



# OSSREA BULLETIN

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ORGANISATION FOR SOCIAL SCIENCE RESEARCH IN EASTERN AND SOUTHERN AFRICA

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## NEWS

### The 2009 Senior Scholars Research Grant Award

The 2009 Senior Scholars Research Grant was awarded to two successful applicants in July 2009. A total of 11 applications were received and after initial screening nine applications were reviewed by the jury. The jury convened on 13 July 2009 to finalise the selection. Accordingly, two candidates were selected and three more identified as reserves.



**Jury Members of the Senior Scholars 2009 Award**

#### Winners of the 2009 Senior Scholars Research Grant

| Name                       | Country  | Gender | Research Topic   |
|----------------------------|----------|--------|--|
| Violet Kadenyeka Mugalavai | Kenyan   | Female | <i>Using a Small-scale Cluster Model for Sustainable Urban Agriculture and Development among Interactive Livelihood Groups</i> |
| Abeje Berhanu Kassegne     | Ethiopia | Male   | <i>Rural to Urban Migration in the Context of Rural Livelihood Diversification: A Case Study of Bahir Dar Town</i>             |

## Profile of Applicants for the Senior Scholars Research Grant Programme 2009

| Country  | Gender  |      |       | Designation  |             |                 |          |      |       |
|----------|---------|------|-------|--------------|-------------|-----------------|----------|------|-------|
|          | FE-MALE | Male | Total | Assoc. Prof. | Asst. Prof. | Senior Lecturer | Lecturer | N/S* | Total |
| Ethiopia | -       | 4    | 4     | 3            | 1           | -               | -        | -    | 4     |
| Kenya    | 2       | 1    | 3     | -            | -           | 1               | 2        | -    | 3     |
| Sudan    | -       | 1    | 1     | 1            | -           | -               | -        | -    | 1     |
| Uganda   | -       | 1    | 1     | -            | -           | -               | -        | 1    | 1     |
| Total    | 2       | 7    | 9     | 4            | 1           | 1               | 2        | 1    | 9     |

\*N/S Not specified

## Training in Gender Mainstreaming

The first chapter level training programmes in gender mainstreaming were organised in Rwanda and in Tanzania in the months of June and July respectively. Both trainings lasted for 10 days, and involved lectures and practical exercises. At the end of the programme, participants developed action plans for mainstreaming gender in their respective organisations.

The training in Rwanda was held at the National University of Rwanda in Butare from 18 -28 June 2009. The participants were mostly from the National University of Rwanda in Butare but few also came from Kigali. A total of 25 participants attended the training.



**Training in Gender Mainstreaming in Dar-es-Salam, Tanzania, 2009**

## OSSREA Regional Research Methodology Training Conducted

The OSSREA Regional Research Methodology Training was conducted from 20–31 July 2009 in Dar es Salaam, Tanzania.

The training was officially opened by the then OSSREA Deputy Executive Director, Dr. Akim Mturi, who urged the trainees to exploit the opportunity provided by the programme so as to enable them to contribute to knowledge building and bring about workable solutions to the problems affecting the peoples of the region. Dr. Mturi also encouraged the participants to take advantage of OSSREA facilities, the platform, and other additional opportunities, namely the research grants and conferences, to enhance their academic and social action roles for the region and for mankind.

The trainees were 21 young scholars (10 female and 11 male) from six countries in the eastern and southern Africa region namely : Tanzania, Kenya, Ethiopia, Zimbabwe, Uganda, and South Africa. The 2009 Young Scholars Grant winners were among the trainees.

The five trainers were senior scholars and experi-

enced in social sciences and gender research methodologies, four of which were from the University of Dar es Salaam, and one from Mkwawa University, Tanzania. OSSREA Research Coordinator assisted the trainees.

The training was started with a comprehensive background on the evolution and devel-



**Regional Research Methodology Training in Dar-es-Selam, Tanzania, 2009**

opments in Social Science Research Methodology, followed by presentations on “Schools of Thought” that inform the research process and accompanying emerging “thinking frontiers” that have a bearing in Social Sciences and Social Science Research Methodology in the present times. Methods of the training involved series of presentations and discussions, simulations and in-class and home-take exercises on the two major areas in Social Science Research Methodology: qualitative and quantitative research methodologies.

Materials were provided for the trainees.

At the end of the training, the 2009 Young Scholars Grant winners agreed to revise their proposal according to juries' and trainers' comments and the inputs they got from the training and then to resubmit the proposals to OSSREA.

In the evaluation of the training, participants came out with a shared voice that the programme provided them a rich experience which would enhance their research endeavours. Concerning the course content, 58 per cent of the trainees rated it a rank of five out of five; 32 per cent rated it four out of five; five per cent rated it three out of five; and another five per cent rated it one out of five, in a rating in which the highest relevance was denoted by five and the lowest by one. The OSSREA Executive Director, Prof. Paschal Mihyo, handed certificates to the trainees and officially closed the training.

## **Swaziland Chapter of OSSREA organised Research Methodology Training**

The Swaziland Chapter of the Organization for Social Sciences Research in Eastern and Southern Africa (OSSREA) organized Social Science Research Methodology training to social science researchers and educators.

The training was conducted at the S & B Restaurant & Conference Centre, 10–18<sup>th</sup> June 2009.

At the start of the training, the Swaziland Chapter's Liaison Officer Dr Joyce Vilakati welcomed the trainees. On closing, the guest of honour Honourable Minister of Finance, Mr M. Sithole appreciated the effort and encouraged the trainees to make use of what they learnt from the training to design and conduct problem-solving quality researches in social sciences, and finally handed over certificates to trainees.

Dr. Akim Mturi, Deputy Executive Director of OSSREA attended the closing session of the training on and also discussed with the Chapter's Executive Committee, about the Chapter's financial statement and on general matters of the Chapter, including information sharing of activities at the Secretariat.

## Zimbabwe Chapter of OSSREA Organized Training in Social Science Research Methodology

Zimbabwe Chapter of OSSREA organized a training in Social Science Research Methodology from 02–12 June 2009 at Oasis Hotel, Harare.

The lead trainer noted that the objectives of the training were to:

1. expose participants to background knowledge on Social Science Research (SSR);
2. equip participants with knowledge and skills of conducting qualitative and quantitative research;
3. equip participants with methods of collecting and analyzing qualitative and quantitative data;
4. expose participants to ethical issues in conducting SSR;
5. equip participants with skills of using information technology in conducting SSR;
6. familiarize participants with gender issues in SSR;
7. equip participants with the how of writing a research proposal; and
8. to equip participants with basic skills on report writing.

The trainees were 29 young scholars, two of whom have a PhD, one an MA, and the rest Bachelor degrees in different social science fields. Trainers constituted three senior person-

nel in social sciences research methodology, one of them from Southern Africa Research and Capacity Development Centre (SARCC), and two of them and an IT specialist from the University of Zimbabwe.

According to the Lead Trainer, Dr Patrick W. Mamimine of SARCC, the training covered a variety of themes, namely background to social science research (SSR), ethical issues, conducting qualitative research, ethical issues in SSR, information technology in SSR, gender issues in SSR, and conducting quantitative research. Also the topics Writing a Research Proposal and Report Writing were briefly touched upon.

The trainees indicated that they benefited a lot from the training. They also recommended the following to be considered in future.

- 1) How to use SPSS and other statistical packages in order to ensure that trainees have an adequate practical exposure to the use of the packages.
- 2) Training on writing of a research proposal and research reports with practical exercise.
- 3) Regular training in SSR for skill development among upcoming scholars.
- 4) Funds permitting such workshops should be held outside Harare to improve on attendance and punctuality.
- 5) More time should be provided for the design of qualitative research instruments, using them for data collection and analyzing that data for report writing.
- 6) Adequate computers for all trainees to ensure hands-on experience in using quantitative methods by each and every trainee.
- 7) Portion on use of Geographical Information

Systems (GIS) for research.

## OSSREA Appoints Two Specialists



OSSREA appointed two specialists in two areas. The first one is Dr Paulos Chanie, who has joined OSSREA as a Programme Specialist in Migration and Employment as of the 1st of July, 2009. Dr. Paulos has a PhD. and Master of Arts in Development Studies from Institute of Social Studies (ISS) (The Hague, Netherlands) and a Bachelor of Arts in Management and Public Administration from Addis Ababa University (Ethiopia). Before joining OSSREA, Dr. Paulos was an Assistant Professor of Public Administration at Addis Ababa University and has served as Head of the Management and Public Administration Department at the university, as Governance Project Coordinator at Forum for Social Studies (FSS) and Quality Improvement Coordinator for the PC3Program at Save the Children – USA, among others. Dr. Paulos has published scores of articles on various political and public administrative issue, including public sector reform, decentralization, clientelism, good governance, ethnicity and migration.

Dr. Adolphe Lawson has joined the OSSREA Secretariat as Programme Specialist: Conflicts and Natural Resources Management, since 1st July, 2009. Dr.



Lawson is Associate Professor and holder of a PhD in Political Science from Uppsala University, Sweden, since 1988.

Before joining OSSREA, Dr. Lawson worked as a Researcher at the United Nations Regional Centre for Peace and Disarmament in Africa, located in Lome, Togo (1989-1994, 1996-1997), as a Lecturer in Political Science at The University of Zambia (1994-1994), and as a Senior lecturer in Political Science at Sodertorn University in Stockholm (Sweden) from 1999 to 2009. During his stay at Sodertorn University, he served in several positions including as Director for English-speaking courses, Coordinator for Courses in International Relations, as well as Member of the Faculty Board for Education Science and Teachers' Training. He was the Head of the Department of Political Science at Sodertorn University from January 2007 to July 2009. Dr. Lawson has published extensively on globalization and urban governance, and political and civic participation in distressed urban areas.

The OSSREA team welcomes them both aboard.



## OSSREA Develops Two More Web sites

With the aim of improving networking and online accessibility of OSSREA, two additional web sites have been developed and the existing one ([www.ossrea.net](http://www.ossrea.net)) upgraded by the ICT Unit of OSSREA. The new web sites are: i) *publications.ossrea.net*, and ii) *members.ossrea.net*.

