional forms of, essentially, nouns and verbs. However, words occurring in the subject position (nominals) and verb-related words occurring in the predicate position have also been examined. Since the two word classes (nouns and verbs) are mostly the ones that undergo inflection, they determine the inflectional characteristics of the language. This paper consists of five chapters which are concerned, respectively, with: introduction in which preliminaries and methodology are treated, literature review which deals with some related concepts and previous works on Oromo, nominal inflection (including nouns, pronouns and adjectives), verb inflection (including verbs and adverbs) and conclusion. Number, singulative, gender and case are considered in the nominal inflection. Verb inflection is described in terms of inherent and agreement properties of grammatical function. In the descriptive chapters, distribution of morphemes and their allomorphs, along with their hosts, have been examined.

Key terms: /Derivation /Inflection /Morphology/Nominals/Predicates
Parallel Session 5: Organized by College of Education and Behavioural Sciences

The practices of instructional supervision in supporting teaching-learning in secondary schools of Qersa and Omo Nedda Woredas of Jimma Zone

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Abstract

The purpose of the study was to assess the practices of instructional supervision supporting teaching-learning in secondary schools of Qersa and Omo Nedda woredas of Jimma zone. It particularly treats issues of how instructional supervision is practiced in improving the teaching-learning process (how instructional supervisors render professional support to teachers to enhance classroom instruction) and what challenges are there in practicing instructional supervision in think of promoting the provision of quality education. To accomplish this purpose, the study employed a descriptive survey method, which is supplemented by quantitative and qualitative research method to enrich data. The study was carried out in two secondary schools of the two woredas which comprises -58 teachers, 31 internal school supervisors (2 principals 2 v/principals, 12 d/heads and 15 senior teachers) and 2 woreda supervisors who included in the study purposively. Questionnaire and interview was the main instrument utilized during data collection. Descriptive statistics like frequency, percentage for part and narration for qualitative were utilized to analyze the data. Finally, the results of the study reveal that the practices of instructional supervision in supporting teaching –learning in the the woredas were ineffective and suffered with many challenges like lack of adequate knowledge among supervisors, shortage of resources for support, low top management attention and the like. Therefore, it is recommended that the woredas would able to enhance the supervisory activities in considering its importance in assuring quality education by arranging training, improving resource allocation for supervision work and give due attention for the issue in order to alleviate the problem.

Key words: Supervision, Teaching-learning and Quality Education
Schools as learning organizations: assessing the organizational learning practices in West Oromiya secondary schools

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Abstract
The purpose of the study is to examine the extent to which schools displayed practices that promoted the notion of schools as learning organisations. It attempts to assess the conditions that fosters or hinders organizational learning in West Oromiya secondary schools in order to determine the status of schools as learning organisations. The conceptual framework for this study is grounded in the current organizational learning and leadership literature. Cross-sectional survey research design was used to assess and describe the perceptions of respondents on the organisational learning practices. Questionnaire, interview and document analysis were used as data gathering instrument. Twenty seven secondary schools from three Zones were chosen as a data source. Proportional simple random and purposive sampling techniques were employed to include 600 participants in the study. To analyze the data, both descriptive and inferential statistics including percentages, mean scores, standard deviation, t-test, and one-way ANOVA were employed. The qualitative data gathered from open ended items, interview and documents were used to substantiate and triangulate the quantitative data. The findings of the study demonstrated that the school has low favourable characteristics for transformation into a strong learning organization. It revealed that the school has no favourable organizational culture and structure required for transformation into a LO and that the vision and mission of the school was not shared by most of the school community. It can be argued that there was a disjuncture between the current leadership practices in schools and leadership approaches favourable for OL and that leadership practices in the school did not play any significant role in supporting collaboration, collective learning, and participation of stakeholders. It is suggested that aspects of teachers' professional development focusing on continuous learning and improvement of instructional practices should be given priority. Similarly, school principals should be consistently exposed to the best theories and practices on school leadership through courses, workshops and seminars. School leaders need to embrace and establish the values of transparency, democracy and participation of stakeholders in the activities of the school. Finally, it is recommended that the school has to determine strategies for individual, team and institutional learning besides improving the conditions for transformation into a learning organization.

Key words: Organisational learning, leadership, professional development, culture, system thinking
Determinants of school dropout and academic performance of high schools females students at Jimma Zone, Oromia Region

Nasser Abamilki, Kinde Getachew, Nega Jibat

Abstract
Despite significant efforts made in Ethiopia to achieve gender equity in education, female students drop out and poor academic performance remain major challenges to the education sector (ESDP IV, 2010). Thus, the study found out the major determinants of female students’ dropout and academic achievements in lower secondary schools at Jimma Zone, Oromia Region. A questionnaire was administered to 768 female students. In addition, interviews were conducted with dropout returnees, school directors, and district educational officers and FGDs were conducted with community members. The result indicated 115(15.9%) students had experience of dropping out of school and 139(21.7%) students had friends who were dropout in the last five years. 58(8.2%) students did not have an intention to complete their secondary school education. The mean academic performances for grade ten and nine students were 70 and 71 with standard deviations of 11 and 10, respectively and 75(10%) students scored below 50%. Moreover, 55(8.2%) students repeated a class. 4% of the variance in students academic achievements is explained by the variance of the linear combination of teachers related variables and students self regulation. Parental factor, socio-economic status, lack of interest for education among students, forced marriage and sexual harassment were among the factors that affect females’ dropout and academic achievements as evidenced from the qualitative findings. Recommendations including preparing and utilising intervention packages comprising different strategies as per the findings of the study were forwarded to minimise dropout and enhance their academic achievements.

Key words: Female Dropout, Females Academic Achievements, Determinates of Female Dropout and Academic Achievements
The practices and challenges of teacher educators’ professional development through lesson study focus on Oromia Colleges of Teachers Education

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Abstract
Teachers’ professional development is the core of educational improvement. Thus, the main objective of this study was to assess the practices and challenges of teacher educators’ professional development through Lesson Study in Oromia Colleges of Teacher Education. To this effect, descriptive survey method was used. Teacher educators, academic vice deans, stream heads and lesson taught were the main sources of data. Cluster, simple random and purposive sampling techniques were used. Questionnaire, interview and observation were the main tools of data collection. Quantitative data were analyzed using SPSS computer software version 23, descriptive statistics such as percentages and mean values. Qualitative data were analyzed using coding, thematic and verbatim quotes. The study found out the existence of limited practices of Lesson Study in the studied colleges of teacher education. Besides, Lesson Study had been found enhancing teacher educators’ content knowledge and pedagogical skills, encouraged teacher educators’ peer collaboration and provided teacher educators’ an insight into students’ learning. Yet, the practices of Lesson Study had been challenged by teacher educators’ traditional teaching practices and attitudes (individualistic and closed door), knowledge and skill gaps on the part of teacher educators’ and administrators, limited effort to scale-up and the lack of commitment, encouragement and support. In conclusions, the existing practices of Lesson Study had been most often superficial and challenged with predominance of traditional classroom pedagogy and attitudes. Therefore, colleges of teacher education should move from existing limited, premature, and surface implementation features of Lesson Study to knowledge and skill based expertise with collaborative attitudes as a means to support teacher educators’ professional development and promote better teaching and learning. Among the study’s recommendations, changing the traditional teaching practices and attitudes, strengthening peer collaboration (peer-observation-peer) and scaling-up the existing limited practices of Lesson Study could be mentioned.
Quality of evening education in Oromia’s Teachers’ Training Colleges: the case of Jimma TTC

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Abstract
The main objective of the study was to examine the status of evening education program at JTTC. Data for this study were collected from students and instructors; registrar officer was also a major data source. In addition, information from direct class observations and students’ academic records were used as data sources. For triangulation purpose, interview guide, questionnaire, focus group discussion guide, observation checklist and document analysis form were, accordingly, used as instruments for data collection. And, the collected data were analyzed using both qualitative (dominantly) and quantitative methods. The results of the study showed that the dropout rates in all the departments were in large proportion, especially in the department of Civics. The major reason for the dropout was academic dismissal. Furthermore, student respondents described instructors’ lack of subject matter knowledge and pedagogical skills, negative attitudes towards evening students, unpunctuality and lack of sufficient educational resources as major problems that had worked against their successful learning. They also added inconvenient teaching-learning atmosphere, timing of the evening program, personal and occupational problems as obstacles to their academic performances. On the other hand, teacher respondents attributed the challenges to lack of guidance and counseling services, students’ poor educational background, some students’ lack of interest in learning, lack of reference materials in Afan oromo and ICT services. It was stressed that the quality of teaching-learning at the college was under threat. Ideas were further discussed and implications about quality in evening continuing education program at the college were underlined.

Key words: Evening, Education, Teachers’ Training College, Jimma
An assessment of organizational multicultural competences of Ethiopian public universities

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Abstract
HEIs as multicultural organizations refer directly to the degree to which everyday institutional policies and practices support cultural plurality, which is the focus of the present study. In order to achieve their mission, HEIs should capture the power and potential of group and individual identities and cultures and, in order to do so, their leaders should support a climate in which all feel valued and where trust is a key element. In line with this, the multicultural competence levels of Ethiopian public universities were investigated. The mixed-methods research approach was used in the study, including document analysis, semi-structured interviews and questionnaires. Academic and administrative officials, workers and teachers were included in the study as sources of data. Essential documents such as senate legislations, strategic plans, visions and missions, value statements and programs were also consulted. Multi-stage, simple random and purposive sampling techniques were employed to select 316 participants for the study. Inferential statistics including mean, standard division, t-tests and one-way ANOVA were used to analyse the quantitative data. The analysis of qualitative data was used to corroborate the results from the quantitative analysis. The findings revealed that university administrations lacked actions and programmes that adequately focus on multiculturalism. There were no policy frameworks to address the management of multiculturalism. They had no identifiable programmes or units to manage the issue of diversity across the system. Progress in addressing gender issues was still limited, including in terms of women's empowerment, and the rate at which opportunities are utilised by men and women is still skewed in favour of men, as with the low numbers of female lecturers. There was a limited use of available opportunities to promote the understanding and appreciation of multiculturalism. The university leaders, academic and administrative staff did not have a considered perspective on pluralism. In addition, there were limited spaces and opportunities for the staff to develop skills and experience in the management of difference as an important aspect of their work and with their interaction with other members of the university community. The staff associations were weak and poorly equipped to provide or promote opportunities for skills development in the management of diversity. Lecturers did not generally receive any preparation on managing within a multicultural setting. The findings confirm the position that the need to prepare university leaders with multicultural knowledge, skills, and dispositions. The findings emphasized the need for multicultural leadership to build a culturally diverse, nurturing climate that fosters creativity and critical thinking. Such a climate is central to acquiring and retaining staff from culturally diverse backgrounds that can help in making the institution flourish. There is a need for universities to establish internal rules and
policies and to provide conducive environment for managing diversity amongst students and staff. There is also a need for the creation of open and trusted mechanisms for staff and administration to freely interact with each other. It is imperative that university leadership adopt multicultural competence as an essential competency within their profession, continue to seek out opportunities to further enhance personal multicultural competence, and infuse it into their daily practices.

**Key words:** Multicultural competence; leadership; cultural competency; organizational policy and procedures; personnel practices; attitudes, knowledge and skills

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**Ethiopian counseling tradition in reference to the modern counseling system**

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**Abstract**

The current study was intended to analyze the efficacy of traditional counseling approach in relation to the modern counseling system in properly serving the community. The counseling organizations involved in the study were selected from two regions covered in the study where Oromia and Somali got attention purposefully. Qualitative study method was conducted employing descriptive analysis of data. The tools used to gather information were interview, observation and focus group discussions with relevant explanation from the institution leaders. Based on the information collected from relevant informants, the study result discloses that counseling is the tradition in Ethiopia even if there was no effort made through higher institutions and the government to incorporate the cultural values of counseling in the education curriculum of the country. The institutions employing modern counseling systems were striving to apply the Westerners method without considering the local community practices that exploit their services. The methods employed, techniques and procedures used by the existing counseling systems were exceedingly organized and functional among the community. Integrating the traditional counseling systems to the education curriculum of the country and adaptation of the modern counseling methods to the level of harmonizing and pertaining to the local community custom was recommended as one component. Besides, developing locally employed methods and principles of counseling services that could benefit the community was accentuated.