The main OSSREA web site, i.e. [www.ossrea.net](http://www.ossrea.net), serves as the gateway to the Organisation, and contains all relevant information about OSSREA and the head office, such as activities, projects, news, announcements, and contacts, and links to its sister web sites enabling automatic access to them and contents from other institutions' web sites. In other words, once visitors are registered in this site they will be able to login to the other web sites to access materials, such as executive summaries, abstracts, table of contents and other relevant information contained in these web sites. This web site also facilitates for visitors to register online to receive electronic copies of OSSREA's periodic publications, such as its tri annual bulletin, and its bi annual journal, the *Eastern Africa Social Science Research Review* (EASSRR)

The new publications web site *publications.ossrea.net*, which is a sub-web site of the OSSREA main site, is dedicated to posting of the OSSREA publications and other useful information regarding publications. It also facilitates

easy online publishing and navigation of content; displays OSSREA's publications in an organised manner and by category (books, journal, bulletin, series publications, national workshop reports, abstracts, bibliographies, official publications, etc.); allows visitors to easily search publications using different indexing categories, such as by author, title, year and/or category of publication. Currently, the web site contains executive summaries and/or abstracts of 27 books published by OSSREA and its associates, abstracts of 189 social science publications, and abstracts of 177 publications from the Young Scholars Research Grant Award (social science and gender) programmes.

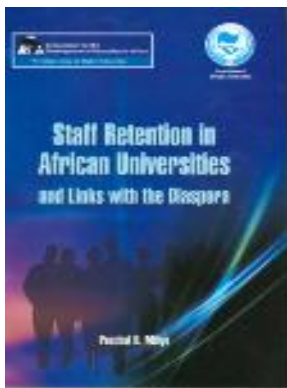
The other new web site, *members.ossrea.net*, is the OSSREA members' web site and also a sub site of the main OSSREA web site. This site is dedicated to holding contents for OSSREA's institutional and individual members, and enables OSSREA's individual and institutional members to register online and record their profile. As such, it posts profiles of OSSREA's individual and institutional members, and facilitates for easy search for members using categories, such as title, sex, country, and education. The OSSREA members' web site is expected to serve as an online directory of social scientists in the region, and currently contains 271 members of OSSREA.

The new web sites are developed making use of the most popular, free and open source content management system called *Joomla*, which ensures not only a smooth way of networking and sharing of information among different web sites

but also enables forging a more closer relationship among registered visitors of the OSSREA web site.

## Two New Books by OSSREA EC Members

Two books, one authored and the other edited by members of the current OSSREA Executive Committee, have come out of press this month. Results of extensive and in-depth research, both books revolve around African higher learning institutions



and African intelligentsia, but deal with different aspects.

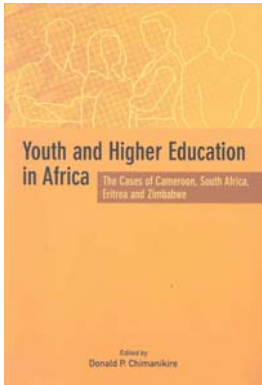
ISBN: 987-99-8858-942-5

Publisher: Association of African Universities

P. O. Box AN5744, Accra-North, Ghana

The first one, *Staff Retention in African Universities and Links with the Diaspora*, was written by Prof. Paschal B. Miho, who is the incumbent Executive Director of OSSREA. This study, commissioned by ADEA's Working Group on Higher Education (WGHE), is a follow up to the 2004 Innovations Study on higher education innovations in Africa which, with specific reference to universities, aimed at identifying their innovation programmes as they attempt to emerge out of long-term financial and related crises. The findings were presented at the ADEA Biennial Conference held in Maputo in February 2008 whereupon it was agreed to have a follow-up programme.

Divided into ten chapters, *Staff Retention in African Universities and Links with the Diaspora* focuses on issues of capacity erosion and strategies for staff retention in a selected number of universities, and examines the innovative ways in which these universities are trying to limit the damage caused by brain drain and staff losses in contemporary Africa from a number of perspectives. Along with this, it explores the push and pull factors underlying flight of African intellectuals and the actual as well as potential contribution that developing and maintaining links with the African Diaspora can make in terms of mitigating the problems caused by the brain drain. The Association for the Development of Education in Africa (ADEA) is an association engaged in supporting education in Africa in a holistic way. The author can be reached at [miho@ossrea.net](mailto:miho@ossrea.net).



mon interest in youth activism in their respective countries, this volume will no doubt occupy an important place in the under-researched area of comparative study of political movements of African tertiary-level students.

ISBN: 978-2-86978-239-6

Publisher: CODESRIA

P. O. Box 3304, Dakar, 18524, Senegal

The other book, *Youth and Higher Education in Africa: The Cases of Cameroon, South Africa, Eritrea and Zimbabwe*, is edited by Donald P. Chimanikire (PhD), Executive Member of OSSREA and published by CODESRIA. This case study investigates how student activism and perceptions of life prospects have responded to political processes between 1998 and 2003; explores student perception of their life plans, career choices and level activism; unveils interesting patterns in students' perception that vary according to gender, generational and experiential differences of students, and looks into how students negotiate nationalist political repertoires in thinking about their current and future individual and social lives.

Written by veteran social scientists from four countries who are drawn together by their com-

## New Publications

### “Good Governance and Civil Society Participation in Africa”

#### INTRODUCTION

The post - Cold War era ushered in challenges – both new and hitherto ignored- to the world arena, thereby altering the course of trends in the political and socio-economic spheres worldwide. With the advent of globalisation, emergence of a single superpower, growing disparity between rich and poor nations, widespread strife, along with bloody conflicts and general civil unrest, the last decades of the 20<sup>th</sup> century witnessed major shifts in the agendas of the West and introduction of new policies, reforms and initiatives.

#### Defining Good Governance

Over the past decade, the concepts of good governance and civil society participation have been assuming increasing priority in international discourse on politics and development across the world. There

have been constant definitions and re-definitions – by institutions and individuals alike- as to what really constitutes good governance. Although by no means new, the term good governance featured prominently in the parlance of politico-economic discourse in the late 1980s. The World Bank, as the chief engineer of the good governance agenda defines it as *the manner in which power is exercised in the management of a country's economic and social resources for de*

*velopment* (1989, 60). The key components of good governance, according to the Bank, include effectiveness and efficiency in public sector management, accountability and responsiveness of public officials to the citizenry, rule of law and public access to information and transparency (World Bank 1992b, 3; 1994, viii).

Indulging in a lengthy discourse on, or investigating detailed theoretical arguments surrounding the concept of good governance is beyond the immediate scope and purpose of this introduction. It would suffice to adopt a definition, which, more or less, incorporates the basic elements commonly shared by most existing definitions... Narrowly defined, governance means the exercise of political power to manage the affairs of state. In a broader sense, it can refer to the various processes relating to leadership, such as policy making, transparency, accountability, the protection of human rights and the relationship among the public, private and civil sectors in determining how power is exercised (Mutume 2005,11).

In 1989, the World Bank released a report entitled, *Sub-Saharan Africa: From crisis to sustainable growth*. The report identified personalisation of power, prevalence of unaccountable and authoritarian governments, violation of human rights, rampant corruption, absence of the rule of law, state intervention in the economy, and lack of decentralisation as primary causes underlying the crisis in sub-Saharan

Africa. Thus, the Bank stated in no uncertain terms that the road to emancipation of the continent was wholly hinged on getting rid of these ills and mal-practices (World Bank 1989, 7).

When it became evident that Structural Adjustment Programmes (SAPs) were not yielding the anticipated outcome in Africa, emphasis was shifted to political and economic reforms as the economic crisis facing the continent was attributed to the failure of national governance. In simpler terms, the Bank demanded for political pre conditions to support the strengthening of the economic conditionalities already imposed on developing countries by the Bretton Woods Institutions. Hence, according to the World Bank and donor agencies, one of the imperative ingredients of economic growth and development was now viewed as good governance. The reasoning behind this position was that, introducing liberal democratic institutions was not only essential for economic development, but that it will lead to the emergence of a democratic society and the development of good governance. In fact, good governance became a pre-requisite for securing loans from the World Bank, the International Monetary Fund (IMF), bi-lateral and multi-lateral institutions.

In conjunction with this development and “acceptance” of the good governance agendas, various institutions, governmental, non-governmental organisations and development agencies have attempted to come up with yardsticks to measure the progress of democracy and good governance in various recipient countries. The inclusion of and emphasis on good governance as a conditionality for securing aid was not

accepted unanimously, and was met with objections in some countries (Lumina 2004, 329-344). There was a general degree of uncertainty, unwillingness, implicit and explicit objections especially among governments of developing countries. Questions as to the practicality and fairness of the conditionalities were very often raised. As President Thabo Mbeki put it:

Notwithstanding some specific problems in some African countries, there are many among these countries that have and continue to have responded positively, even under very difficult circumstances, to the prescription of both the perspective investors as well as the multilateral institutions. Many of these countries have created the necessary climate conducive to investment, for example by liberalising their trade, privatising state-owned enterprises, reforming their tax system and generally adhering to the prescribed injunctions, all done in an attempt [to receive] the necessary investments. The response from the developed countries, to these attempts by especially many African countries to stay within the confines of the rules, has been to treat the African continent as one country, and therefore, to punish a country on one end of the continent for the deeds of another on the other end (Address by President Thabo Mbeki to the Commonwealth Club, World Affairs Council and United States-South Africa Business Council Conference, San Francisco, 24 May 2000).

Other objections emanated from those who contended that the mere presence of multi-party systems and regular elections, free press and other liberalisation reforms installed in the administrative institutions does not necessarily guarantee the transition to democracy. As Kenneth Good highlights, *patterned democracy in the form of institutional structures – an option which almost every African state has embraced in principle – does not necessarily give rise to participatory politics, nor to good governance* (Good 1997, 2; 1999).

## Civil Society in Africa

The idea of civil society and building stronger, wider participation in governance has been, like good governance, a dominant component of global political and development forums over the last two decades. The current interest on civil society came particularly as a result of the persistent push for growth of the formal sector to achieve a liberal economy. Although the role of civil society was not clearly articulated or emphasised in the initial packages of good governance, it was later endorsed in the re-conceptualised definitions of the concept. The term civil society has various origins, forms and denominations, notwithstanding the various definitions. It is basically understood as:

The realm of organised social life that is voluntary, self generating, self supporting, autonomous from the State, and bound by a legal order or set of shared rules. It is distinct from society in general in that it involves citizens acting collectively in a public sphere to express their interests, passions and ideas, exchange information, achieve mutual goals, make demands on the State and hold State officials accountable (Diamond 1994,5).

Other views take the notion of civil society from a developmental perspective. The United Nations Development Programme (UNDP) for example, advocates that, a *viable, strong and informed civil society is central to good governance... and should be [an] effective partner in the process of development* (UNDP 1997, 11).

The reality on the ground in Africa, however, is that there is a legacy of widespread, weak civil society given the fact that throughout the 1960s and 1970s, most governments in the continent progressively narrowed the economic and politi-

cal space for independent societal action outside the control of the state. However, since the late 1980s, the situation has been slowly changing. While a few governments that restrict the proliferation and vibrancy of civil society organisations are still in existence, political systems that encourage pluralism are now the norm rather than the exception. Alongside this changing scenario, civil society is growing stronger and applying constant pressure for better governance. The last decade alone has seen competitive and democratic elections taking place in an unprecedented number of countries.