**Key words:** Counseling system, counseling traditions, modern counseling
Implementation challenges to the transition towards inclusive education in SNNPR, Ethiopia

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Abstract
This study examines the challenges in making transition towards Inclusive Education in one South Nations Nationalities Peoples Regional State, Ethiopia. A multi-method qualitative research approach was adopted. Document analysis identified the Ethiopian governments’ vision for inclusive education. This vision was compared with the reality in schools revealed through observations and interviews. Observation of teacher-student and student-student interactions during classroom and outdoor activities, and analysis of the physical environment, was made in a total of fifteen classrooms drawn from five primary schools differing in urban/rural context. In-depth interviews were conducted with school principals, classroom teachers, students with and without disabilities, and members of the parent teacher association. The texts of the interviews were analyzed thematically to identify the key attitudes, challenges and experiences of the participants. The document analysis showed that the Ministry of Education in Ethiopia endorsed inclusive education (IE), and the use of individualized education programs (IEP) for children with special needs, and provided printed guidelines about these to every school. However, interviews with school principals and class teachers revealed that they were not in a position to understand, disseminate or implement these guidelines. Greatest progress had been achieved in exposing teachers to initial training and in building ramps to increase the accessibility of classrooms. However, a large number of barriers to the implementation of inclusive education remained. In particular, analysis of the physical environment revealed that all school environments contained a large number of obstacles that were difficult for children with motor or visual disabilities to navigate (including steps); and that no school provided accessible toilets. Interviews with principals and teachers revealed that most had no access to support staff (such as permanent or itinerant special needs professionals), IEP and IEP teams did not exist, and the rigid curriculum was difficult to adapt for children with special needs. Interviews with members of the parent teacher association revealed poor quality of communication concerning special needs and a low level of collaboration. Classroom observations found little evidence that teachers’ learning plans or processes accommodated children with physical or sensory disabilities. In conclusion, though the government policies that are prerequisite for inclusive education exist in Ethiopia, there is a large gap between policy and practice. In particular, the implementation of the policies is hindered by a lack of special needs professionals, a shortage of relevant teaching resources and accessible basic amenities, and low level of collaboration among stakeholders.
Staff satisfaction study at Jimma University

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Abstract
Jimma University is a public higher education institution which is aspiring to become the leading public higher education in the country, renowned in Africa and respected in the world. Satisfied in one’s job and committed human resource is key for the successful achievement of an institutions vision, mission, and goals. In this regard, Jimma University with great visions and missions has been planning on how to maintain well experienced staff members whom are believed to be the key for the successful achievement of its goals. It is to the advantage of the organization that this comprehensive study of staff satisfaction, commitment and attrition in Jimma University was conducted.

The purpose of this study is to investigate employees’ commitment, satisfaction, turnover, and as well as factors associated with attrition in Jimma University.

A cross-sectional study design was employed in order to investigate employees’ turnover rate, commitment and satisfaction in Jimma University during 2009-2013 academic period. Primary qualitative and quantitative data and secondary data were collected to address the above objective. A Total of 563 employees (On-duty and resigned staff) were randomly selected for this study using simple random sampling scheme. Using a self administered questionnaire and structured in depth interview tools were used to collect the data. The collected data was analyzed using descriptive and inferential statistics.

From the 457 on duty study respondents, 254 (55.58%) were academicians, 203 (44.42%) were administrative, of which 322 (70.5) were females and 221(48.4%) were under the age of 30. In terms of their academic status, about 39.8 % of them were master’s degree holders. The result showed that 80 (33.0%) of the academic staff and 95(46.8%) of administrative staff were satisfied with their job. On the other hand, 51(20.1%) of the on-duty academic participants don’t have the affective commitment for Jimma University. From the qualitative aspect the major reasons for staff dissatisfaction and further low commitment and turnover were reasons related to leadership, salary and incentives like housing. From the ex-staff members, 28(26.4%) were satisfied during they stay at Jimma University. During the study period, CPHMS (11.14) and JIT (11.34) shows a higher rate of staff turnover while CAVM (4.63) shows minimum staff turnover. The attrition index for administrative is half (4.05) less than that of Academic staff (8.0). This shows as staff turnover has been increasing in the university.

This entails that the university should design and implement effective and efficient strategies for each of the challenges so as to reduce the rate of staff turnover and achieve the university mission and vision.
Parallel Session 6: Organized by College of Business and Economics

Challenges and opportunities of life insurance business in Ethiopia

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Abstract
This study is conducted on the challenges and opportunities of life insurance business in Ethiopia. The study is mainly conducted using primary data. Eight insurance companies from the total of 15 insurance companies, which are providing life insurance services, are included in the study as a sample. The study found that that of awareness of people towards life insurance, religious, habit of saving of the people and low level of urban to total population ratio and illiteracy are the major demographic challenges of life insurance business in Ethiopia. It was indicated in the study that low level of income of the society and the interest are the major economic challenges for the development of life insurance whereas the banking sector development, a decrement in an annual inflation rate can be the opportunities that can positively help the development of life insurance business in Ethiopia. The study recommended that insurance companies should create awareness with respect to life insurance, training should be provided for insurance officials and strong training centre should be established.

Key words: Development of Life insurance in Ethiopia, Life insurance business in Ethiopia
The impact of organizational climate factors on turnover intentions of academic staff in central and western Ethiopian public universities

Zerihun Ayenew Birbirsa

Abstract
The role of higher education becomes increasingly important in the current age where society has become progressively information and knowledge based. Without a properly educated workforce, it would be difficult to integrate into, and get the benefits of, the globalized environment. The success, functioning and sustainability of any higher education institution are however greatly influenced by the extent to which the careers of academic staff are successfully managed amidst all the demands and changes. That means, in order to be benefited from the production of Higher Learning Institutions, the existence of satisfied academic staff can make difference. Higher Learning Institutions (HLIs) are areas of high skill and well trained human resources are produced to enhance the smooth operations of development of once nation. Furthermore, Higher education institutions are increasingly viewed as important drivers of economic growth, not only through the development of graduates but also because of the new knowledge their research generates. Hence, it is difficult to differentiate the nation’s development and higher learning educations. In line with this, it is the existence of veteran instructors that can make difference to benefit more from higher learning educations, that means, more than any other type of organization, higher education institutions are dependent on the intellectual capital and commitment of their staff. Hence in contemporary work environment it is imperative for organization to retain staffs and ensure their effectiveness. Staff retention entails taking necessary measures to encourage workers to remain in the organization for the maximum period of time. If HLIs are failed to tackle the challenge of turnover, it is difficult to be benefited from the production of HLIs. The objective of the study is to examine the impact of organizational climate on turnover intention among academic staff of Central and western Ethiopia public universities. The study has employed a cross-sectional study design with an exploratory and descriptive research design. Accordingly, four public universities had been taken as the study sample through judgmental sampling method. It is 271 instructors that participated in the study and whose academic rank ranges from professor to graduate assistant I. It is also through stratified random sampling that questionnaires were distributed to sample respondents. The analysis was made by making use of logistic regression model, specially crude odd ratio (COR). Finally, it is concluded that, maintenance of good participation in decision-making, well integrated coworker relationship, better working conditions, fixing attractive payment system, introducing better promotional ladder, maintaining good governance and paving the atmosphere of universities more conducive for instructors would enhance the level of job satisfaction and then result in declining of turnover intentions among academic staff.
The relationship between job satisfaction, motivation and commitment: A focus on teacher-educators in Jimma Teachers’ College

Abadir Abrahim, Shimelis Zewdie

Abstract

The objective of this study is to examine how teachers’ commitment is affected by employees’ job satisfaction and motivation. By using explanatory correlation research design the responses of 51 (77%) teacher-educators from Jimma Teachers’ College were analyzed using standard and stepwise multiple linear regressions to investigate empirically basic research questions and concomitant hypothesis that suggest relationship between facets of job satisfaction (work, pay, promotion, supervision, coworker and job in general satisfaction) and dimensions of motivation (intrinsic and extrinsic motivation) with elements of teachers’ commitment (commitment to organization, profession and students). Result generally indicates significant positive association between the variables of the model containing subscales of job satisfaction, motivation and teachers’ commitment. This is statistically illustrated with F (8 46) = 3.429, t=2.272, R=0.652, R2=0.426, adjusted R2= 0.302, and P= 0.005 at p< 0.05 significant level indicating 42.5% variability influence among the variables. However, further analysis of the model using stepwise procedure to investigate contribution of each variable found promotion and extrinsic motivation having statistically significant association with teachers’ commitment (ANOVA = 0.000, P< 0.05) contributing 31.1% variability influence. Thus teachers’ job satisfaction and motivation is to the large extent affected by the lack of promotion or growth and extrinsic motivators which in turn affect teachers’ commitment at this specific college. Moreover, job satisfaction is positively associated with teachers’ organizational commitment while professional commitment is related to extrinsic motivation. However, the result fails to indicate what influences teachers’ commitment when it comes to students. Implication of the finding has generally emphasized the need to focus on traditional view or approaches of motivating workers to ensure greater commitment and the need to develop standard instruments to study teachers’ commitment toward students.

Key words: teacher-educators, job satisfaction, motivation, teachers’ commitment, standard and stepwise multiple regressions
Factors affecting women’s effectiveness in use of microfinance and microcredit services; Jimma zone, southwest Ethiopia

Yilkal Wassie Ayen

Abstract
This study has focused particularly on assessing the loan repayment performance of female headed households on Oromiya Credit and Saving Share Company (OCSSCO) of Jimma Zone Ethiopia. Primary data were collected from 205 female headed households in the study area. With the help of Logit model the study found that family size of the household, health status of the respondent, loan diversion, time of loan application and distance from credit source variables are statistically significant and negatively affect the loan repayment performance of borrowers. While, the age of the borrower, education level of the respondent, experience of the borrower, celebrating of social ceremony, monthly expenditure, application of machinery, instalment period and loan seize variables are statistically insignificant in affecting the loan repayment performance of borrowers however their sign was positive.

Keywords: Female headed households, loan repayment, logit model

Credit risk management of MFIs found in Ethiopia

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Abstract
This study is conducted to assess the credit risk management of MFIs found in Ethiopia and to rate these institutions according to their rank. In conducting this study secondary data from audited annual reports of the MFIs, performance analysis report bulletins, the web sites of the MFIs and from the Mix Market (MIX) was collected. The Morgan Stanley approach was employed to assess the credit risk management of the MFIs rated in accordance to their grade. Accordingly the overall credit risk management of these MFIs is ranked as follows ACSI (1st), DECSI (2nd), Wasasa (3rd), PEACE, OCSSCO, and BUSSA (4th), ADCSI (5th), SFPI (6th), OMO (7th), and Wisdom (8th). Based on their result these institutions are recommended to reassess their credit risk management process and procedures in each rating factors in which they fail to achieve the best grade in the Morgan Stanley grading approach.

Keywords: Credit risk management, MFIs in Ethiopia, rank of MFIs, performance of Ethiopian MFIs
Democratic governance and development: The debate

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Abstract
Democratic governance has become a key concept in the international development debate over the past years. The literature on the contribution of democratic governance to economic growth and development is ambiguous. Different scholars from all corners of the world tried their best to investigate the real relationship between democratic governance and development. Amazingly, their result is varying. The primary objective of this review is to carefully review literatures and draw a reasonable conclusion. It provide convincing and significant information for concerning body such as government, policy makers, and other institutions working to improve living standards of citizens. The review pointed out that democratic governance is necessary for development. Because, development is not only economic growth, instead it is the improvement in different aspects of life of mankind. It is the qualitative change in social, economical, environmental and political situations. So the principles of democratic governance are also the principles of development. Citizens need to demand democratic governance. Their ability to do so is enhanced by strong commitment, literacy, education, and employment opportunities. Governments need to prove responsive to those demands.