Nevertheless, despite significant steps that have been registered so far, the overall picture remains that Africa still needs to go further in promoting good governance and wider civil society participation. The need is particularly felt in countries where the broader policy environment does not favour the development of thriving civil society groups.

## Conclusion

There are challenges and problems in the ongoing efforts aimed at improving governance and economic management in various countries examined in this volume. OSSREA organised the conference on "Promoting Good Governance and Wider Civil Society Participation in Eastern and Southern Africa," within the context of the prevailing conditions of good governance and civil society participation in the region. The justification for OSSREA's interest is its conviction that the contribution will generate debates and facilitate further understanding of the problems under review and hopefully produce workable approaches that will create an environment in which good governance and wider civil society participation will be realised on the continent.

The conference sought to:

- ◆ Enhance the role of the social science disciplines in the evolving patterns and trends of democratic governance and economic management in the region;
- Enhance the contribution of universities and research institutes toward the promotion of good governance in the region;
- Suggest ways and means of minimizing the political, economic and social costs of transition from one-party and authoritarian regime types to democratic, open and transparent governance;
- Explore new approaches for promoting accountability, transparency, and responsiveness of government administration to the people; and
- Explore viable ways and means of capacity building of civil societies, and strengthening the role of civil society organisations in promoting good governance and serving as a link between governments and the public at large.

The 10 chapters in this volume were selected out of 24 papers presented at a regional conference on “Promoting Good Governance and Wider civil Society Participation in Eastern and Southern Africa”. The conference, sponsored by the Ford Foundation, was held in November 2000 in Addis Ababa, Ethiopia. The selected papers were revised in 2005 to take into account contemporary issues that have arisen since then. The chapters in this volume investigate the conditions of governance and civil society participation, challenges encountered in the respective countries, and recommend alternatives.

## Zimbabwe: Survival of a Nation

John Mw Makumbe

### Executive Summary

The current crisis in Zimbabwe effectively commenced in the year 2000, when President Robert Mugabe and his political party, the Zimbabwe African National Union – Patriotic Front (ZanuPF), unleashed an unplanned but violent land reform process targeted at white commercial farmers. The formation of a credible and highly popular opposition political party, the Movement for Democratic Change (MDC), in 1999, and the popular rejection of a government-sponsored draft constitution in February 2000 had alerted the ruling ZanuPF party to the possibility of losing political power at the polls that had been scheduled for June 2000. The violent farm invasions had resulted in the deaths of more than 200 people, most of them suspected to be supporters of the MDC. At least ten white commercial farmers lost their lives as a result of the farm invasions and the general mayhem that was clearly state-sponsored.

The ruling party allegedly rigged the 2000 parliamentary elections, and this resulted in ZanuPF winning only 62 of the contested 120 seats, and the MDC and another small party winning the remaining 58 seats. Political violence continued through to the holding of the 2002 presidential elections, which were also alleged to have been stolen in Mugabe’s favour. This development ensured that Mugabe, generally believed to have long outstayed his welcome, would hold onto political office for a further six years, until 2008. In one of its chapters, this study examines this

unhealthy phenomenon of Mugabe's delayed departure from the national executive position and identifies the following as some of the reasons for his extended tenure as president of Zimbabwe:

- ◆ A sense of failure on Mugabe's part. He feels that he has not been able to lead the nation in such a way that it could be regarded as one of Africa's most advanced or developed countries;
- ◆ A recognition that some of the promises and aspirations of the liberation era had, by 2000, not been fulfilled, especially the land issue;
- ◆ Reluctance on his part, to accept that there could be Zimbabweans with the capacity and capability to govern Zimbabwe better than himself – a sort of over-sized ego that refuses to place any trust or confidence in anyone else but himself; and
- ◆ Lack of an attractive exit package with effective guarantees for his personal security after departing from state house. This is a real fear of possible prosecution for his past sins and current acts of what amount to "crimes against humanity".

When Zimbabwe attained national independence in 1980, it was "given" a constitution that had been drawn up by the British government at Lancaster House in London. This Lancaster House document has since been amended some seventeen times by the Mugabe government. Although some of the amendments were clearly necessary and aimed at redressing some of the colonial injustices, others were deliberately designed in order to ensure that the ruling ZanuPF party entrenched itself in power for the foreseeable future. This study identifies a selection of key indicators for a democratic constitution and approaches a sample of informants and respondents in order to gather their views in relation to the Constitution of Zimbabwe.

The following are some of the key findings of the study with regard to the Constitution of Zimbabwe:

- ◆ The Constitution of Zimbabwe does not adequately protect human rights and it does not provide minority groups with effective protection;
- a) Although elections are held frequently, they are neither free nor fair. There are just too many irregularities that seem to be associated with these elections;
- b) There is, indeed, universal adult suffrage as everyone who has attained the age of eighteen can vote;
- c) Treatment of opposition political parties under the law leaves a lot to be desired under the current Zimbabwe Constitution;
- d) There is severe curtailment of freedom of speech and the existence of alternative media;
- e) Cases of state-sponsored violence are not treated equally under the law, and this essentially creates a very uneven political playing field.

The majority of the respondents were also of the view that there was an urgent need for constitutional reforms in Zimbabwe, and that Zimbabweans should write their own constitution. As this study amply demonstrates, the incumbent political party seems to prefer to amend the existing constitution piece by piece, and in many instances, this has resulted in the erosion of civil liberties.

Perhaps the most contentious issue that the people of Zimbabwe have ever had to confront is the land question. This study makes a detailed discussion of the various political considerations that have had to be accommodated in resolving this colonial anachronism. It is obvious from the discussion that the colonial land tenure system was racially determined and grossly unfair to the majority of the people of Zimbabwe. Various pieces of legislation had to be promulgated by the Mugabe government in order to bring about a land reform system that favoured the majority black Zimbabweans. The problem that seems to have arisen was one of the methodologies of correcting a colonial wrong. The violent commercial farm invasions that were initiated and



strongly supported by the ZanuPF government effectively resulted in the collapse of the agricultural sector. Because Zimbabwe is essentially an agro-based economy, the result of the agricultural collapse was, *inter alia*, that most of the other sectors of the economy also took a tumble, resulting, in turn, in the creation of the world's fastest declining national economy.

The near total collapse of the national economy is manifest in the following aspects that are continuing to worsen even as this study is being prepared:

- i) A chronic shortage of foreign exchange;
- ii) A 50% reduction in agricultural productivity;
- iii) An approximately 45% decline in the manufacturing sector;
- iv) Unemployment levels in excess of 80%;
- v) The world's highest rate of inflation that has gone as high as 1 593.6% in January 2007;
- vi) An estimated food deficit of 30% for the three years since 2001; and
- vii) Poverty levels exceeding 85% and rising.

Naturally, this has resulted in the collapse of the social sector, with the health sector being the hardest hit, in a nation that is facing a devastating HIV/AIDS pandemic. Shortages of medicinal drugs, doctors, nurses, and operational equipment are among some of the causes of serious problems in the health sector. The education sector is equally damaged by the current Zimbabwe crisis. An estimated three to five million Zimbabweans now live in the Diaspora, having left their own country for greener pastures. This brain drain is now adversely affecting virtually all sectors of the economy. The education sector, however, is experiencing even more severe

shortages of trained teachers, professional academics, and researchers, to name a few.

National survival for Zimbabwe is unlikely to come from the efforts of the Mugabe regime, which has largely become an oppressive and repressive vampire state. Neither is the solution likely to emanate from the feeble efforts of regional leaders in the Southern African Development Community (SADC). The African Union (AU) is very unlikely to demonstrate a willingness to tackle the Mugabe regime for all its acts of bad governance, human rights violations, and dictatorial leanings. This study argues that the solutions for the current Zimbabwe crisis lie squarely in the hands of Zimbabweans themselves. It is absolutely imperative that opposition political parties, civic groups, and churches provide the leadership that is required to mobilise the people of Zimbabwe against the Mugabe regime, if the nation is to survive.

It is obvious that the Mugabe regime will fight tooth and nail to stay in power, but the power of the people is bound to prevail in the end. It is commendable that the MDC, the largest opposition political party in Zimbabwe, has insisted on a non-violent approach to unseating Mugabe and his party from power. Most Zimbabweans are aware that violence is the trademark of Mugabe's ZanuPF. Indeed, Mugabe has himself stated that he has "degrees in violence", and experience since 2000 has borne out his penchant for violence. The survival of Zimbabwe as a nation will have to be sought at the political front and in a non-violent manner.

## Linguistic Human Rights and Language Policy in the Kenyan Education System

Kembo Sure  
and  
Nathan O. Ogechi

### Executive Summary

The research was aimed at identifying the linguistic and pedagogical challenges experienced by teachers and pupils in the Kenya primary schools where English is used as the medium of instruction from Standard Four. Specifically it was an analysis of classroom discourse in mathematics and science lessons conducted in English and to determine the extent to which language of instruction supports or hinders participation in these verbal exchanges. Language attitudes were also tested to elucidate whether Kenyans support the introduction of English as the medium of teaching their children in primary school and thereby establishing the acceptability of the language policy. The observation and recording of class lessons covered 26 Standard Four English, Science and Mathematics lessons and 8 Standard Eight Science and Mathematics classes.

The main instruments of data collection were the questionnaire for the language attitude test and an audiotape recorder for classroom discourse. The attitude data were analyzed using the Statistical Package for Social Science (SPSS) computer software which provides appropriate statistical analysis in social science research. The classroom discourse data were analyzed on a case by case basis, with each classroom exchange being regarded as a text, which was our unit of analysis. The focus of analysis was on:

*turn-taking patterns, question types, tone of teacher speech, appropriateness of expressions and words in science and mathematics discourse, and level of pupils' linguistic preparedness generally.*

The assumptions of the study were:

1. That introduction of English in the fourth year in Kenyan primary schools is premature, hinders effective acquisition of the requisite knowledge and skills and therefore constitutes a violation of the learner's right of access to quality education; and
2. That the communication problems experienced in classroom discourse were primarily of a linguistic nature and that without implementing an appropriate language-in-education policy, no quality learning can be expected.