Drivers of Ethiopian Economic Growth: A Systematic Review

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Abstract
The main focus of this review is to identify the major drivers of Ethiopian Economic Growth. A deep literature review was done on 12 papers conducted in Ethiopia between year 2011 and 2015. The review result shows that Economic growth, as measured by GDP, is highly and positively influenced by human capital investment and export in both short and long run. In the same token, public expenditure (for productive sector), private investment, real exchange rate and household consumption are also important in determining economic growth, especially in the long run. The study finally recommends that Ethiopia should seriously work in sustaining the current progress in growth hemisphere. For this purpose the country need to promote private and public sector investment, human capital development and institutional capacity building.

Key words: Determinants and Economic Growth
Relation of government expenditure with economic growth and poverty reduction in the Ethiopian case - ARDL analysis.

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Abstract
This study examines the relation of government expenditure with economic growth and poverty reduction in Ethiopia using time series data over the period 1980-2013. Employing modern time series econometric techniques such as unit root tests, bound test co-integration approach and error correction techniques within an ARDL framework which yields more robust estimates. It is found that government spending affect economic growth positively and significantly by increasing real private investment and fixed capital accumulation which increase capital accumulation, reduction in current account deficit, external debt burden and improve education/skills of the households by improving human capital. Findings emerge from this study that government expenditure has significant short run impact on poverty reductions in its lag form in which it might be examined by the role of fiscal policy in alleviating poverty of current year in Ethiopia. The study suggested policies the role of government should be extended to ensure the magnitude and the quality of private investment as high as possible. In addition, prudent fiscal policy should be pursued to widen and strengthen the revenue base in order to avoid costly or distortionary financing of the ever increasing government expenditure. Finally, government has a bigger responsibility in creating stable and conducive economic and political environment, building general consensus and mobilizing its people in development Endeavour if the country has to direct itself into long-run growth.
The role of Micro-finance on women’s economic empowerment in Southwest Ethiopia: In the case of four Woredas around Gilgel Gibe Hydroelectric Power Dam

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Abstract
In Ethiopia, microfinance programs are currently being promoted by the government as well as nongovernmental organizations (NGOs) as a solution strategy for simultaneously addressing both poverty alleviation and women’s empowerment. However, only a limited number of researches attempted to explore the relationship between women’s participation in micro-credit programs and their empowerment by using empirical data. To fill this gap, we conduct a cross-sectional study with overall aim of assessing the role of MFI’s on women’s empowerment. We employed a multi-stage sampling approach and a total of 374 women’s, 182 MFI clients and 192 non-clients were included in to study. Using a structured questionnaire adopted from the 2011 Ethiopian demographic health survey, we collected data on background characteristics of women’s and their household and characteristics specific to women’s empowerment. Four measures of women’s empowerment, namely, source and level of income, control and access to asset, saving habit, and participation in household decision, were used. Client and non-client women’s are then compared with respect to the above mentioned women’s empowerment components. To test whether or not the observed variation in decision making autonomy among client and non-client women’s, we used logistic regression model. MFI membership status was observed to have a statistically significant association with source and level of income (p-value less than 0.000 for both). MFI membership was also statistically significantly associated with control over asset (p-value <0.000). The odds of non-client women to participate in decisions about their own health care and family (relative) visit are 0.55 and 0.51, respectively, as compared to client women. Further, the odd of non-client women to participate in at least three of the decisions made at household level is 0.39 as compared to client women. Beside this success story of MFI, loan repayment problem was observed on some of the clients due to various reasons. Therefore, considering the contribution of MFI in alleviating the root cause of poverty, the government of Ethiopia and NGO’s working on this area should focus on increasing the coverage of MFIs and in providing training for members before loan; which is crucial for the achievement of the goal of the program.

Key words: Women Empowerment, MFIs, Binary Logistic model
Parallel Session 7: Organized by Jimma Institute of Technology

Transmission line loss minimization and regulation of system voltage using UPFC (FACTS devices):- case study of south western region of Ethiopia

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Abstract
Now a days, electrical power system is very complex and it requires very careful design of new equipment’s which are needed to improve electric power utilization, enhancing power system stability, power loss minimization, power transfer capability and security. The existing power transmission network of Ethiopia consists of 45KV, 66KV, 132KV, 230KV and rarely 400KV lines. This research has been mainly focused on 132KV transmission line of south western region of Ethiopia.

This paper presents the performance analysis, design and incorporation of control device (UPFC) in the existing transmission network of south western region of EEU by identifying the transmission line losses and voltage regulation problem. The modern power electronics technologies have been used to maintain quality, controllability and power transfer capability of electrical power system. Flexible AC Transmission Systems (FACTS) is one of the modern power electronics technologies which are used in power systems. UPFC is the most powerful and versatile power electronic equipment among the FACTS devices, which has emerged for the control and optimization of power flow in the electrical power transmission system by controlling the impedance, voltage magnitude and phase angle.

For the successfulness of this thesis work primary and secondary data have been collected from the concerned entities. Transmission line data such as generation capacity, transmission line voltage, impedance, transformer data and peak load data have been collected from Ethiopian Electrical Utility (EEU). UPFC control strategies have been developed by using mathematical modeling based on the collected data. The design of overall south western region transmission network have been analyzed using MATLAB/Simulink software and comparative analysis of the transmission line with UPFC and without UPFC have been done. This thesis have been showed that the significant improvement of voltage profile, power transfer capability and total power loss minimization have been achieved by incorporating UPFC.

Key words: Transmission line loss, UPFC, FACTS, Power loss minimization, Voltage regulation
Extraction of pectin methyl esterase from sweet lime peel

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Abstract
Pectin Methyl Esterase (PME) (3.1.1.11) is the pectin degrading enzyme which catalyses the hydrolysis of pectin methyl ester group, resulting in de-esterification. It has wide application in different type of industries specifically in fruit juice clarifying industry. In the present study, PME was extracted from sweet lime peel by various methods. The presence of enzyme was studied spectrophotometrically by bromothymol blue assay. Hydrolysis of ester was analysed qualitatively by TLC (Thin Layer Chromatography). It was found that maximum PME activity of 42.5 IU/ml was observed using PVPP (Poly Vinyl Poly Pyrrolidone) extraction method. At pH 3.5, temperature 35°C, 1 mM CaCl₂ and 0.2 % Pectin, the maximum concentration of galacturonic acid was produced.

Keywords: PME, TLC, PVPP, pH, Temperature.

Defluoridation of Water Using Natural and Activated Coal

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Abstract
High fluoride concentration is a worldwide problem in drinking water due its health effects. Batch mode investigation to remove fluoride from aqueous solution and real groundwater samples by natural coal and its modified forms was made. The physicochemical analysis of adsorbents and their activation was overseen to well understand the mechanism of sorption. Adsorption was found to be pH dependent with optimal removal efficiency at pH 2 for physically and chemically activated coal and at pH 4 for natural coal (NC). The experimental data was well fitted with Langmuir and Freundlich adsorption model providing maximum adsorption capacity of 5.9, 8.36 and 11.35 mg/g for natural, physical and chemical activated coal in their order written from Langmuir model. The Dubinin–Radushkevich isotherm (R² = 0.988) with mean free energy (E = 0.085 KJ/mol) for natural coal signify physiosorption should be mainly responsible for fluoride adsorption. The applicability of the adsorbents from fluoride contaminated groundwater indicated that natural coal (NC), physically activated coal (PAC) and chemically activated coal (CAC) can be used as an effective, low-cost adsorbent to remove fluoride from groundwater. The buffering capacity of adsorbents monitored during sorption induces a pH increase to nearly neutral, after sorption, which may be an important asset in real applications.

Key words: Natural coal, Adsorption isotherms, Defluoridation
Thermally induced post-buckling and nonlinear free vibration response of laminated composite plates with uncertain system properties

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Abstract
In the present study, thermally induced post-buckling and nonlinear free vibration responses of elastically supported laminated composite plates with uncertain system properties is investigated. System properties such as material properties, geometric properties, thermal expansion coefficients and foundation stiffness parameters are modeled as independent basic random variables which are affected by the variation of temperature based on a macro-mechanical model of a laminate for accurate prediction of system behavior. A C0 nonlinear finite element formulation based on higher order shear deformation theory in the von-Karman sense is presented. A direct iterative method in conjunction with Tailor’s series based first order perturbation technique is extended to find out mean and standard deviation of the response. The generated results have been compared for validation with those available in the literature and Monte Carlo Simulation. The second order statistics have been obtained for, plate thickness ration.

Key words: Random system properties; Laminated composite plates; Thermally induced post buckling; Nonlinear free vibration. Perturbation Technique.

Modeling and simulation of natural convection heat transfer using OpenFOAM

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Abstract
Convection is mode of heat transfer where fluid flow is involved. Depending on the causes of this fluid flow, there are two types of convection: Forced and Natural. The later arises in many application areas like energy conversion and air conditioning systems. The natural convection heat transfer is more complicated than the forced one due to several reasons. One major reason is that in natural convection density of fluid is dependent on temperature and concentration. This creates non linearities in the fluid flow and heat transfer governing equations. Due to these complexities, analytical solutions of problems involving natural convection are very difficult, if not impossible. The remedy for this difficulty is to use computational methods. In this work, natural convection processes arising in energy conversion and air conditioning systems are computationally modeled and simulated using the open source computational fluid dynamics toolbox called OpenFOAM. The computational approaches are validated with experimental...
works from literature and good agreements were observed. The work also aims at introducing the role of using open source software tools in modeling and simulation works.

**Key Words:** natural convection, open source, OpenFOAM, simulation, computational.

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**Design and implementation of fingerprint based employee attendance and payroll system for Jimma University**

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**Abstract**

Time keeping (attendance) and payroll computation systems should be monitored correctly and precisely because the act of managing attendance or presence in a work is used to minimize loss due to employee downtime. Attendance management is a major part of today’s human resource systems, take organization towards better human resource practice, systems and excellence, hence regular attendance and punctuality are expected of all employees or candidates in a work setting. The growth of technology nowadays is the basic need for everything including business areas and any governmental or non-governmental organizations as well as different industries or companies. It has a great advantage by making work more progressive and productive. It is a critical thing that organizations should have since it helps a lot by organizing, storing and manipulating data. Having computerized and automated systems may help an organization grow bigger and be competitive. In this project a computerized attendance monitoring and payroll computation mechanisms are designed and implemented by the research investigators. We have implemented the system by using a fingerprint biometrics which is an effective mechanism to identify the identity of employee. As we know in the existing system for attendance recording and payroll computation most of the work is done manually. This has a great impact to decrease the performance and quality of service provided. The system is designed as a two major parts one is the fingerprint device which will be used to register employee by using his/her fingerprint. This mechanism avoid the problem of buddy punching which is the most common problem in attendance record time. An employee may be paid for the time he didn’t spent at work. The second part of the system is a time keeping software which will take as an input the fingerprint scan of the employee an generate a report on their actual in and actual out time of work. In addition to this this software generates a detailed report including paid hours, over time hours and to include exceptional days like a holiday and vacation leave and sick leave.
Plastics waste recycling

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Abstract
The plastic waste has created many problems to the environment causing pollution but also it has created hazardous problems to living beings. The need for plastics recycling is for easy identification and sorting of plastics waste from the environment. Dozens of millions of tonnes of plastic debris end up floating in world oceans broken into micro plastic, the so-called plastic soup. Micro plastics are found in the most remote parts of our oceans. Entanglement of turtles by floating plastic bags, sea mammals and birds that die from eating plastic debris and ghost fishing through derelict fishing gear produce shocking pictures. Moreover, plastic is not inert and chemical additives, some of them are endocrine disruptors which can migrate into body tissue and enter the food chain. It is necessary to identify, safely dispose and reuse the plastics waste by either process of mechanical recycling or chemical recycling.

Keywords: Recycling, mechanical, chemical

Design and modeling of hybrid PV-micro hydropower generation: A case study on Jimma zone, Kersa woreda

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Abstract
Renewable energy technologies offer clean abundant energy gathered from self-renewing resources such as the sun, micro hydro, etc. Nowadays, due to the ever increasing demand of electricity, renewable energies are becoming the best option for electrification especially for rural areas. This research presented the performance analysis and design study of hybrid renewable energy combining micro-hydro and photo-voltaic system in the case study Kersa Woreda. Optimized design of a Photo-Voltaic (PV) array system and micro hydro Hybrid Electric Power System has been modeled with the aid of HOMER software. Primary and secondary data had been collected for the success of this research work. Solar sun shine hour, minimum and maximum temperature data had been collected from the Ethiopian meteorology agency. With standard empirical formula, the collected sunshine hour data have been changed to solar radiation. The result from empirical formulas was compared with NASA and SWERA data. The selected area has 5.13kWh/m²/d amount of annual average solar radiation, which shows the area is rich of solar energy. Primary river flow data had been taken for modeling the existing micro-hydro power at Kersa River. The river has an annual average flow rate of 1.131m²/s. HOMER software had been used for modeling optimized result of the hybrid power generation system. On these studies, 500 households had been studied with a total annual consumption of
31,911 kWh/yr Electric Energy, From the HOMER software optimization result, 10KW PV, 14KW hydro, 14KW converter and 32 battery string had been selected as an optimized option for electrifying Kersa Werda, with an initial capital cost $55,200, total net present cost of $76,128 and COE of $0.045. In the study all combinations of hybrid sources for the HOMER software have been observed for cost effective design. System performance evaluation had been done as per the standard requirements. The study found that a combination of PV with micro-hydro power generation is the best option for electrifying Kersa Werda with a cost effective way.

**Key words:** PV. Micro-hydro, HOMER, Optimization

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**Fetal ECG decision support system: For maternal and fetal health**

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**Abstract**

Non-invasive detection of the heart activity of a fetus using abdominal electrocardiogram (AECG) is crucial for diagnosis as well as prognosis of heart defects which are the main causes of heart related deaths. Different extraction methods have been proposed in the literature, and most of them require signals recorded either from both the mother’s thoracic and abdominal regions or mother’s abdomen but with multiple leads. In the current work, a novel method is proposed for efficient maternal QRS detection, fetal ECG extraction and enhancement, and arrhythmia detection purposes based on signals recorded from the mother’s abdomen non-invasively by a single ECG lead. The proposed scheme applies spectral analysis and different types of filters based on the joint time-frequency localized Stockwell transform. The algorithm has been tested on 20 non-invasively recorded abdominal signals from the MIT/physionet database. Sensitivity, positive prediction and detection error rate have been used for numerical evaluation of the proposed scheme.
Up to date inventory system for effective management of healthcare technology in Jimma University Specialized Hospital

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Abstract
The tradition of healthcare technology management in our country, Ethiopia, is one of the big problems affecting the quality of healthcare practices as well as the financial expenditure in different health institutions. This is because there is no up to date system showing the status of healthcare technology and the information of the healthcare technology available in each specific healthcare setting. Even though some hospital use file based (paper based) inventory system to manage healthcare technology, it is not up to date and difficult to access the history of each healthcare technology using this system. The objective of this project is to replace manual inventory in Jimma University specialized hospital by implementing web based inventory system. Supervision made in JUSH indicates that, currently the hospital is using excel based medical equipment inventory system and looking for advanced system. So based on the objective of this research up to date inventory system is developed using PHP programming language and Apache server. The sample inventory data from the hospital is added to the system for testing and the test was successful as it helps the user perform each tasks i.e. adding inventory, displaying equipment details, searching for specific equipment and updating each equipment details as desired.
Octa-cell HSPA+ enabled UMTS radio access network planning

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Abstract
This thesis is based on the newly advanced cellular technology called Advanced-HSPA+ or just simply HSPA+. It is intended to give a good understanding of radio access network planning of UMTS/HSPA+ and perform a case study in Addis Ababa City with a selected area. The UMTS/HSPA+ radio access network planning involves coverage estimation and capacity evaluation. In this thesis, the coverage estimation is done with consideration of the real environment information at its nominal stage to obtain better estimations. The propagation modeling is done using COST-HATA model with inclusion of taking in to consideration some default values from the simulation software. The simulation was performed using Atoll 3.2 Radio Planning and Optimization Software to evaluate both the coverage prediction and Monte-Carlo simulation which is needed for capacity estimation for each service. This simulation software is also used for comparing the effect of octa-cell based system with the system which operates on fewer carriers.

Key words: UMTS, HSPA+, COST-HATA, Network Planning
Approximate uniaxial interaction diagram for slender column using second order formula from EBCS 2, 1995

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Abstract
In concrete buildings, recently the design of column is increasingly determined by architectural, aesthetic, and economic criteria leading to slender cross-sections of columns. However, slender column design requires rigorous analysis to account second order effect due to deflection of the column. Because the deflection provides additional eccentricity to axial load that induces additional second order moment. If second order effect is not considered adequately, it can cause stability failure, which is catastrophic. Since exact rigorous analysis demands more computational effort, simplified methods have been proposed in building codes such as EBCS_2, 1995, CEB_FIP1990 and ACI code still that involves iterative procedure. Moreover, even recently developed commercial computer programmes such as ETABS and SAP2000 do not consider second order due to the deflection of the column between its ends adequately as compared to relative deflection between ends of columns. In this thesis, approximate uniaxial P_M interaction diagram for non-sway slender RC rectangular column is presented based on the simplified method of EBCS_2, 1995-second order eccentricity formula (deflection between two ends of a column) which is rather simple and unsophisticated for design of slender column. For the preparation of the interaction diagram, cross section interaction diagram and column slenderness is used. Since the slender column capacity is smaller than short column capacity, the cross section interaction diagram is modified so that it would have a room for the slenderness effect. This is made by deducting additional moment due to second order and geometric imperfection eccentricity from cross section interaction diagram. Finally, the approximate interaction diagram is checked for its validity and satisfactory result is obtained. Therefore, the interaction diagram can be used as a design aid as well as preliminary cross section capacity estimation since it is very easy and quick method. Moreover, it can be used for checking of computer output.

Key words: Slender Concrete Column, Interaction Diagram, Slenderness ratio, Second order Effect (P_Δ), Axial Load, Moment, EBCS2, 1995
Effect of cycle time and signal phase on average time delay, congestion and level of service at road intersection in Addis Ababa city: case study at Hager Astedader signalized intersection

Tarekegn Kumala, Emer T. Quezon, Bogale Shiferaw

Abstract
High urbanization rate and Economic development have caused many challenges to transportation system. Among these, long time delay and high fuel consumption of vehicles at congestion places are a few to mention. Many literatures have revealed that road traffic congestions are caused by inadequate infrastructures, long signal cycle time, poor traffic management system, incapable roads, inefficient public transit, and high travel demand. The research study was focused on the effect of cycle time and signal phase on average time delay, congestion and level of service at Hager Astedader signalized road intersection in Addis Ababa. A quantitative descriptive research design method was employed for the study such as geometry data, signal data, traffic flow data including the pedestrian data. These data were collected at peak hours (15minutes interval) from 7:30 - 9:30 AM and from 5:30 – 7:30 PM for the four consecutive working days. Data of traffic classes were extracted manually on separate worksheet. The volume of each vehicle category was converted vehicle category to express into Passenger Car Unit (PCU) of each vehicle class. Data analysis and processing have been performed using SIDRA (Signalized and unsignalized Intersection Design and Research Aid) intersection software in order to know the traffic flow condition at the intersection. The result of average time delay was used to know the corresponding level of service and operational performance of the intersection. The overall outcome of this research study showed that minimizing the average time delay by adopting different improvement strategies, from low-cost measures such as updating the signal timing and phase numbers, to a high-cost measure such as intersection reconstruction in order to achieve excellent Level-Of-Service (LOS) within the intersection area.

Keywords: Congestion, Peak Period, Passenger car unit, traffic Signal, software, Level of Service
Cost and benefit analysis of rigid and flexible pavement: a case study at Chancho–Derba–Becho road project

Yonas Ketema, Emer T. Quezon, Getachew Kebede

Abstract
Road construction projects have been implemented all over Ethiopia as part of the national development plan. Roads are one of the country’s basic infrastructural facilities where high amount of budget allocated during every fiscal year planning period. To execute such a very crucial project large amount of money will be allocated to the pavement surfacing component of a road section. It is known that pavements are an important part of road projects. Since they cost large portion of investment, a careful evaluation of the alternatives is necessary to make the right choice for a particular project on a cost effective basis, which may be comparatively more economical to our country, Ethiopia. In history of Ethiopia road development program, almost all of the road pavements are flexible types and it demands high foreign currency for asphalt material importing from abroad. In addition, flexible pavement needs to be maintained and rehabilitated within few years after initial construction. In view of the emerging cement factories and the availability of cement in within Ethiopia it becomes practical to consider rigid pavement a far better alternative. In this regard, this research study was conducted with the main objective of identifying the cost and benefit of rigid and flexible pavements at Chancho–Derba–Becho road project, in Oromia North showa Zone. In addition, the research work had been focused with the specific objectives to determine and compare the life cycle costs of rigid and flexible pavements and to investigate all other qualitative merits of rigid pavement over flexible pavement. To achieve these objectives, a review of related literatures, design and specifications, observations and investigations of the actual pavement construction projects, evaluation of life cycle costs and present worth calculation were made with an analysis period of 40 years. The data for this study was gathered through investigation at the actual rigid and flexible pavement projects, examination of specifications, drawings and pavement design, Ethiopian Road Authority manuals, rehabilitation and maintenance documents. This research study was limited to cost and benefit analysis of rigid pavement by comparing with flexible pavement in Ethiopian context specifically at the study area. In this case, the cost parameters investigated are initial, maintenance, rehabilitation, user and salvages value in addition to other qualitative and quantitative data. The main outcome of the research study indicates that the initial cost of rigid pavement was almost twice of that of flexible pavement. Likewise, the cost of flexible pavement per kilometre was observed to have six(6) Millions Birr more than the rigid pavement due to the incurring cost of maintenance through its design life.

Keywords: Flexible and Rigid Pavement, Life Cycle Cost, Cost and Benefit
Influence of subsurface course materials on pavement performance: a case study of Yebu-Agaro road

Anteneh Geremew, Emer T. Quezon, Getachew Kebede

Abstract
The properties of subsurface materials would differ from place while it is true the performance of pavement along the route also varies. The research study had been focused at Yebu-Agaro road section with the main objective to determine the Influence of subsurface course material on pavement performance. In order to realize the desired objective, a systematic methodology was adopted which includes field investigation, field test and laboratory tests. While a purposive sampling technique was used to extract soil samples from road sections the are severely damage showing different failures types and non-distress surface. Those severe types of failures observed along the road sections are reflective cracks, potholes, rutting, alligator cracks and block cracks. From these failures types, five representative samples were collected at different location along the failure sections and one non-distress pavement of the road using manual hand auger. The analyses of soil samples were carried out based on the geotechnical properties such as wash gradation, Atterberg’s limit, Modified proctor test. California bearing ratio (CBR), and field test, as well as Axle loads analysis. It was found out that the liquid limit of the subgrade soil varies from 33%-60.5% and the plasticity Index from 20.3%-30.1% while there was a significant increases in moisture content at field and observed beyond the OMC in laboratory result due to distress of pavement affected by water infiltration through cracks. The recorded soaked CBR values of the subgrade soils material ranges between 8% -13% which was below the 15% minimum value as Specified in ERA manual. However, this indicates the existing CBR values of the subgrade soils comprised of poor materials used for the pavement structures. According to ASSHTO, the soils are classified as A-2-6 and A-7-6 category which means the existing soils are fair to poor as a sub-grade material. Therefore, the failures that are frequently observed on the road surface were significantly influenced by the subgared soil because of sub-standard materials. For the sub-base layer material, it was noted to have satisfied the minimum requirements as compared with the standard specifications, except deficiency of its thickness. For the base course material, inferior qualities of materials were used at some sections. Traffic loads due to heavy vehicles was also one of the main contributory factors of the major causes of road failures along the study area. The overall results revealed that the influence of factors such as traffic, poor drainage, groundwater table level, variations of geologic materials along the road and poor construction materials, non-compliance of the standard Specifications are the causes of pavement failures. Therefore, it is recommended that these factors should be addressed thoroughly prior the start of the rehabilitation works of the road sections noted with failures in the future.