The findings of the study point to the ineffective classroom communication, which leaves the teacher as the dominant participant in classroom exchanges and pupils providing minimal verbal contribution and hence gaining very little from these lessons. Specifically, we found that:

- a. Teachers initiated all the classroom talk and pupils only responded to questions asked by the teacher. Thus, pupils were largely passive recipients. Rote learning was encouraged in all the lessons observed.
- b. The teacher questions were predominantly the recall type, requiring one-word answers and the answers were mostly choral. Pupils hardly asked questions. There was no initiative on the part of or opportunity for, the pupils to take charge of their learning or learn from each other. The teacher was the source of knowledge.
- c. Children, even where they had a chance, were unable to express themselves effectively in English even in Standard Eight classes. In a few cases (and they were very few in two urban schools) where pupils showed active participation were evidence that language proficiency is largely to blame for non-participation by pupils.
- d. Teachers had difficulty explaining scien-

tific and mathematical concepts simply and clearly because they lacked the appropriate lexical resources to facilitate this. This often led to code-switching to Kiswahili and other local languages, but with very little remedial/developmental consequences. In many cases even code-switching was inappropriately applied and led to even more confusion.

- e. Generally, the tone of teacher language directed to pupils disregarded the rules of politeness and contextual appropriateness. Many times they sounded rude or outright insulting to the pupils and this caused intimidation and frustration, especially in the Standard Eight classes where pupils are in their teenage stage with all its emotional and cognitive implications.
- f. Apart from the inappropriate choice of words and expressions for classroom talk, the teachers' conversational style remained generally invariable throughout the lesson, making the lesson monotonous and discouraging pupils' involvement.
- g. The tone, style and difficulty level of teachers' language did not vary from Standard Four to Standard Eight. It was as if the pupils possessed the same level of experience and cognitive abilities, so that there was no need for adjustment of content and style of speech as naturally occurs in adult speech and speech directed at children by native speakers.
- h. The content of Standard Four English lessons was far behind the linguistic demands of the mathematics and science lessons, and therefore, did not support the (current) policy of English as the teaching medium. While the English lessons focused on basic vocabulary and simple sentences, the mathematics and science lessons were dealing with highly abstract vocabulary, involving causation and logical relationships, which the children ought to have mastered in their mother tongue before being moved to the English medium.
- i. The general attitude towards English is positive and the replacement of English

by the Kenyan languages would be resisted by the parents. The Kenyan public does not see anything wrong with the present policy and it is therefore up to the government and scholars in education and linguistics to highlight the dangers inherent in the policy and to persuade teachers, parents and pupils that there is a better way of doing things.

Our conclusion is that it is undemocratic and a violation of children's fundamental rights to introduce English as the medium of instruction in the fourth year of primary education since that excludes them from classroom participation and denies them access to quality education. With numerous examples of successful bilingual education programmes in the world today, some of which are cited in this work, the government must act quickly to remedy the situation by introducing English only after at least five years of primary education through mother tongue. This can be done without compromising the effective acquisition of English in later years during secondary and tertiary education.

## POLICY BRIEF

# Democracy, Law and Privatization in sub-Saharan Africa

Migai Akech\*

Privatization may be defined as the transfer of ownership or control of public assets and/or functions from public to private entities. Privatization can be effected through different methods, including divestiture, commercialization or corporatization, commodification, contracting out and public private partnerships. This policy brief examines the challenges of privatization in Sub-Saharan Africa (SSA) from the viewpoint of law and democracy. It contends that privatization processes in SSA have been characterized by a democracy deficit, as a result of which they have not been responsive to the needs of the citizens of SSA countries. It calls for the reform of the governance of privatization if the needs and concerns of the citizenry are to be met. In particular, it sees administrative law reform as offering the means for ensuring that privatization processes are participatory and accountable to the citizens of SSA countries

### Privatization in Africa

In SSA countries, privatization has been part of a package of structural adjustment reforms mandated by the World Bank and the International Monetary Fund (IMF) since the early 1980s. Many SSA countries turned to the World Bank and the IMF

for financial assistance in the late 1970s in an attempt to address the abysmal performance of the economies. These Bretton Woods institutions agreed to assist but only on condition that the governments of the SSA countries would, among other things, significantly reduce their role in the economy by implementing market reforms, including market liberalization and privatization of public enterprises. These institutions were of the view that public enterprises in SSA countries were wasteful and inefficient and were a burden to their economies.

While the Bretton Woods institutions continue to be enthusiastic about the benefits of privatization, many critics are concerned that it has been, and continues to be, applied without proper regard to the prevailing political, social and economic conditions in the recipient countries. Critics raise various objections. For example, they contend that privatization leads to layoffs and worsening labor conditions. Further, they argue that even where privatization enhances enterprise efficiency, the bulk of its benefits accrue to a privileged few, such as the owners of capital and the political elite, while its costs are borne by the majority such as consumers and workers, whose welfare thereby worsens. These criticisms have led to a widespread acknowledgement that privatization may have been oversold, especially in countries with weak institutional capacity. In the case of SSA countries, critics point out that privatization policies have neither sufficiently accounted for nor appreciated the limitations of the market and the need for economic regulation.

Francis Fukuyama thus observes that “while privatization involves a reduction in the scope of state functions, it requires functioning markets and a high degree of state capacity to implement.

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But what really explains weak institutional capacity in SSA countries? If privatization is to ever live up to its vaunted promise then the daunting question of institution building must be addressed. A unique feature of privatization processes in SSA countries is that they have tended to bring together three factors, namely neo-patrimonialism, development assistance and neo-liberalism. These factors undermine the institutional capacity of the State. Neo-patrimonialism refers to the construction and maintenance of personal and reciprocal relationships between political leaders and their followers within the institutions of the State. Neo-patrimonialism entails the usurpation of public resources by political elites which they then use to dispense political patronage, to enable them to stay in power. On the other hand, neo-liberalism is a political ideology that champions the market as the most efficient mechanism for allocating resources in society. It thus abhors government intervention in the economy. In the case of SSA countries, international financial institutions (IFIs) have typically insisted on the implementation of neo-liberal reforms as a precondition for the receipt of development assistance, which comes in the forms of aid, grants or technical assistance of different kinds.

Since they largely operate out of public view, these three factors facilitate a culture of secrecy in the formulation and implementation of privatization processes. Further, these processes often bypass the instruments of public accountability, which are invariably weak in any case. In this environment, privatization often takes place without broader public concerns being taken into account. Indeed, the convergence of the forces of neo-patrimonialism, neo-liberalism and development assistance creates a powerful cartel that is bad for democratic govern-

ance in Africa. In addition, privatization processes have resulted in the transfer of significant public power to private hands in a context in which the State has little or no regulatory capacity. And in the process, democratic ideals have been compromised to the detriment of citizens, whose livelihoods and liberties have thereby been threatened or affected adversely.

### **Democracy, Administrative Law and Regulation of Privatization**

There is thus an urgent need to dismantle this powerful cartel if privatization processes are to enhance the lot of the people of Africa. In my view, this cartel can be dismantled by embracing “public law values” – such as participation, accountability and fairness – as part of a process of deeply entrenching mechanisms for the practice of day-to-day democracy in SSA countries. Democratic governance is likely to be realized if governmental bodies adhere to these values whenever they exercise their powers.

Accordingly, we need to examine closely the links between law, democracy and privatization. In this regard, it is worth noting that there has been a renewed preoccupation with democracy in international law and development circles. For example, some scholars view democracy and democratic governance as human rights. But the democracy espoused in these circles is a rather narrow one, given its attachment to the ballot box. The current international practice is to assess the existence of democracy by reference to the ballot box, that is, whether or not, and the frequency with which, developing countries allow their citizens to choose who will govern them. And to determine whether or not such countries are democratic, the practice is to send international observers to monitor whether electoral

processes are “free and fair.” It is almost assumed that once elections are held, developing countries will rapidly attain democratic governance. This is a gigantic leap of faith in many cases. Indeed, as Christopher L. Eisgruber has observed, “An election produces only a flattened, incomplete representation of a people.”

We should question this democratization orthodoxy. Democracy must be a day-to-day practice, and not a periodic international event. In particular, since the periodic election does not offer the electorate an adequate degree of control over government, as would be required by a robust practice of democratic governance, there is a need for auxiliary political and legal mechanisms to ensure not only day-to-day participation by the citizenry in governance but also the political accountability of the agents and instruments of government. The need for such deep democracy is especially necessary in light of the aforesaid cartel of power built around privatization processes. Only such deep democracy will enable the citizens of SSA and other developing countries to gain control of governmental initiatives that affect their liberties and livelihoods.

I believe that by reforming their administrative law, which can be a critical instrument for the realization of democracy, African countries may be able to help to liberate the State from the evisceration occasioned by the aforesaid power cartel. Among other things, administrative law reform is necessary since privatization processes in SSA countries typically do not have “routine procedures for monitoring and evaluating post-privatization performance.” Together with constitutional law, administrative law makes up what lawyers call “public law.” It consists of principles, procedures and processes for the legal regulation of the making of discretionary decisions, espe-

cially by governmental bodies. Administrative law appreciates that discretion is an inevitable feature of the exercise of power or authority by such bodies, and only seeks to ensure that those powers are exercised in a manner that promotes the public interest, and does not unduly compromise the liberties and livelihoods of citizens.

Administrative law can promote democratic governance in two ways. First, administrative law can establish procedures that enable members of the public to participate in the day-to-day decision-making processes of governmental agencies. This role of administrative law has not been a common feature of administrative law in SSA countries. Nevertheless, South Africa has set an example for these countries by enacting a “Promotion of Administrative Justice Act” that lays a framework for public participation in governmental decision-making. Second, the principles of administrative law, such as the requirement that governmental agencies must not make arbitrary or unreasonable decisions, enable the courts to hold these agencies to account.

By embracing administrative law fully, SSA countries can thus establish the institutional frameworks necessary for the day-to-day regulation of governmental endeavors such as privatization, thereby enabling the citizens of SSA countries to acquire some measure of control over their liberties and livelihoods in the context of the privatization of arguably governmental functions such as the provision of water and sanitation, and security.

The need to rescue the State from the power cartel that drives privatization processes in SSA arises from the simple premise that the State is increasingly being seen by its citizens as incapable of safe-

guarding their interests, as a result of which it is no longer perceived to be legitimate in many cases.

There is yet another aspect of privatization that presents a further challenge to law and democracy. This is the transfer of what may be termed “public functions” such as the provision of water and sanitation, security and healthcare to private entities. As we are aware, public law in countries whose legal regimes are based on the English legal system is only designed to regulate the exercise of “public power” – that is the power of government – as opposed to “private power.” This bias is derived from liberal theory, which sees the power of government as a threat to individual liberty unlike private power which it assumes is largely benign. What then happens where, as is increasingly common today, government transfers its power to private entities through privatization? Should we continue to assume that the power that is then wielded by private entities now performing public functions is benign? The danger with making such an assumption today is that where, for example, the government chooses to deliver a given public service by way of contractual arrangements with private entities, performance will be deemed to be a private matter between the contracting parties with the result that there will be no framework for public scrutiny or accountability. We should therefore review the premises of public law so that it can extend its regulatory mechanisms to the exercise of private power, which in many cases poses a threat to individual liberties and livelihoods as a result of privatization initiatives. Again, administrative law reform would facilitate the democratic governance of such private power.