Keywords: Pavement Failure, Characteristics of Subsurface Materials, Standards
Parallel Session 8: Organized by College of Law and Governance

Higher education reforms in Ethiopia: consequences of shifting of priority of knowledge for academic governance at Addis Ababa University

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Abstract
The study examined consequences of shifting of priority of knowledge for academics at Addis Ababa University. Following a series of higher education reforms in post-socialist Ethiopia, the role of university has shifted from a cultural function of knowledge creation to a production function of human resource development. It is a paradigm shift that has involved a change of priority of knowledge toward science and technology but away from the humanities and social science. The shift has carried with it conflicting assumptions of roles and responsibilities for academics in the affected fields of study but without warranting a corresponding governance framework. The study, then, attempts at answering the question how such a change affects the response of the academics in view of macro-level and micro-level institutions that constitute a framework of academic governance. The study offers a comparative analysis of two faculties at Addis Ababa University: Addis Ababa Institute of Technology (AAiT) and College of Social Science (CSS). A combination of the Rational Choice Institutionalism (RCI) and the Institutionalist Sociology of Professions (ISP) is used as a theoretical lens. Employing mixed-method research strategy, the finding indicates that the shifting of priority of knowledge led to an increasing importance of micro-level institutional set-ups such as remuneration schemes, implying a growing tendency of economic rationality of the academics, and in contrast, regulatory and normative rules tend to emerge less important. Inter-faculty comparison shows that though academics at the AAiT tend to consider micro-level institutional measures more important than the academics at the CSS, the result of a statistical test (t-test) for significance shows that the difference between the faculties is not considerable. The implication for professionalism of the academics is that professional identities are largely shaped at micro-level institutional set-ups, and individual academics tend to emerge center stage whereas the academic profession as a collective entity appears to be less visible. The implication for theory is that the RCI appears to be stronger than the ISP in explaining the paradigm shift and the new priority of knowledge. The implication for policy is manifold: strengthening governance arrangements at micro-level institutions may better work to address short term needs—largely economic, but taking measures that help save an increasingly dissolving academic profession could provide a more sustainable arrangement for academic governance.

Key terms: Higher education reform, shifting of priority of knowledge, Academic governance, Addis Ababa University
Mortgage and its validity requirements: a case based analysis of the requirements of “Authentication” and “Witnesses”

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Abstract
The Civil Code of the Empire of Ethiopia 1960 does not provide a binding legal definition of mortgage. I assume that this is probably because the law maker acknowledged that the definition for mortgage may differ based on its context. When we say “Mortgage” we may be referring to the juridical act itself, or the property which is furnished as a security or the right of the creditor on the security. Based on the above three contexts, one may define mortgage as, ‘a juridical act emanating either from a contract (conventional mortgage) or from the law (Legal Mortgage) or from court decision or an arbitral award (judicial mortgage) to secure the performance of a certain obligation’. Mortgage may also refer to ‘a property (Immovable and certain special movables) furnished as a security’. Mortgage can further be understood as ‘a right established by a creditor on the property of his debtor (or a third party) whereby the creditor enforces such right up on failure by the debtor to discharge his obligation(s)’. In this work, the term mortgage is used in all of the above three perspectives and therefore, I remind readers to understand the meaning in the context it is used.

Mortgage as a juridical act has distinct validity requirements though changing based on its sources. Out of these validity requirements, this work basically emphasizes on the requirements of authentication (relevant for conventional mortgage) and witnesses. Authentication as a validity requirement regarding some contracts concerning immovable properties including mortgage was first affirmed by the Federal Supreme Court Cassation Bench decision on file number 21448. The Cassation Bench while rendering this decision built its reasoning on the Amharic version of Article 1723 of the Civil Code. In this decision, the cassation bench clarified the discrepancy between the two versions. According to the clarification of the bench, the Amharic version which is a governing version talks about “authentication” which in the interpretation of the bench refers to, “concluding certain contracts concerning immovable properties including mortgage before a notary or court registry”. The English version on the other hand only discusses the requirement of registration as a validity requirement concerning certain contracts regarding immovable properties. The decision was rendered in line with the spirit of the Amharic version. Subsequent rulings of the bench also conform to similar precedent although in some of the rulings some judges wrote their dissenting opinions against interpretation of the majority. Latest decisions on the other hand are against these precedents and from the reading of several related cases, it is very difficult to either consider authentication as a validity requirement or not. Regarding the requirement of witnesses concerning contracts which need written formality including mortgage, the law being clear on the effect of the contract which is not attested by witnesses and several decisions of the bench affirming the same, latest precedents defeat this fact. The bench in its ruling on file number 79907 only considers witness requirement as evidentiary when the existence of the contract is contested. Therefore, this work is aimed at unraveling these inconsistencies in the existing precedents and providing valuable comments for subsequent decisions based on a careful legal and case based investigation.
Intellectual property right on the indigenous medicinal knowledge: evaluation of the International and Ethiopian Legal Instruments

Yosef Alemu (LL.M, Assistant Professor)
Jimma University School of Law, Email: alemuyosef@gmail.com or yosef.alemu@ju.edu.et

Abstract

Indigenous medical knowledge as a subject of intellectual property protection continues to take centre stage at many local and international stages. It is particularly relevant for countries like Ethiopia whose traditional medical knowledge continue to be exploited without accruing any benefits neither to the country nor the individual practitioners.

The work is a doctrinal legal research. The researcher has analyzed local and international legal instruments dealing with intellectual property and human rights.

In international level, the emphasis given to individual property rights in international intellectual property regimes has left traditional knowledge and the innovative practice based on it outside the purview of the formal intellectual property protection regime. In Ethiopia, the Intellectual property regime that relies on novelty and inventiveness of the work as criteria for protection is ill-suited for this category of knowledge. The Provisions of the Commercial Code and Trade Mark registration Proclamation desperately lack clarity and adequacy in order to extend meaningful protection to traditional medical products.

Documentation, combination of the property and liability and strengthening the Sui generis systems are the best available options for the country.

Key Terms: Traditional Knowledge, Indigenous medical knowledge, Human Rights, Intellectual Property Law, Patent, Trade Mark
## Conference Program

### Opening Session

Day 1: March 31, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Activities</th>
<th>Speaker</th>
<th>Facilitator</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00-8:45</td>
<td>Registration</td>
<td></td>
<td>Organizers</td>
<td>JUCAVM Main Conference Hall</td>
</tr>
<tr>
<td>8:45-8:50</td>
<td>Introduction to the Conference Program</td>
<td>Mr. Ermias Admasu, Director of International Relations and Alumni Affairs</td>
<td>Mr. Ermias Admasu</td>
<td>JUCAVM Main Conference Hall</td>
</tr>
<tr>
<td>8:50-9:00</td>
<td>Welcoming Speech</td>
<td>Dr. Berhanu Belay, V/president for Research and Community Services, JU</td>
<td>Mr. Ermias Admasu</td>
<td>JUCAVM Main Conference Hall</td>
</tr>
<tr>
<td>9:00-9:10</td>
<td>Opening Remarks</td>
<td>Prof. Fikre Lemessa, President of Jimma University</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:10-9:30</td>
<td>Key-note address</td>
<td>Guest of Honor</td>
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<td></td>
</tr>
</tbody>
</table>

### Plenary Papers Presentation Session

Venue: JUCAVM Main Conference Hall

<table>
<thead>
<tr>
<th>Time</th>
<th>Title of the paper</th>
<th>Presenter</th>
<th>Chairperson and Rapporteurs</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30-10:00</td>
<td>Gender and Development: the social and gendered dimensions of poverty reduction, inequality and social injustice</td>
<td>Dr. Amber Murrey</td>
<td>Chairperson</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Prof. Solomon Demeke</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Rapporteurs</td>
</tr>
<tr>
<td>10:00-10:30</td>
<td>Addressing gender inequalities in Ethiopia’s agricultural sector to reduce poverty</td>
<td>Dr. Annet Abenakyo Mulema</td>
<td>Dr. Mulumebet Abera</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mr. Sintayehu Demeke</td>
</tr>
<tr>
<td>9:30-10:50</td>
<td></td>
<td></td>
<td>Group Photo</td>
</tr>
<tr>
<td>10:50-11:20</td>
<td>Health Break</td>
<td></td>
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</tr>
<tr>
<td>11:20-11:50</td>
<td>Gender bias in the academia: experiences of female faculty in public universities in Ethiopia</td>
<td>Dr. Emezat Hailu</td>
<td>Chairperson</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Prof. Abraham Haileamlak</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rapporteurs</td>
</tr>
<tr>
<td>11:50-12:20</td>
<td>Delegate from Ministry of Education</td>
<td></td>
<td>Dr. Gerechis File</td>
</tr>
<tr>
<td>12:20-13:00</td>
<td>Discussion</td>
<td></td>
<td>Dr. Lelisa Sena</td>
</tr>
</tbody>
</table>

### Lunch Break

Alumni Garden

<table>
<thead>
<tr>
<th>Time</th>
<th>Lunch Break</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:00-14:25</td>
<td>Jimma University Gender Audit Pilot Project</td>
<td>Mrs. Cherer Aklilu</td>
</tr>
<tr>
<td>14:25-14:50</td>
<td></td>
<td>Dr. Asnakech Demissie</td>
</tr>
<tr>
<td>14:50-15:15</td>
<td>Conceptualizations of Gender Equality in Amharic: The Case of Amhara Speech Community in Minjar Shenkora District</td>
<td>Dr. Alemayehu Negash</td>
</tr>
<tr>
<td>15:15-15:30</td>
<td>Discussion</td>
<td></td>
</tr>
</tbody>
</table>

Tea Break,
Participants Join one of the Parallel Sessions based on their interest
## Parallel Session 1

**Organized by College of Agriculture and Veterinary Medicine**

### Day 1: March 31, 2016

<table>
<thead>
<tr>
<th>Time (pm)</th>
<th>Activities/title of the papers</th>
<th>Presenter</th>
<th>Chairperson and Reporters</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:30-3:50</td>
<td>Status of Agricultural Research at Jimma University College of Agriculture and Veterinary Medicine (JUCAVM)</td>
<td>Solomon Demeke (Prof.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3:50-4:10</td>
<td>Split Application of Nitrogen in Rice: Its influence on Soil Nitrogen Balance, Crop Nitrogen Content, Growth and Yield of the Crop at Jimma, South West Ethiopia</td>
<td>Merkeb Getachew</td>
<td></td>
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</tr>
<tr>
<td>4:10-4:30</td>
<td>Flood Inundation Area and Hazard Assessment Mapping of the Awash River Basin in Ethiopia Using GIS and HEC-GeoRAS/HEC-RAS Model</td>
<td>Sintayehu Legesse</td>
<td>Dr Gezahegn Berecha (Chair Person)</td>
<td>B2 26/27</td>
</tr>
<tr>
<td>4:30-4:50</td>
<td>Seroprevalence and risk factors of toxoplasmosis in sheep and goats in southwestern Ethiopia</td>
<td>Dechassa Tegegn</td>
<td>Dr Yosef Deneke (Rapporter I)</td>
<td></td>
</tr>
<tr>
<td>4:50-5:10</td>
<td>Pathogenicity of Colletotrichum spp. Isolates Collected from Southwestern Ethiopia on Different Mango (Mangifera indica L.) Varieties</td>
<td>Amsalu Abera</td>
<td>Kumela Dibaba (Rapporter II)</td>
<td></td>
</tr>
<tr>
<td>5:10-5:30</td>
<td>Effect of coagulants’ type, concentration and soybean variety on the physicochemical and sensory properties of tofu</td>
<td>Tolani Asirat</td>
<td></td>
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</tr>
<tr>
<td>5:30-5:50</td>
<td>Optimization of drying condition for better bioactive and nutritional contents of sweet potato flour</td>
<td>Chala Gowe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5:50-6:10</td>
<td>Nitrogen and Phosphorus Fertilizers and Tillage Effects on Growth and Yield of Maize (Zea mays L.) at Dugda District in the Central Rift Valley of Ethiopia</td>
<td>Solomon Tulu</td>
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</tbody>
</table>