The need for legal regulation of privatization processes can also be looked at from the viewpoint of governance, which is one of the buzzwords in contemporary international development policy circles. Governance has been defined as the manner in which power is exercised in the management of a country’s resources. A broader conceptualization sees it as the manner in which people are ruled and the affairs of the State administered and regulated. Privatization is one policy instrument that is really about the management of national resources and therefore has everything to do with governance. For there to be “good governance” of privatization processes in SSA countries, a way must be found for the citizenry to participate meaningfully in their formulation and implementation. And this is why administrative law holds a promise that needs to be realized as quickly as possible. In this regard, administrative law should be seen in the context of the broader quest for constitutionalism, whose objective is the realization of accountable and limited governance.

From an academic viewpoint, it should also be noted that privatization is a neglected subject in African law. While much has been written by economists and political scientists on the subject of privatization in SSA countries, lawyers have not said much about its implications for democracy and constitutionalism. The explanation for this dearth of legal analysis of privatization lies in the fact that the discourse on privatization has been and continues to be dominated by economists, whose concerns primarily revolve around questions of economic efficiency. Hardly any attention has been paid to privatization’s implications for democracy and constitutionalism. Yet we know that markets distribute resources in society and regulate the lives of citizens. It therefore

becomes important to ensure that the political processes of constructing markets, such as privatization, are democratic. As in other contexts, market conditions in Africa are not always ideal. This is why there are elaborate legal frameworks to regulate markets, even in established democracies. The relative neglect of the broad legal issues raised by privatization is thus quite inexplicable.

## CONCLUSION

Much of privatization in SSA countries takes place in secret, with little or no input from the public or their representatives in Parliament. Instead, privatization has been a prerogative of the Executive, which has largely perceived it as a resource that can be used to dispense political patronage. In addition, the idea of privatization has largely been foisted on African governments by International Financial Institutions, which mainly champion the interests of international capital, without any meaningful consideration of the suitability of privatization initiatives in the African context. In addition, the IFIs have hardly allowed any debate on policy alternatives. And when the interests of political elites and IFIs coincide, what results is a cartel of power, which as we have seen has pursued privatization initiatives without giving adequate attention to the public interest. In the end, the liberties and livelihoods of the citizens of SSA countries are considerably undermined, as the privatization of water and sanitation, and security demonstrate.

Privatization in SSA is also leading to the transfer of power to private entities, although this process of transfer is not accompanied by suitable regula-

tory frameworks. Indeed, many of the private entities now performing what could be termed public functions are multinational corporations, whose main concern is to make as much profits as they possibly can.

One major way in which SSA countries can respond to these challenges of governing privatization is by establishing robust administrative law frameworks that facilitate citizenry participation in the design and implementation of privatization initiatives. Since privatization processes are deeply political and distribute vital resources in society, it is necessary to ensure that citizens get to participate in deliberations on privatization if they are to safeguard their interests. That can only occur if there are strongly institutionalized mechanisms for public participation by, and accountability to, the public.

## END NOTES

1. See, e.g., Thandaka Mkandawire & Charles C. Soludo. 1999. *Our continent, our future: African perspective on structural adjustment*.
2. See, e.g., World Bank, *sub-Saharan Africa: From crisis to sustainable growth: a long-term perspective study* (1989).
3. Sunita Kikeri & John Nellis, *An Assessment of Privatization*, 19 World Bank research observer 87 at 88-89 (2004).
4. Id at 105.
5. Francis Fukuyama, *State-building governance and world order in the twenty-first century* 24-25 (London: Profile Books, 2004).
6. See, e.g., Richard Peet, *Neoliberalism or Democratic Development?* 8 *Review of international political economy* 329 (2001) (Book review) (Defining neo-liberalism as “a broad structure of political beliefs founded on [New Right]ideas



about political democracy, individual freedom and the creative potential of unfettered entrepreneurship”).

7. See, e.g., Roland Rich, *Bringing Democracy into International Law*, 12 *Journal of democracy* 20 (2001).
8. Christopher L. Eisgruber, *Dimensions of Democracy*, Princeton Law and Public Affairs Working Paper Series No. 02-007 at 4 (2007).
9. Oliver Campbell White & Anita Bhatia, *PRIVATIZATION IN AFRICA* (1998).
10. See World Bank, *Governance and Development* (Washington, DC: World Bank, 1992).
11. See Ved P. Nanda, *The “Good Governance” Concept Revisited* 603 *Annals of American academy of political and social science* 269 (2006).

## FEATURE ARTICLES

### **Ethical Considerations in Research: Challenges and Dilemmas for Researchers**

Emaculate Ingwani\*

In their pursuit for knowledge, researchers discovered that there are several issues that influence individuals' behavior. A number of ethical considerations were postulated in order to help researchers find solutions to social problems without infringing the rights of participants. Ethical considerations form an integral part of the development, conduct and success of any research.

This paper seeks to highlight why it is necessary to take into account privacy, confidentiality, anonymity and deception when carrying out a research. These four ethical considerations cover respect for persons involved, respect for truth, openness and record keeping.

Research has been defined by Neal and Niebert (1986,7) as "any activity that attempts to gather evidence through observations and procedures that can be repeated and verified by others." Research is therefore an organized process of gathering information for use in solving social problems. For example, housing, HIV and AIDS, stress, drug abuse, prostitution. Research must therefore maintain some objectivity.

Ethical considerations can be defined as guidelines that assist the researcher in making difficult research decisions. They assist researchers in decid-

ing which goals are most important in case of conflicting values among the researcher, the research material and the research participants. The Encyclopedia Britannica Volume IV(1986,976) adds that research ethics are a "...branch of philosophy that is concerned with what is morally good, right, and wrong..." As such it is imperative for researchers to be able to identify possible and potential dilemmas they may face and try to resolve these amicably in order to produce authentic research results. However, Cohen and Manion (1995,365) say that such a balance "... depends on very much on the background, experience and personal values of the individual researcher". This balance is necessary to solicit maximum cooperation from the research participants. Bless and Higson-Smith (1995,102) even stress that "Lack of cooperation leads to non-response, to incompletely filled questionnaires and unrealistic and unreliable results".

Privacy in research is the opposite of what the public's right to know about individuals' backgrounds or lives. These may include issues, such as traditional practices, sexual practices, religious practices, health issues, and unlawful activities. With such sensitive practices and issues, certain kinds of information are strictly personal and are therefore strictly safeguarded. As such, for privacy to be maintained, data collection procedures to be used should make sure those intrusions are done with direct consent of participants. The participants have the right to refuse to take part in any research although they are often persuaded to do so. In case of children, consent has to come from their parents. This seems to be a violation of children's rights since the decisions are often made on their behalf without their being consulted. Children are young to understand consequences of research. It is therefore important to make the re-

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search objectives clear to participants at all times.

However the right to privacy is always violated by researchers when research work and results are publicized through the media or as written documents. Information gathered would be open for public knowledge although it was classified as strictly personal and confidential. Publicizing research results is very necessary to pave way for future research and for creating learning opportunities.

Confidentiality is about maintaining the rights of participants to protection. According to Cohen and Manion (1995, 368), "Promises must be taken seriously". This is a responsibility of any researcher. The more sensitive, intimate or discrediting the information is, the greater the obligation for the researcher to ensure and guarantee high levels of confidentiality. There is need for assuring participants that information collected will only be used for the stated research purposes and no any other people will access it. This may help in soliciting honest and complete responses from participants. A breach of a promise to confidentiality often causes psychological harm and stress which many participant may not be able to handle.

When confidentiality is breached participants often sue researchers. This is most likely when the final research results are released. Participants are protected by law. However the same law does not protect the researchers and yet research is meant to provide progress for all in the community under study. No matter how much researchers try to keep promises of observing confidentiality, information shared will never be labeled confidential. If people can not keep confidential information to themselves they must not expect others to keep it confidential for them. Researchers are special agents of gossip especially when information is interesting. It is important for participants to take

into consideration that before they release any information in any research they should ask themselves whether it is worth doing.

There is also the principal of anonymity in research. According to Cohen and Manion (1995,366), anonymity is "that information provided by participants should in no way reveal their identity". Thus in any research a lot of individuals are prepared to participate on condition that their names are not mentioned. For example, when one is carrying out a research on working conditions for workers on a particular firm, many participants may prefer not to be known so that they may reveal information that could be sensitive or scandalous. This is most probable because of fear of victimization for 'selling' organizational secrets.

Similarly with sensitive topics, such as drug abuse, prostitution, HIV and AIDS, gangsterism, participants may prefer to remain anonymous for fear of being labeled or stigmatized. However, it must be noted that anonymity does not in any way affect results of a research because researchers are only interested in information to be provided in the research than the individual participants themselves.

Anonymity is therefore regarded as essential in research by many participants. There is need for such assurance. This way the researcher is also assured of non-biased responses from the participants. According to Bless and Higson-Smith (1995), the names of participants can be totally omitted. Data collection instruments can only be coded to aid analysis of data. In such cases, there is possibility of linking codes with sample lists and anonymity can easily be violated. This shows that the participants can only be anonymous only when they cannot be identified in any way in the research process and only when the

research information cannot be identified with the participants who provided it. In such cases the research settings make it impossible to identify participants through disguise. This can only work well with questionnaires, telephone interviews, and not with face to face interviews or observations where the researcher can identify participants easily and match them with information provided. There is no absolute guarantee of total anonymity as far as research is concerned.

There is need to examine the role of deception in research ethics. According to Cohen and Manion (1995,369), deception is seen “where the researcher knowingly conceals the true purpose and condition of the research or positively misinforms the subjects...”. This may cause stress, embarrassing experiences or even pain on participants without them knowing what is going on to them. In most cases deception is about violating the participant’s informed consent and privacy to participate in the particular research. Deception is not telling the truth about the research. For example, in a research on effectiveness of a drug to a particular group of patients, usually the participants are not informed about the consequences of the research beforehand. Such kinds of research often result in psychological trauma, physical harm, stress or even loss of personal trust. In any case participants in experimental research often suffer trauma because of research. It is therefore imperative to inform all participants about the research objectives in order to help participants to make a free choice to take part in the research. Informed consent is very important in experimental research because the research participant must be aware of the negative and positive consequences of participating in such research.