### Day 2: April 1, 2016

<table>
<thead>
<tr>
<th>Time (pm)</th>
<th>Activities/title of the papers</th>
<th>Presenter</th>
<th>Chairperson and Reporters</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:15- 8:35</td>
<td>Characterization of benchmark soils in the Gilgel Gibe catchment, South-West Ethiopia</td>
<td>Alemayehu Regassa</td>
<td>Dr Girma Adugna (Chair Person)</td>
<td>B2 26/27</td>
</tr>
<tr>
<td>8:35-8:55</td>
<td>Evaluation and association mapping for drought tolerance in sorghum [Sorghum bicolor (L.) Moench]</td>
<td>Kassahun Bantte</td>
<td>Weyessa Geredaw (Rapporter I)</td>
<td></td>
</tr>
<tr>
<td>8:55-9:15</td>
<td>Current status of coffee berry disease (Colletotrichum kahawae) in major coffee producing regions of Ethiopia</td>
<td>Kumlachew Alemu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:15-9:35</td>
<td>Diversity, Composition and Nutrient Adequacy of Diets of Lactating Mothers in Jimma Zone, Southwest Ethiopia</td>
<td>Sirawdink Fikreysus</td>
<td>Dr Yetnayet Bekele (Rapporter II)</td>
<td></td>
</tr>
<tr>
<td>9:35-9:55</td>
<td>Screenhouse and field evaluation of an entomopathogenic fungus, Metarhizium</td>
<td>Wakuma Bayissa</td>
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</table>

*March 31-April 1, 2016*
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenter(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:55-10:15</td>
<td>Prevalence and Severity of Sorghum Anthracose (<em>Colletotrichum sublineolum</em>) along Varying Agro-Ecologies of Southwestern and Western Ethiopia</td>
<td>Binyam Tsedaley</td>
</tr>
<tr>
<td>10:15-10:30</td>
<td>Health Break</td>
<td></td>
</tr>
<tr>
<td>10:30-10:50</td>
<td>Termite mounds on soil physical and chemical properties and effect on crop yield in Jimma area, Ethiopia</td>
<td>Amsalu Tilahun</td>
</tr>
<tr>
<td>11:10-11:10</td>
<td>The combined effect of early feeding and photostimulation (in ovo and posthatch) on the growth and muscle development of meat type chicks</td>
<td>Wasihun Hassen</td>
</tr>
<tr>
<td>11:30-11:50</td>
<td>Orange Fleshed Sweet Potato (<em>Ipomoea batatas</em>. L.) Varieties Evaluated with Respect to Growth Parameters at Jimma in Southwestern Ethiopia</td>
<td>Bezawit Mekonnen</td>
</tr>
<tr>
<td>11:50-12:10</td>
<td>Anti-Toxoplasma antibodies prevalence and associated risk factors among HIV patients attending treatment and counseling package at Agaro town health center in south western Ethiopia</td>
<td>Dechassa Tegegne</td>
</tr>
<tr>
<td>12:10-12:30</td>
<td>Nematodes: a growing concern for horticultural crops production in Ethiopia</td>
<td>Beira Hailu</td>
</tr>
<tr>
<td>12:30-12:50</td>
<td>Nutritional Enhancement of Quality Protein Maize Based Complementary Food with Anchote (<em>Coccinia Abyssinica</em>), Carrot And Soya Bean Blends</td>
<td>Tsigereda Kebede</td>
</tr>
<tr>
<td>12:50-2:00</td>
<td>Lunch Break</td>
<td></td>
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<tr>
<td>2:00-3:30</td>
<td>Preparation for general discussion and health break</td>
<td></td>
</tr>
<tr>
<td>3:30-6:00</td>
<td>Presentation of Important Issues raised in Parallel Sessions and General Discussion</td>
<td></td>
</tr>
<tr>
<td>6:30 to 8:00</td>
<td>Dinner</td>
<td></td>
</tr>
</tbody>
</table>
## Parallel Session 2

Organized by  
College of Health Sciences

### Day 1: March 31, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Activities/title of the papers</th>
<th>Presenter</th>
<th>Chairperson and Rapporteurs</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:30-3:50</td>
<td>Client satisfaction and it’s determinants with anti-retroviral therapy (ART) services in public Hospitals of West Wollega Zone, Ethiopia: a cross Sectional Study</td>
<td>Mr. Ashenafi Habtamu</td>
<td></td>
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</tr>
<tr>
<td>3:50-4:10</td>
<td>Assessment of Efficacy and Quality of Two Albendazole Brands Commonly Used against Soil-Transmitted Helminth Infections in School Children in Jimma Town, Ethiopia.</td>
<td>Mr. Sileshi Belew</td>
<td>Chairperson: Prof. Kifle Woldemichael Rapporteur: Mr. Lemessa Dube</td>
<td>B1-21/22</td>
</tr>
<tr>
<td>4:10-4:30</td>
<td>Achieving Alignment in Academic Health Science Centers in Ethiopia: The Case of Four Teaching Hospitals</td>
<td>Dr. Fekadu Assefa</td>
<td></td>
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</tr>
<tr>
<td>4:30-4:50</td>
<td>How Does Community Volunteers and Formal Health Care Provider Work Together in Provision of Prenatal Care? A Qualitative Assessment from Two Districts in Oromia, Ethiopia</td>
<td>Mr. Zewdie Birhanu</td>
<td></td>
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<tr>
<td>4:50-5:50</td>
<td>Gender inequality among tuberculosis patients</td>
<td>Prof. Morankar Sudhakar</td>
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</table>

### Day 2: April 1, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Activities/title of the papers</th>
<th>Presenter</th>
<th>Chairperson and Rapporteurs</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30-8:50</td>
<td>Process Evaluation of Abortion Service in Public Health Facilities of Bishoftu Town, Oromia Region, Central Ethiopia</td>
<td>Mr. Shimeles Ololo</td>
<td></td>
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</tr>
<tr>
<td>8:50-9:10</td>
<td>Application of Lots Quality Assurance Survey (LQAS) to Monitor Household Behavioral Practices in Response to Malaria Educations Interventions via School communities and Religious Leaders</td>
<td>Mr. Zewdie Birhanu</td>
<td>Chairperson: Mr. Yibeltal Kifle Rapporteur: Mr. Desta Hiko</td>
<td>B1-21/22</td>
</tr>
<tr>
<td>9:10-9:30</td>
<td>Quality of Medicines Commonly Used in the Treatment of Soil Transmitted Helminths and Giardia in Ethiopia: A Nationwide Survey</td>
<td>Mr. Sultan Suleman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:30-9:50</td>
<td>Process Evaluation of Infection Prevention Program in Public Health Facilities of Nekemte Town, West Ethiopia</td>
<td>Ms. Gelila Abrham</td>
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<td>9:50-10:10</td>
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<td>11:30-12:20</td>
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<tr>
<td>Time</td>
<td>Activity</td>
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<tr>
<td>12:30-2:00</td>
<td>Lunch Break</td>
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<tr>
<td>2:00-3:00</td>
<td>Preparation for general discussion</td>
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<tr>
<td></td>
<td>Business discussion with External Stakeholders with the Dean, Vice dean, Coordinator for Research and PGs and interested staff</td>
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<tr>
<td></td>
<td>Ranking Best Oral Presenter of the parallel session</td>
<td></td>
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<tr>
<td>3:00 - 3:30</td>
<td>Health Break</td>
<td></td>
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</tr>
<tr>
<td>3:30-6:00</td>
<td>Presentation of Important Issues raised in Parallel Sessions and General Discussion</td>
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<tr>
<td></td>
<td>Conference Evaluation</td>
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<td></td>
<td>Certificate award for best oral presenter</td>
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<tr>
<td>6:30 to 8:00</td>
<td>Dinner</td>
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<tr>
<td></td>
<td>Certificate Award for Paper Presenters</td>
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</tbody>
</table>
## Parallel Session 3

### Organized by College of Natural Sciences

**Day 1: March 31, 2016**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activities/title of the papers</th>
<th>Presenter</th>
<th>Chairperson and Rapporteurs</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:30-3:50</td>
<td>Shade tree selection and management practices by farmers in traditional coffee production systems in Ethiopian moist evergreen Afromontane forests</td>
<td>Dr. Kitessa Hundera</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3:50-4:10</td>
<td>The spawning response of African catfish, Clarias gariepinus (Clariidae: Teleost) exposed to different piscine pituitary and synthetic hormone</td>
<td>Gadissa Natea</td>
<td>Chair Person Dr Genanew Gofe Reporters Geremew Muleta Yinebeb Tariku</td>
<td>B1-26/27</td>
</tr>
<tr>
<td>4:10-4:30</td>
<td>Antimicrobial and anti-quorum sensing activities of selected medicinal Plants of Ethiopia: Implication for development of potent antimicrobial agents</td>
<td>Dr Ketema Bacha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4:30-4:50</td>
<td>Towards the sense disambiguation of Afaan Oromo words using hybrid approach (unsupervised machine learning and rule based)</td>
<td>Workineh Tesema</td>
<td></td>
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</tr>
<tr>
<td>4:50-5:10</td>
<td>Developing A Knowledge Based System For Diagnosis And Treatment Of Malaria</td>
<td>Chala Diriba</td>
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</tbody>
</table>

**Day 2: April 1, 2016**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activities/title of the papers</th>
<th>Presenter</th>
<th>Chairperson and Rapporteurs</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30-8:50</td>
<td>Entanglement formulation in the frame work of electrically pumped laser cavity for quantum information processing</td>
<td>Dr Solomon Getahun</td>
<td>Chair Person Dr Abera Gure Reporters Tokuma Negisho Hirko Taye</td>
<td>B1-26/27</td>
</tr>
<tr>
<td>8:50-9:10</td>
<td>Stability analysis of Cournot model with Delay Differential Equations</td>
<td>Dr Chernet Tuge</td>
<td></td>
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</tr>
<tr>
<td>9:10-9:30</td>
<td>Boundary layer flow of a nanofluid over a stretching sheet with variable Brownian and thermophoretic diffusion coefficients</td>
<td>Dr Mitiku Daba</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:30-9:50</td>
<td>E-learning usage experience in teaching mathematics course at Jimma University</td>
<td>Kassahun Melesse</td>
<td></td>
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</tr>
<tr>
<td>9:50-10:10</td>
<td>Development and Validation of One-Step Ultrasound-Assisted Extraction for Simultaneous Determination of Multiclass Fungicides in Soils</td>
<td>Dr Yared Merdassa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:10-10:30</td>
<td>Health Break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:30-10:50</td>
<td>Speciation and Mobility study of Selected Heavy Metals in Kofe open dumpsite of Jimma Town</td>
<td>Kassim Kedir</td>
<td>Chair Person Dr Alemayehu Geremew Reporters Samuel Sisay Delelegn Woyessa</td>
<td>B1-26/27</td>
</tr>
<tr>
<td>10:50-11:10</td>
<td>The Effects of Pre-event warm up protocols on some selected physical fitness components of junior soccer players of ambo FIFA goal project academy</td>
<td>Biruk Amare</td>
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<tr>
<td>11:10-11:30</td>
<td>Demographic, Anthropometric and Physical Fitness as a Predictor of Running Performance of Athletics Project Trainees</td>
<td>Samson Wondirad</td>
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<tr>
<td>11:30-12:20</td>
<td>An Analysis of Sports Competition Anxiety of Jimma University Male Players</td>
<td>Dr Asim Khan</td>
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<tr>
<td>12:30-2:00</td>
<td>Lunch Break</td>
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<td>2:00-3:00</td>
<td>Preparation for general discussion</td>
<td>Team</td>
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<td>Business discussion with External Stake holders with the Dean, Vice dean, Coordinator for</td>
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<td>Research and PGs and interested staff</td>
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<td>Ranking Best Oral Presenter of the parallel session</td>
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<td>3:00 - 3:30</td>
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<tr>
<td>3:30-6:00</td>
<td>Presentation of Important Issues raised in Parallel Sessions and General Discussion</td>
<td>Main Hall</td>
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<td>Conference Evaluation</td>
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<td>Certificate award for best oral presenter</td>
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<td>6:30 to 8:00</td>
<td>Dinner</td>
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<td>Certificate Award for Paper Presenters</td>
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</table>
## Parallel Session 4