On the other hand it is also important that researchers ask themselves whether deception is necessary and justified. This means that if the research is capable of improving the participants’ lives and living conditions, then, it is worth deceiving them. However if there are no tangible benefits, then, researchers should not make participants suffer. For their own sake participants usually choose to take part in research. To this note Leedy (1993,130) still maintains that, “all research should avoid causing harm to subjects used in the research”. The dilemma is how researchers can minimize the negative effects of deception and come up with authentic research. Measuring such abstract conditions can be equally deceiving. With experimental research it is necessary to make use of participants who are already vulnerable, for example, on issues of drug abuse, HIV and AIDS. It must be noted that research must therefore aim at improving the lives of the vulnerable individuals by providing workable solutions to their plight. Furthermore the primary way of helping participants to cope with deception is to provide instant and total feedback at the end of the research. The feedback must therefore be very honest without any distortion. Humans are highly unpredictable. As the researcher manipulates them, they also manipulate the researcher. As soon as participants discover that they are under study they cease to become themselves. This affects the research results. Thus, for the sake of progress in research and in trying to improve lives researchers choose to deceive participants for best results. To this note Cohen and Manion (1995,369) state that, “...the problem hinges on the cost benefit ratio...truth so discovered is powerful and is worth the lies told in the process...”.

Ethical considerations remain the backbone of any research effort and therefore have to be observed

with integrity. Research has to be as objective as possible. The challenge remains on a balance of interests between the needs of the participants and the outcomes of the research. Mc Millan and Schumacher (1993,400) say, "Although guidelines exist, the difficulty is in application." This reveals a dilemma for the researchers because they are obliged to develop a sense of commitment in privacy, confidentiality, anonymity, and avoid deception. They have to develop a sense of caring, fairness and respect for human dignity and still come up with authentic research results.

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## Making: The Case of Migrant Weavers of Addis Ababa

Tefera Darge \*

### Abstract

This study was undertaken with the objective of assessing gender power relations in contraceptive use decision-making. Three hundred seventeen currently married women were randomly selected and data collected from them through structured questionnaire. Accordingly, about 22% and 33% of respondents made the contraceptive use decision by their own and jointly with their husbands, respectively. From the multivariate analysis result older women, literates and those having fewer children made the contraceptive use decisions by their own or jointly with their husbands. Besides, working women and those having media access made the contraceptive use decision by their own. Empowering women is recommended to achieve egalitarian decision-making pattern for contraceptive use.

**Keywords:** Contraceptives use, gender, power relations, decision-making

### INTRODUCTION

In most societies, women usually have less power than men in all spheres of life (Eguavoen, Odiagbe and Obetoh 2007). The patriarchal, hierarchical and polygynous organization of many African households, the young age at marriage for women, patrilocality residence after marriage, the large age difference between spouses, the unequal work burden between the sexes, the high bride price, and the low educational level of women tends to perpetuate the low status of women and make them voiceless and powerless in all spheres of life including sexuality and reproduction (Makinwa-Adebusoye 2001; Bosureup 1985). Consequently, women's needs and preferences are neglected, and their knowledge and experience are not used to help guide decisions in their family as well as in their community (Kuponiyi and Alade 2007; Arkutu 1995). Accordingly, in many developing countries, most of decisions regarding sexual activity, fertility, and contraceptive use are made by men (Oladeji 2008).

The situation is similar in Ethiopia, where women generally do not have equal right with their husbands to have access for resources, to take decisions regarding their desire number of children, to use contraception and even to space or stop childbearing (Olokodana and Yeshe 1998). Consequently, they rely on the decisions made by their husbands or other family members for the reproductive issues and others.

Understanding individuals, above all women's reproductive needs and identifying the key factors which influence reproductive negotiation process between husband and wife are necessary to formulate policies aimed at creating conducive environment to improve women's reproductive health, gen-

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eral well-being and their decision-making power (Li 1999). Furthermore, understanding the linkage between gender power relations and reproductive decision-making is among the key factors which can help to assess the extent of gender inequality. However, it has not been well assessed in Ethiopia. Thus, this study aimed to fill the knowledge gap by using data collected from weavers in Addis Ababa who are from Gamo Gofa zone of Southern, Nations, Nationality and People's Regional State (SNNPR).

Women of the weaver's community are highly responsible for both productive and reproductive activities. With backdrops, the research tried to answer whether women in the study population enjoy similar power and rights in making contraceptive use decisions as they take the lion share of production as well as reproduction activities in their households? In addition, majority of weavers are migrants from Gamo Gofa zone of SNNPR, particularly from Dorze and Chenchas areas. As most part of Ethiopia, there is gender disparity in Gamo Gofa zone. Hence, the research tried to answer whether gender disparity in the zone reflected in Addis Ababa. The main research questions are: Who is responsible for contraceptive use decision-making in the household? What are the determinants of contraceptive use decision-making?

## METHODOLOGY

The study site, Gulele sub-city, was purposely selected for the reason that majority of weavers are living. Double-stage cluster sampling, simple random sampling and systematic sampling methods were employed to select the study respondents. Of ten kebeles in Gulele sub-city, large concentration of weavers are resides in two of the kebeles; namely

kebele 18 and 19. In the first stage, two clusters were formed using the two kebeles. Using simple random sampling one of the cluster, kebele 18, was chosen. In the second stage, 317 households from the selected kebele were chosen using systematic sampling. From the selected households, currently married women in the age group of 15-49 years were selected for the study. The data collection was undertaken from February 09, 2009 to February 16, 2009. Descriptive data analysis like frequency distributions and cross-tabulations; and inferential data analysis like chi-square and multinomial logistic regression were employed to identify the determinant factors of contraceptive use decision-making.

To answer the research questions, a probabilistic model was specified. Let  $Y_i$  be a random variable representing decision-making pattern of an individual. We assume that each respondent can have discrete, mutually exclusive choice of decision-making.

The decision-making patterns ( $Y_i$ ) are a function of demographic, socioeconomic and cultural variables ( $X$ ). The multinomial logistic regression model for decision-making specifies the following relationships between the probability of choosing option  $Y_i$  and the set of explanatory variables  $x_i$  as:

$$P(Y_i = j) = \frac{e^{\beta_j x_i}}{\sum_{k=0}^j e^{\beta_k x_i}}, \quad j = 0, 1, \dots, J$$

Where:  $\beta_j$  is a vector of coefficients for category  $j$  and  $x_i$  is the vector of explanatory variables for observation  $i$ . Moreover, to guide this research,

bargaining model of household decision-making was used.

## **Results and Discussion**

### **Sample Characteristics**

The mean and median ages of the respondents are 27.3 and 26 respectively with standard deviation of 5.9 years. About 12%, 47% and 41% of the respondents do not have children, have one or two children and have three or more children, respectively. About 49%, 30% and 21% of respondents have been living in Addis for less than 11 years, 11-20 years and 20 plus years, respectively. Regarding educational level, 66% are illiterate, 28.7% primary and 5.3% are secondary and above. Concerning religious affiliation, about 68% are orthodox and 32% are protestant. About 57% of respondents were engaged in income generating activities and the remaining 43% were not. The media exposure of respondents indicated that 57.4% had no access, 22.4% had occasional access, and 20.2% had regular access. Majority (69%) of surveyed respondents claimed that their husbands committed physical harassment or verbal abuse while the remaining 31% reported that they have never been harassed or abused. All surveyed women have heard about at least one method of contraceptive. All respondents know injectables and pills whereas only 24.4% knows sterilization. About 60% of the respondents have ever used contraceptive methods. About 45, 33 and 22 per cent of the respondents reported that the contraceptive use decision was made by their husbands, jointly and by their own, respectively.

### **Determinants of Contraceptive Use Decision-Making**

Table 1 below presents the multinomial logistic regression analysis outputs.

Compared to older women (35-49) years, younger women (15-24) years and middle aged women (25-34) years are less likely to participate in the contraceptive use decision-making. This might be due to the lower bargaining power of younger women coupled with their low socioeconomic status and information exposure made them to live in the household where husband dominated the contraceptive. Having fewer children is attributed to have women-centered or joint contraceptive use decision-making. The possible explanation for this result is that women who delay or avoid births can bring about significant economic advantages over women with large number of children when terminating consensual union. Therefore, having fewer children can improve a woman's ability to end an unsatisfactory relationship (Dixon-Mueller 1993) and it enables them to exercise more freedom within marriage. Prasadja et.al (1997) concluded that women with two or fewer children have greater control of their reproductive lives than women with three or more children.



Table 1. Multinomial logistic regression analysis result of contraceptive use decision-making of weavers in Addis Ababa, 2009.

| <b>Characteristics</b>                       | <b>Wife Vs Both</b> |      | <b>Husband Vs Both</b> |        | <b>Wife Vs Husband</b> |         |
|--|---------------------|------|------------------------|--------|------------------------|---------|
|  | <b>Age</b>          |      |                        |        |                        |         |
| 15-24  | 0.74                | 0.18 | 0.82                   | 14.4** | 0.94                   | 0.01**  |
| 25-34  | 0.60                | 0.30 | 0.62                   | 1.3    | 0.71                   | 0.22*   |
| 35-49 (ref)                                  |                     |      |                        |        |                        |         |
| <b>Educational status</b>                    |                     |      |                        |        |                        |         |
| Illiterate (ref)                             |                     |      |                        |        |                        |         |
| Literate                                     | 0.56                | 0.59 | 0.59                   | 0.05** | 0.66                   | 11.00** |
| <b>Religion</b>                              |                     |      |                        |        |                        |         |
| Orthodox (Ref)                               |                     |      |                        |        |                        |         |
| Protestant                                   | 0.56                | 5.5  | 0.54                   | 2.15   | 0.55                   | 2.57    |
| <b>Number of children</b>                    |                     |      |                        |        |                        |         |
| 0  | 0.96                | 4.4  | 1.00                   | 0.55   | 1.00                   | 8*      |
| 1-2  | 0.56                | 1.9  | 0.66                   | 0.24*  | 0.74                   | 7.9**   |
| 3+ (ref)                                     |                     |      |                        |        |                        |         |
| <b>Work status</b>                           |                     |      |                        |        |                        |         |
| Working                                      | 0.55                | 1.4  | 0.47                   | 0.51   | 0.60                   | 2.7*    |
| Not working (ref)                            |                     |      |                        |        |                        |         |
| <b>Media exposure</b>                        |                     |      |                        |        |                        |         |
| Regular/Occasional                           | 0.57                | 2.9* | 0.62                   | 0.81   | 0.63                   | 3.6*    |
| Never (ref)                                  |                     |      |                        |        |                        |         |
| <b>Physical harassment/<br/>verbal abuse</b> |                     |      |                        |        |                        |         |
| Committed (ref)                              |                     |      |                        |        |                        |         |
| Not committed                                | 0.48                | 1.00 | 0.45                   | 0.74   | 0.51                   | 1.34    |
| <b>Years lived in Addis</b>                  |                     |      |                        |        |                        |         |
| Below 11 (ref)                               |                     |      |                        |        |                        |         |
| 11-20  | 0.60                | 1.50 | 0.51                   | 1.85   | 0.64                   | 0.84    |
| Above 20                                     | 0.70                | 2.10 | 0.79                   | 0.41   | 0.84                   | 5.1     |
| <b>LR chi2(22)</b>                           | <b>109</b>          |      |                        |        |                        |         |
| <b>Prob &gt; chi2</b>                        | <b>0.0000</b>       |      |                        |        |                        |         |
| <b>Pseudo R2</b>                             | <b>0.2584</b>       |      |                        |        |                        |         |

\*\*Significant at 1%; \*Significant at 5%; ref- indicates reference category; unmarked- indicates insignificant variables; RRR- relative risk ration; Se( $\beta$ )-standard error of the coefficient; the significant LR statistics (Prob>chi2=0.000) shows that all the regressors have significant impact on decision-making pattern.

Compared to not-working women, working women (women generating their own income) are more likely to participate in contraceptive use decision-making. Having own income for women increases their economic independence and challenges the traditional belief of men dominance in decision-making and hence improves their bargaining power within the household. Cash work and control over earnings for women improves women's autonomy and stimulates spousal communication about family planning and hence creates decision-making power about contraceptive use (Chapagain 2006; Hossain 1998; Laban and Gwako 1997; Gage 1995).

Women with regular/occasional access to media are more likely to make the contraceptive use decision by their own than those women with no media access. Exposure to media, especially programs related to family planning, widens the scope of understanding issues related to contraceptive use and helps in realizations of its importance in achieving desired family size (CSA and ORC Macro 2006). Thus, better media consumption might give them the motivation to make active participation in the contraceptive use decision-making process in their household.

### Conclusions and Recommendations

The result underscores women's empowerment through education & economic activities as one of the entry point for enabling them to make the contraceptive use decisions by their own or jointly with their husbands. Thus, policies which advocate women's empowerment should be implemented in well organized and integrated way. Moreover, efforts should be made to foster the elimination of gender imbalance and promote gender equality in the study communities, especially among those categories who have reported men-centered contracep-

tive use decision-making (younger, illiterate, not working, no media access & women having more than two children).

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## Impact of Electricity Crisis on Winter Wheat Production for Resettled Farmers in Zimbabwe

Nyasha Kaseke\*

### Abstract:

The study estimated cost of power outages to the resettled farmers in Zimbabwe. The crop under study was wheat. Mashonaland Central Province was used as it is the bread basket of the nation. In the methodology, production loss method and opportunity cost were applied to calculate the cost of power outage to farmers. Multi-stage sampling was adopted: quota sampling for districts in the province and simple random sampling in coming up with a sample size of fifty respondents. Data was collected using telephone interviews. The data was analysed using EPI INFO. All the respondents (100%) experienced problems of power outages. The findings show that electricity outages had a negative effect on quantity of wheat. As the number of hours of outages increased the hectareage under wheat irrigation decreased. Yield decreased from an average of 6 tonnes per hectare to 4 tonnes per hectare. In addition, outages also caused damages to equipment.

**Key words:** Agriculture; ZESA; Mashonaland Central; Electricity Power Outages; Irrigated Winter Wheat; Yield per Hectare; Damage to Equipment.

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### 1. INTRODUCTION

Zimbabwe is a landlocked country, located in Southern Africa between a latitude of about 15 and 22° south and a longitude of between 26 and 34° east, with a total area of 390 760 km<sup>2</sup> (Ministry of Agriculture 2006). The country is bordered by Zambia in the north, Mozambique in the east, South Africa in the south, and Botswana and Namibia in the west. Four major relief regions are generally recognized on the basis of their elevation: i) the lowveldt (< 600 m above mean sea level); ii) the middleveldt (600-1 200 m); iii) the highveldt (1 200-2 000 m); iv) the Eastern Highlands (2 000-2 400 m) (Ministry of Agriculture 2006). Zimbabwean soils are derived predominantly from granite and are often sandy, light textured and of fair agricultural potential. However soils with significant clay content and of excellent agricultural potential are also found in all regions of the country. The cultivated area was estimated at 3.35 million ha in 2002, of which 3.22 million ha arable land and 0.13 million ha permanent crops (Ministry of Agriculture 2007).

Climatic conditions in Zimbabwe are largely subtropical with one rainy season, from November to April, a cool winter season from May to August and the hottest and driest period from September to mid-November. Average annual rainfall is 657 mm, but ranges from over 1 000 mm in the Eastern Highlands to around 300-450 mm in the low veldt in the south. Rainfall reliability in the country decreases from north to south and also from east to west. Evaporation varies over the country to a much smaller extent than rainfall. Values of net annual pan evaporation range from about 1 400 mm in the Eastern Highlands up to 2 200 mm in the low veldt (Ministry of

Agriculture 2007). Only 37 per cent of the country receives adequate rainfall for agriculture. For the rest of the country the rainfall pattern is insufficient, erratic and unreliable making supplementary or full-time irrigation indispensable for successful agriculture.

Zimbabwe is an agrarian economy which used to have more than 23% of GDP from its agriculture output (Ministry of Finance 2007). The greater contribution coming from irrigated winter wheat (irrigated crops), tobacco (golden leaf); horticulture crops (grown under green house), dairy farming among others. The agriculture sector is vital to the economy. It is still Zimbabwe's largest employment provider with 65% of Zimbabweans living in the country side and 35% in urban areas (CSO 2007). Agriculture employs about 40% of the working population.

The irrigation potential for the country is estimated at 365 624 ha, which takes into consideration only the available internal renewable water resources (CSO 2007). Water is far a greater constraint than land as the overall area of soils classified as irrigable in Zimbabwe is estimated at 600 000 ha. The estimate for irrigation potential does not take into account the economic, technical or social feasibility of further irrigation development. In 1999, it was estimated that the total equipped area under irrigation was 173 513 ha (Ministry of Agriculture 2006). Out of this area, 49 647 ha or 28.6 per cent is equipped but not functional because the equipment was damaged during the current land redistribution exercise. This leaves 123 866 ha as the operational area under irrigation in the country. Of the total irrigated area in Zimbabwe it was estimated in 1999 that 112 783 ha was under sprinkler irrigation (including centre pivots), 46 849 ha under surface irrigation and 13 881

ha under localized irrigation (Ministry of Agriculture 2007).

In Zimbabwe 70% of winter irrigation is for Wheat production (Ministry of Agriculture, department of irrigation 2007). Wheat is an important cereal crop in Zimbabwe since it constitutes the diet of the general populace. Wheat is mostly used to make bread that Zimbabweans consume as a major part of breakfast and/or a substitute for staple cereals during lunch or dinner. Wheat porridge has also become an important substitute for sadza (thick porridge). In addition to the above wheat is an important source of foreign currency in Zimbabwe. The Government of Zimbabwe has embarked on a programme for wheat production support to farmers (Ministry of Agriculture 2007). The Reserve Bank of Zimbabwe has set aside funds for wheat production and wheat irrigation as well as equipment for harvesting wheat (Reserve Bank of Zimbabwe 2007).

## 2. STUDY AREA

The Mashonaland Central province accounts for about 40% of wheat production in Zimbabwe. It is the bread basket of the nation. The province has a Savannah type of climate with hot and raining summer and cold and non-raining winters. The province receives rainfall during the summer season only of between 400 to 1300 mm (Ministry of Agriculture 2007). The winter temperatures are always below 10<sup>0</sup>C (degrees Celsius). The winter temperatures favour the production of wheat as it is a temperate crop. Wheat is a winter crop, meaning it has to be grown under irrigation. Agriculture Research Extension (AREX) estimated that wheat requires an average of 100 to 200 mm of water per week. The irrigation has to be done on the appropriate scheduled

times to avoid withering of the crop which can affect the total yield.

More than 75% of the province winter irrigation is on wheat (Irrigation Department 2007). The irrigation system applicable to the topology and terrain of the area is mainly overhead sprinkler system. The irrigation is mostly used with electricity energy as the most common energy input to power the irrigation pumps. Electricity energy provides a direct source of power. Because most of the irrigation water has to be pumped from dams and boreholes, power outages had seriously threatened winter wheat production. Many irrigation systems employed are gravity flow or siphon style, meaning that if the power is interrupted, the flow stops and the entire system must be restarted or primed. Power outages have been prohibitive in terms of full irrigation requirements for sustainable wheat output.

Power is an indispensable component of agriculture production in Mashonaland Central and its shortage has had serious consequences. Farmers suffered direct losses as a result of power outages. The negative effect on wheat production as a result of power outages also extended to agro-related manufacturing sectors as the industry depended on inputs from agriculture. McKinsey & Company (2001) stated that farmers who use irrigation aspects of their business are the most vulnerable to electricity outages, without irrigation, crop failure can reach 100%. If there are continued interruptions farmers could be driven out of business. A 100% loss of electricity for one week on irrigation crops in the province would force the farmers out of farming business (Commercial Farmers of Union (CFU) 2007). Power outages

in 2007, result in winter wheat being written off as a major disaster, with yields expected falling well below the poor 78 000 metric tons reported in 2006 yield (ibid).

### **3. BACKGROUND**

#### **3.1 The Major Problem of Zimbabwe**

Power shortages in Zimbabwe are not a problem for farmers only but for the whole nation. The source of this problem is known to all and sundry:

The unprecedented meltdown of Zimbabwe's economy can easily be traced to self-engineered political instability by the present government. Subsequently, the roots of political instability further led to economic mismanagement and corruption in the economy. When in November 1997 it was announced that war veterans were to be given unbudgeted payments of magnitude which threatened fiscal targets, external investors bolted out of the Zimbabwe Stock Exchange and domestic market foresaw an imminent devaluation the Zimbabwe dollar crashed by almost a fourth of its value in local currency terms and it has been sliding by the day since that time. This proved to be the start of real crisis of management of the economy.

By the end of 1999 the Zimbabwe economy was already in a severe macroeconomic crisis: GDP had fallen to below two per cent, inflation had an average of 58.5 per cent and exports had stagnated, forcing a sharp contraction of imports. The government pursued a political agenda instead of formulating an agenda to

tackle this downward tumble which further impacted negatively on the economy.

From February 2000 the government of Zimbabwe voluntarily abrogated the rule of law by allowing farm invasions, political harassment and murders. The underlying causes of Zimbabwe's economic crisis had started, with its political roots embedded in two main factors:

- Economic activity disruptions as a result of state-sponsored lawlessness; and
- Brushing aside decisions of the law courts by the sitting government.

This clearly undermined business confidence, affected current output and decimated investment, causing fuel shortages, accumulation of arrears in international payments and an increase in the budget deficit.