### Organized by College of Social Sciences and Humanities, Jimma University

**Day 1: March 31, 2016**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activities/title of the papers</th>
<th>Presenter</th>
<th>Chairperson and Rapporteurs</th>
<th>Venue</th>
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</thead>
<tbody>
<tr>
<td>3:50-4:10</td>
<td>Teachers’ and Students’ Awareness about the Role of Vocabulary Knowledge and Metacognitive</td>
<td>Dagne Tiruneh</td>
<td>Kamil Kamil Mohammed (Chair P)</td>
<td>B1-26/27</td>
</tr>
<tr>
<td></td>
<td>Strategies in Developing Reading Comprehension Skills: The Case of Preparatory Schools in</td>
<td></td>
<td>Gemechis Teshome (RP)</td>
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<td></td>
<td>South Western Oromiya Region</td>
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<tr>
<td>4:10-4:30</td>
<td>Exploration of Oromo Cultural Responses to Thunder Lightening: The Case of Maccaas Oromo</td>
<td>Terefe Mitiku</td>
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<tr>
<td>4:30-4:50</td>
<td>Address Terms of Somali Speakers: The Case of Jijiga and Shinile Districts of Ethiopia Somali</td>
<td>Tibebu Shitaye</td>
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<tr>
<td>4:50-5:10</td>
<td>Inflectional Morphology in Oromo</td>
<td>Wakweya Olani</td>
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<tr>
<td>5:50-6:10</td>
<td>An Investigation of Participatory Governance Embedded In Gadaa System: Manbadhaa General</td>
<td>Ayehu Bacha</td>
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<td></td>
<td>Assembly of the Arsii Oromo in Focus</td>
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**Day 2: April 1, 2016**

<table>
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<th>Time</th>
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<th>Presenter</th>
<th>Chairperson and Rapporteurs</th>
<th>Venue</th>
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<tbody>
<tr>
<td>8:30-8:50</td>
<td>A Feminist Deconstructionist Reading of Esayas Hordofa’s Hawwii</td>
<td>Dr. Teshome Egeree</td>
<td></td>
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</tr>
<tr>
<td>8:50-9:10</td>
<td>Exploring Traditional Wedding Ceremony of Majang</td>
<td>Dr. Getachew Anteneh</td>
<td>Diribe Mekonin (Chair)</td>
<td>B1-26/27</td>
</tr>
<tr>
<td></td>
<td>Indegenous Institutions For Sustainable Development: Buttaa Ritual And Gadaa Laws In Macca</td>
<td>Dr. Dereje Fufa</td>
<td>Fitih Alemu (RAP)</td>
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<td>Oromoo</td>
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<tr>
<td>9:30-9:50</td>
<td>Early Grade Reading Assessment in The East Wollega Zone Of Oromiya: A Stud on Mother</td>
<td>Yonas Berkesa</td>
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<td>Tongue Reading Competence of Grade 4 Pupils</td>
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<tr>
<td>9:50-10:10</td>
<td>Variations of Dialect Based Spelling and Words in Afan Oromo Composition: The Case of</td>
<td>Dr. Teshome Belayneh</td>
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<td></td>
<td>Students in the Department of Afan Oromo and Literature</td>
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<td>10:10-10:30</td>
<td>Health Break</td>
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<tr>
<td>10:30-10:50</td>
<td>The Oromo Indigenous Women Empowering Institution: The Case of Wijjoo among Waayyyuu of</td>
<td>Lenin Kuto</td>
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<td>Arsii</td>
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<tr>
<td>10:50-11:10</td>
<td>Students’ Leisure Time Reading Preferences and Its Analysis: The case of Natural Science and</td>
<td>Dr. Gemedu Hunde</td>
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<td>Social Sciences Students, Jimma University</td>
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<tr>
<td>11:10-11:30</td>
<td>The Role of “Hiikkannaa” Peacemaking Practice in Conflict Resolution among MaccaOromo,</td>
<td>Megersa Regasa</td>
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<td>Eastern Wallaga Zone, Ethiopia</td>
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<tr>
<td>11:30-12:20</td>
<td>Assessing Oral Communication Apprehensions of Undergraduate Third Year Business and Economics</td>
<td>Tadele Assefa</td>
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<td>Students in Ethiopian Public Universities</td>
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<tr>
<td>12:30-2:00</td>
<td>Lunch Break</td>
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*Staff lounge*
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<thead>
<tr>
<th>Time</th>
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<th>Location</th>
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<tbody>
<tr>
<td>2:00-3:00</td>
<td>Preparation for general discussion</td>
<td>Team</td>
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<tr>
<td></td>
<td>Business discussion with External Stakeholders with the Dean, Vice</td>
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<td>dean, Coordinator for Research and PGs and interested staff</td>
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<tr>
<td></td>
<td>Ranking Best Oral Presenter of the parallel session</td>
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<tr>
<td>3:00-3:30</td>
<td>Health Break</td>
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</tr>
<tr>
<td>3:30-6:00</td>
<td>Presentation of Important Issues raised in Parallel Sessions and</td>
<td>Main Hall</td>
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<tr>
<td></td>
<td>General Discussion</td>
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<td>Conference Evaluation</td>
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<td></td>
<td>Certificate award for best oral presenter</td>
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</table>
| 6:30 to 8:00| Dinner  
|          | Certificate Award for Paper Presenters                               | Staff lounge |
## Parallel Session 5

**Organized by College of Education and Behavioral Sciences**

### Day 1: March 31, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Activities/title of the papers</th>
<th>Presenter</th>
<th>Chairperson and Rapporteurs</th>
<th>Venue</th>
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</thead>
<tbody>
<tr>
<td>3:30-3:50</td>
<td>Schools as Learning Organisations: Assessing the Organizational Learning Practices in West Oromiya Secondary Schools</td>
<td>Abeya Geleta (Dr)</td>
<td>Tadesse Abera &amp; Fisseha Mikre</td>
<td></td>
</tr>
<tr>
<td>3:50-4:10</td>
<td>The practices of Instructional Supervision in Supporting Teaching- Learning in Secondary Schools of Qersa and Omo Nedda Woredas of Jimma Zone</td>
<td>Dereje Daksa</td>
<td></td>
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<tr>
<td>4:10-4:30</td>
<td><strong>TEA BREAK</strong></td>
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<tr>
<td>4:30-4:50</td>
<td>Determinants of School Dropout and Academic Performance of High Schools Females Students at Jimma Zone, Oromia Region</td>
<td>Nasser Aba- Milki</td>
<td></td>
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<tr>
<td>4:50-5:50</td>
<td>Implementation Challenges to the Transition towards Inclusive Education in SNNPR, Ethiopia</td>
<td>Jafar Lola</td>
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### Day 2: April 1, 2016

<table>
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<tr>
<th>Time</th>
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<th>Presenter</th>
<th>Chairperson and Rapporteurs</th>
<th>Venue</th>
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<tbody>
<tr>
<td>8:30-8:50</td>
<td>Quality of Evening Education in Oromia’s Teachers’ Training Colleges: The case of Jimma TTC</td>
<td>Birhanu Nigussie</td>
<td>Kinde Getachew &amp; Aemero Asmamaw (Dr.)</td>
<td></td>
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<tr>
<td>8:50-9:10</td>
<td>The Practices and Challenges of Teacher Educators’ Professional Development through Lesson Study Focus on Oromia Colleges of Teachers Education</td>
<td>Temesgen Yadeta</td>
<td></td>
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</tr>
<tr>
<td>9:10-9:30</td>
<td>Ethiopian Counseling Tradition in Reference to the Modern Counseling System</td>
<td>Getachew Abeshu (Dr.)</td>
<td></td>
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</tr>
<tr>
<td>9:30-9:50</td>
<td>An Assessment of Organizational Multicultural Competences of Ethiopian Public Universities</td>
<td>Frew Amsalu</td>
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<tr>
<td>9:50-10:10</td>
<td>Staff satisfaction study at Jimma University</td>
<td>Mr. Gashaw Tesfa</td>
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<td>10:10-10:30</td>
<td><strong>Health Break</strong></td>
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<td>12:30-2:00</td>
<td><strong>Lunch Break</strong></td>
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<td>Staff lounge</td>
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<tr>
<td>2:00-3:00</td>
<td>Preparation for general discussion, Business discussion with External Stake holders with the Dean, Vice dean, Coordinator for Research and PGs and interested staff, Ranking Best Oral Presenter of the parallel session</td>
<td></td>
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<td>Team</td>
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<td>3:00-3:30</td>
<td><strong>Health Break</strong></td>
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<tr>
<td>3:30-6:00</td>
<td>Presentation of Important Issues raised in Parallel Sessions and General Discussion, Conference Evaluation, Certificate award for best oral presenter</td>
<td></td>
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<td>Main Hall</td>
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<tr>
<td>6:30 to 8:00</td>
<td>Dinner, Certificate Award for Paper Presenters</td>
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<td>Staff lounge</td>
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</table>
# Parallel Session 6

**Organized by College of Business and Economics**

### Day 1: March 31, 2016

<table>
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<tr>
<th>Time</th>
<th>Activities/title of the papers</th>
<th>Presenter</th>
<th>Chairperson and Rapporteurs</th>
<th>Venue</th>
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<tbody>
<tr>
<td>3:30-3:50</td>
<td>The Impact of Organizational Climate Factors on Turnover Intentions Inte of Academic Staff in Central and Western Ethiopia Public</td>
<td>Dr. Zerihun Ayenew</td>
<td>Mr. Emnet N. (chairperson) Mr. Jibril H. (Rapporteur)</td>
<td>B2-24</td>
</tr>
<tr>
<td>3:50-4:10</td>
<td>Democratic Governance and Development: The debate</td>
<td>Mr. Muhidin M.</td>
<td>Dr. Arega S. (chairperson) Mr. Million G. (Rapporteur)</td>
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<tr>
<td>4:10-4:30</td>
<td>Credit Risk Management of MFIs Found in Ethiopia</td>
<td>Mrs. Amina A.</td>
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<tr>
<td>4:30-4:50</td>
<td>Challenges and Opportunities of Life Insurance Business in Ethiopia</td>
<td>Mr. Demis H.</td>
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<td>4:50-5:50</td>
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### Day 2: April 1, 2016

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<th>Presenter</th>
<th>Chairperson and Rapporteurs</th>
<th>Venue</th>
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<tbody>
<tr>
<td>8:30-8:50</td>
<td>The Relationship Between Job Satisfaction, Motivation and Commitment: A Focus on Teacher-Educators in Jimma Teachers College</td>
<td>Mr. Abadir A.</td>
<td>Mr. Wendossen S. (chairperson) Mr. Mathewos H. (Rapporteur)</td>
<td>B2-24</td>
</tr>
<tr>
<td>8:50-9:10</td>
<td>Factors Affecting Women’s Effectiveness in use of Microfinance and Microcredit Services; Jimma Zone, Southwest Ethiopia</td>
<td>Mr. Yilikal W.</td>
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<tr>
<td>9:10-9:30</td>
<td>The role of Micro-finance on women’s economic empowerment in Southwest Ethiopia: In the case of four Woredas around Gilgel Gibe Hydroelectric Power Dam</td>
<td>Mr. Fikadu Gutu</td>
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<td>9:30-9:50</td>
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<td>Health Break</td>
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<tr>
<td>10:30-10:50</td>
<td>Drivers of Ethiopian Economic Growth: A Systematic Review</td>
<td>Mr. Muhidin M.</td>
<td>Dr. Jemal A. (chairperson) Mr. Mathewos H. (Rapporteur)</td>
<td>B2-24</td>
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<td>12:30-2:00</td>
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<td>2:00-3:00</td>
<td>Preparation for general discussion</td>
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<td>Business discussion with External Stake holders with the Dean, Vice dean, Coordinator for Research and PGs and interested staff</td>
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<td>Ranking Best Oral Presenter of the parallel session</td>
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<td>3:00 - 3:30</td>
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<td>3:30-6:00</td>
<td>Presentation of Important Issues raised in Parallel Sessions and General Discussion</td>
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<td>Conference Evaluation</td>
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<td>Certificate award for best oral presenter</td>
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<td>Dinner</td>
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<td>Certificate Award for Paper Presenters</td>
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## Parallel Session 7

**Organized by Jimma Institute of Technology, Jimma University**

### Day 1: March 31, 2016

<table>
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<th>Time</th>
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<th>Chairperson and Rapporteurs</th>
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<tbody>
<tr>
<td>3:30-3:50</td>
<td>Coat and benefit analysis of rigid and flexible pavement: A case study at Chancho-Derba-Becho Road project</td>
<td>Mr. Yonas Ketema</td>
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<tr>
<td>3:50-4:10</td>
<td>Deffluoridation of Water Using Natural and Activated Coal</td>
<td>Mr. Merga Regasa</td>
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<tr>
<td>4:10-4:30</td>
<td>Approximate Uniaxial Interaction Diagram for Slender Column Using Second order formula from EBCS 2, 1995</td>
<td>Mr. Kabtamu Getachew</td>
<td>Chair Person: Dr.- Ing. Getachew S.</td>
<td>Main Hall</td>
</tr>
<tr>
<td>4:30-4:50</td>
<td>Effect of cycle time and signal phase on average time delay, congestion and level of service at road intersection in Addis Ababa City: Case study at Hager Astdader Signalized Intersection.</td>
<td>Mr. Tarekegn Kumala</td>
<td>Rapporters: Mr. Yalemsew A. Mr. Dereje T.</td>
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<tr>
<td>4:50-5:50</td>
<td>Influence of Subsurface course materials on pavement performance: A case study of Yebu-Agaro road</td>
<td>Mr. Anteneh Geremew</td>
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### Day 2: April 1, 2016

<table>
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<th>Chairperson and Rapporteurs</th>
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<tbody>
<tr>
<td>8:30-8:50</td>
<td>Transmission line loss minimization and regulation of system voltage using UPFC (FACTS devices):- case study of south western region of Ethiopia</td>
<td>Mr. Alebachew Tenna</td>
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<tr>
<td>8:50-9:10</td>
<td>OCTA-CELL HSPA+ ENABLED UMTS RADIO ACCESS NETWORK PLANNING</td>
<td>Mr. Solomon Gebru</td>
<td>Chair Person: Dr.-Ing. Tamene A.</td>
<td>Main Hall</td>
</tr>
<tr>
<td>9:10-9:30</td>
<td>Fetal ECG Decision support system: For maternal and fetal health</td>
<td>Mr. Gizeaddis Lamsgin</td>
<td>Rapporters: Mr. Mamuye B. Mr. Taye Tolu</td>
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</tr>
<tr>
<td>9:30-9:50</td>
<td>DESIGN AND MODELING OF HYBRID PV-MICRO HYDROPOWER GENERATION: A CASE STUDY ON Jimma ZONE, KERSA WOREDA</td>
<td>Mr. Getnet Zewude</td>
<td></td>
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<tr>
<td>9:50-10:10</td>
<td>Design and Implementation of Fingerprint based Employee Attendance and Payroll System for Jimma University</td>
<td>Mr. Fetulhak Abdurahman</td>
<td></td>
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<tr>
<td>10:10-10:30</td>
<td>Health Break</td>
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<tr>
<td>10:30-10:50</td>
<td>Modeling and Simulation of Natural Convection Heat Transfer using OpenFOAM</td>
<td>Dr.-Ing. Getachew S.</td>
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</tr>
<tr>
<td>10:50-11:10</td>
<td>Up to Date Inventory System for Effective Management of Healthcare Technology in Jimma University specialized Hospital</td>
<td>Mr. Hundessa D.</td>
<td>Chair Person: Dr.-Ing. Fekadu F.</td>
<td>Main Hall</td>
</tr>
<tr>
<td>11:10-11:30</td>
<td>Extraction of Pectin Methyl Esterase from Sweet Lime Peel</td>
<td>Mr. Ananda Boopathy</td>
<td>Rapporters: Mr. Tefera M. Mr. Getachew K.</td>
<td></td>
</tr>
<tr>
<td>11:30-11:50</td>
<td>Plastic Waste Recycling</td>
<td>Mr. V. Ganesh</td>
<td></td>
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<tr>
<td>Time</td>
<td>Event</td>
<td>Location</td>
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<tr>
<td>11:50 - 12:10</td>
<td>Thermally induced post-buckling and nonlinear free vibration response of laminated composite plates with uncertain system properties</td>
<td>Dr. Rajesh Kumar</td>
<td></td>
<td></td>
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<tr>
<td>12:30-2:00</td>
<td>Lunch Break</td>
<td>Staff lounge</td>
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<tr>
<td>2:00-3:00</td>
<td>Preparation for general discussion</td>
<td>Team</td>
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<tr>
<td></td>
<td>Business discussion with External Stakeholders with the Dean, Vice dean, Coordinator for Research and PGs and interested staff</td>
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<td></td>
<td>Ranking Best Oral Presenter of the parallel session</td>
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<tr>
<td>3:00 - 3:30</td>
<td>Health Break</td>
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<tr>
<td>3:30-6:00</td>
<td>Presentation of Important Issues raised in Parallel Sessions and General Discussion</td>
<td>Main Hall</td>
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<td></td>
<td>Conference Evaluation</td>
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<td></td>
<td>Certificate award for best oral presenter</td>
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<tr>
<td>6:30 to 8:00</td>
<td>Dinner</td>
<td>Staff lounge</td>
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<td></td>
<td>Certificate Award for Paper Presenters</td>
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</tbody>
</table>
Parallel Session 8
Organized by College of Law and Governance

Day 1: March 31, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Activities/title of the papers</th>
<th>Presenter</th>
<th>Chairperson and Rapporteurs</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:30 – 4:20</td>
<td>Mortgage and its Validity Requirements: A Case Based Analysis of the Requirements of “Authentication” and “Witnesses”</td>
<td>Sintayehu Demek</td>
<td>Kibrom Mekonnen (Chairperson)</td>
<td>B2-25</td>
</tr>
<tr>
<td>4:20 – 4:45</td>
<td>Discussion on the Presentation</td>
<td></td>
<td>Kassaye Muluneh (Rapp)</td>
<td></td>
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<tr>
<td>4:45 – 4:50</td>
<td></td>
<td></td>
<td>Bizuayehu Daba (Rapp)</td>
<td></td>
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<tr>
<td>4:50 – 5:50</td>
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</table>

Day 2: April 1, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Activities/title of the papers</th>
<th>Presenter</th>
<th>Chairperson and Rapporteurs</th>
<th>Venue</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Obsinan Girmaye (Rapp)</td>
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<td>Abbay Addis (Rapp)</td>
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<tr>
<td>9:30 – 9:55</td>
<td>Discussion on the Presentation</td>
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<tr>
<td>10:10-10:30</td>
<td>Health Break</td>
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<td></td>
<td>Rahel Assefa (Rapp)</td>
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<td>Yohannes Eshetu (Rapp)</td>
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</tr>
<tr>
<td>11:20-11:45</td>
<td>Discussion on the Presentation</td>
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</table>

12:30-2:00     | Lunch Break                                                                                 |                    |                             | Staff lounge |
2:00-3:00      | Preparation for general discussion                                                          |                    |                             | B2-25 |
|               | Business discussion with External Stake holders with the Dean, Vice dean, Coordinator for Research and PGs and interested staff |                    | Ranking Best Oral Presenter of the parallel session |       |
| 3:00 - 3:30   | Health Break                                                                                |                    |                             |       |
| 3:30-6:00     | Presentation of Important Issues raised in Parallel Sessions and General Discussion         |                    | Conference Evaluation       | Main Hall |
|               | Conference Evaluation                                                                       |                    | Certificate award for best oral presenter |       |
| 6:30 to 8:00  | Dinner                                                                                      |                    | Certificate Award for Paper Presenters | Staff lounge |
General Discussion and Closing Sessions

April 1, 2016

Presentation of Outstanding Issues from the parallel sessions and General discussion

<table>
<thead>
<tr>
<th>Time</th>
<th>Activities</th>
<th>Presenter</th>
<th>Chairperson and Rapporteurs</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:30-15:40</td>
<td>Parallel Session 1 (JUCAVM)</td>
<td>Coordinator</td>
<td>Dr. Taye Tolemariam and Dr. Berhanu Belay</td>
<td>JUCAVM main Hall</td>
</tr>
<tr>
<td>15:40-15:50</td>
<td>Parallel Session 2 (CHS)</td>
<td>Coordinator</td>
<td>Rapporteurs: Dr. Gemeda Abebe</td>
<td></td>
</tr>
<tr>
<td>15:50-16:00</td>
<td>Parallel Session 3 (CNS)</td>
<td>Coordinator</td>
<td>Dr. Jemal Abafita</td>
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</tr>
<tr>
<td>16:00-16:10</td>
<td>Parallel Session 4 (CSSH)</td>
<td>Coordinator</td>
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<tr>
<td>16:10-16:20</td>
<td>Parallel Session 5 (CEBS)</td>
<td>Coordinator</td>
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<tr>
<td>16:20-16:30</td>
<td>Parallel Session 6 (BECO)</td>
<td>Coordinator</td>
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<tr>
<td>16:30-16:40</td>
<td>Parallel Session 7 (JIT)</td>
<td>Coordinator</td>
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<tr>
<td>16:40-16:50</td>
<td>Parallel Session 8 (CLG)</td>
<td>Coordinator</td>
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<tr>
<td>16:50-18:00</td>
<td>General Discussion on outstanding issues and wrap up</td>
<td>Highlight by Dr. Berhanu Belay</td>
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</tr>
<tr>
<td>18:00-18:15</td>
<td>Closing Speech</td>
<td>Mr. Kora Tushune</td>
<td>Facilitated by Mrs. Cherer Aklilu</td>
<td></td>
</tr>
<tr>
<td>18:30-20:00</td>
<td>Conference Dinner and Certificate Award Ceremony</td>
<td>Facilitated by Mrs. Cherer Aklilu</td>
<td>Alumni Garden</td>
<td></td>
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</table>
### Annual Research Conferences Organized by Jimma University

<table>
<thead>
<tr>
<th>Annual Research Conference</th>
<th>Theme</th>
<th>Dates</th>
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<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Fostering the Synergy between Research and Teaching: A Key for Meeting the Relevance of Higher Education</td>
<td>April 8-9, 2010</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Enhancing a Multidisciplinary Research: A Key to Invigorate Need Based and Demand Driven Research”</td>
<td>February 17-8, 2011</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>The Role of Research and Extension in the Implementation of Growth and Transformation Plan (GTP) of Ethiopia</td>
<td>January 26-27, 2012</td>
</tr>
<tr>
<td>4&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Meeting National Development Challenges through Science, Technology and Innovations</td>
<td>February 7-8, 2013</td>
</tr>
<tr>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Leveraging Sustainable Development through Building a Green Economy in Ethiopia: Challenges and Opportunities</td>
<td>February 6-7, 2014</td>
</tr>
<tr>
<td>6&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Research and Technology Transfer in Ethiopia: Current Priorities and Implementation Strategies</td>
<td>February 5-6, 2015</td>
</tr>
<tr>
<td>7&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Gender Equality in Development and Nation Building: Opportunities and Constraints</td>
<td>March 31-April 1, 2016</td>
</tr>
</tbody>
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