The government has refused to acknowledge the importance of the environment under which economic progress takes place, and that any improvement of macroeconomic management, investments, liberalization of markets and trade and widening of the space for the private sector activity have to be invariably underpinned by good governance and civic peace.

Thus from 1997 the ZANU PF government adopted a total irresponsible politically driven economic management system that finally culminated in the 2000 illegal farm invasions and violent disruptions of economic activities that have proved that such venality leads to unsustainable and irretrievable economic downfall of the economy.

Zimbabwe is now being ostracized by her major traditional trading partners. While there are no

explicit measures that are being imposed by regional partners the Southern Africa Development Community (SADC), The common Market for East and Southern Africa and the African Union Zimbabwe has been effectively isolated from many international regional pacts currently enjoyed by other countries in the region. Poor governance and political instability affected domestic electricity production and electricity import facilities. Zimbabwe was cut from the Southern African Power Pool (SAPP) grid due to non-payment and problems within other members of the group.

### **3.2 The Zimbabwean Agricultural Sector**

Power, in the form of electrical power, is very important in the development of any economy as it plays a pivotal role in agriculture. In this primary industry, the agricultural sector has realized the importance of electrical power, especially on the production of wheat and cash crops that depended much on irrigation. Because the wheat season spans in the winter season, power becomes very critical in its production. Moreover, there is generally an acute demand for power during the wheat production season emanating from other activities such as domestic uses, manufacturing industry among other factors.

Due to the high demand for power during the wheat production season, power outages may have quite devastating effects. Not only is the yield would be affected but the quality of the crop would also be compromised. Power outages are a critical problem in Zimbabwe. The agriculture sector suffers from serious electricity supply unreliability through limited irrigation (Hu *et al.* 2002). The problem is endured by farmers,

through operation disruption (Mayo 2004). Electricity has primary value to farmers (Mangwengwende 2005). CFU (2007) echoed that farmers mostly had electricity during the night which derailed irrigated wheat production. Farmers compete with other consumers in the same electricity market. Electricity demand by agriculture sector and other consumers is illustrated in figure 1.

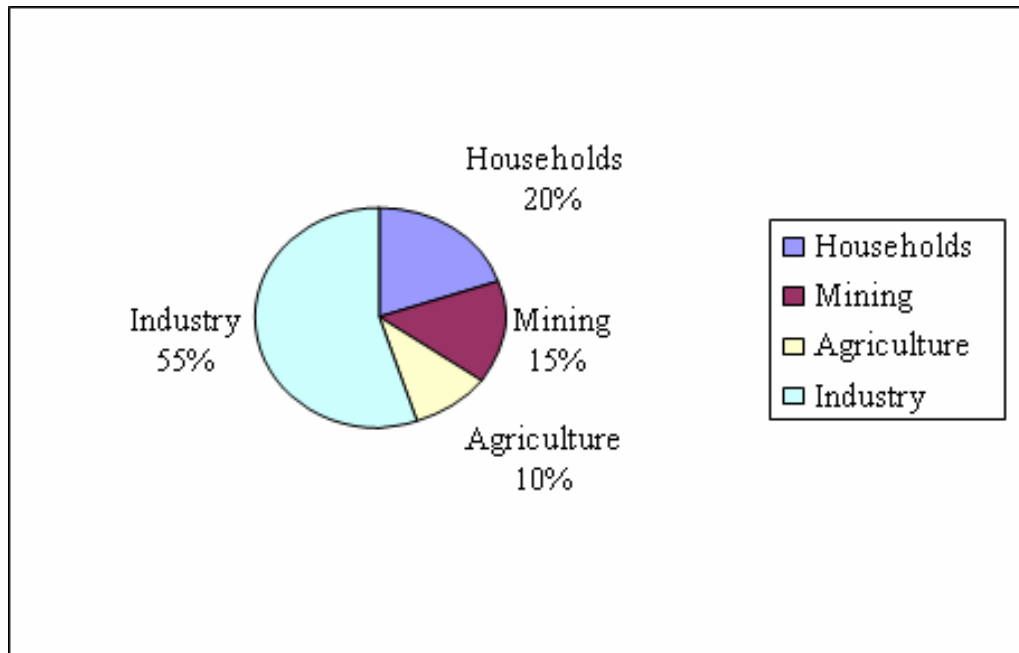


Figure 1. Electricity Consumption by Sectors

SOURCES: ZESA (2007)

Industrial and commercial operations are the highest consumers, followed by households, then mining and lastly agriculture. According to CSO (2007), energy consumption has grown at a rate of 7.8 % per annum which is way above the Gross Domestic Product growth rate of less than 1% per annum. The growth in energy consumption is mainly by households in urban areas, rural and growth point electrification at the expense of agriculture and other productive sectors. This has led to power shortages and load shedding, which is negatively impacting on the irrigation of winter wheat crop.

The power utility is not supporting agriculture even though it's an important sector of the economy. A report by the CFU (2007) showed that farmers are the most hit by power outages and this had negative ripple effects on winter wheat farming. The study reveals the power outage in relation to hours without electricity as shown in Table 1.



Table 1. Average daily power outages

| Sector        | Average hours of outage in 2005 | Average hours of outage in 2006 | Average hours of outage in 2007 |
|---------------|---------------------------------|---------------------------------|---------------------------------|
| Agriculture   | 2                               | 4                               | 6                               |
| Mining        | 0                               | 0.5                             | 1                               |
| Manufacturing | 1                               | 1                               | 4                               |
| Commerce      | 1                               | 1                               | 4                               |
| Domestic: Urb | 2                               | 3                               | 5                               |
| Domestic: Rur | 2                               | 4                               | 6                               |

SOURCE: CFU (2007)

Table 2. Distribution of power stations in Zimbabwe

| Station  | Plant type | Capacity (MW) | Available Capacity (MW) |
|----------|------------|---------------|-------------------------|
| Kariba   | Hydro      | 780           | 740                     |
| Hwange   | Coal       | 460           | 460                     |
| Harare   | Coal       | 0             | 0                       |
| Bulawayo | Coal       | 0             | 0                       |
| Munyati  | Coal       | 0             | 0                       |
| Total    |            | 1240          | 1240                    |

SOURCE: ZESA (2007)

Table 3. Zimbabwe power imports

| Country      | Intercon-<br>nection<br>Voltage<br>kV | Maxi-<br>mum<br>capacity<br>(MW) | Avail-<br>able ca-<br>pacity<br>(MW) |
|--------------|---------------------------------------|----------------------------------|--------------------------------------|
| Mozambique   | 300                                   | 300                              | 300                                  |
| South Africa | 0                                     | 0                                | 0                                    |
| Zambia       | 100                                   | 50                               | 50                                   |
| DR Congo     | 100                                   | 100                              | 100                                  |
| Botswana     | 0                                     | 0                                | 0                                    |

SOURCE: ZESA (2007)

### 3.3. Electricity sources in Zimbabwe

ZESA Holdings is the nucleus of the generation, transmission and distribution of electricity in Zimbabwe. Zimbabwe has five major power stations, with a total capacity of 1240 MW (ZESA 2007). These facilities do not meet electricity demand. Electricity generation in Zimbabwe is mainly from coal and hydro plants, with a capacity of 1240 MW, while the Kariba hydropower plant generates 780 MW as shown in Table 2 (ZESA 2006).

In a bid to solve the problem of power shortages, the country resorted to importation. Zimbabwe used to import 35 % of its electricity from neighbouring countries, including the DRC, Mozambique and Zambia. From Table 3 below it can be seen that the country is not importing much resulting in the wide gap between demand and supply. Under capacitated domestic production and lack of imports had created shortages which result in power outages through planned or unplanned load shedding.

### 3.4 Power Outage

Power outages started as early as 1997 (Kayo 2001). Generation plant availability started to decline. Total systems losses have averaged 11% in 1997 (ZESA 2007). The Zimbabwean dollar started depreciating against major currencies. Since over 70% of ZESA are imports of foreign currency related, proper plant, transmission and distribution equipment maintenance was impossible (ZESA 2006). Consequently, ZESA was exposed to foreign exchange fluctuations and also was ill-equipped to manage this risk because of government controls on pricing and the end result was that the tariff had been eroded by the fluctuations (Kayo 2001). ZESA relied much on government support financially to manage the situation at the least minimum power outage to the consumers.

ZESA's costs of operations have increased considerably, particularly those related to payment for import of power in foreign currency and servicing of foreign debt (ZESA 2006).

Serious power outages started in 2000 soon after the land reform programme in Zimbabwe (Kayo 2001). The country was starved of foreign currency required to meet importation of fuel and electricity (Ministry of Energy and Power Development 2005). Foreign suppliers demanded advance payment before electricity is supplied. Foreign currency crisis incapacitated importation of spare parts for plant maintenance. Cost of transporting coal from Hwange (coal mine) to Bulawayo, Munyati and Harare Thermal Power Stations (TPSs) and high maintenance costs to these TPSs resulted in decommissioning of the three TPSs. The TPSs used to contribute (Bulawayo 370MW, Harare 200MW and Munyati 100MW) to the grid (ZESA 2006).

Decommissioning of TPSs worsened the supply of electricity in 2005 when total generation fell below 50% due to the 2005/2006 drought (Ministry of Energy and Power Development 2005). The supply was constrained whereas demand was growing high from growth in urban households, rural and growth point electrification (ZESA 2007). In 2006, Zimbabwe was blackmailed for political reasons, suffered foreign currency deficits, tight economic sanctions, hyper-inflation, coal mine squabbles and high brain drain which further worsens power generation problems (ZESA 2006).

Even though Zimbabwe is well networked in the Southern Africa, pressure amounted to foreign suppliers specifically South Africa due to its high domestic demand, Zimbabwe was disconnected from ESKOM supplies in 2007 (ZESA, 2007). The problem is threatening the whole region; Zambia is also experiencing power cuts. Imports from Zambia, Democratic Republic of Congo and Mozambique were cut due to payment problems. ESKOM has converted the debt of electricity to a loan in order to cover its expenses (ZESA 2007). Zimbabwe has to depend solely from its on domestic generation and the guaranteed 100MW from Mozambique.

Zimbabwe faced transmission, distribution and supply infrastructural problems in the west in 2007 due to vandalism. The Electricity Amendment Bill (Number17) of 2007 stated that vandalism is becoming worse and stiffer penalties need to be implemented to those caught on the wrong side of the law. ZESA technicians and engineers also blamed the poor quality transformers and related equipment being acquired (ZESA 2007). The performance of these equipment resulted in high levels of network electricity losses of 17% in 2007. Maintenance was

and is still a big issue in ZESA, qualified engineers, artisans and technicians are leaving for neighbouring countries, with the highest loss in 2007 of eighty (80) engineers and artisans (ZESA 2007).

### **3.5 Wheat Production in Zimbabwe**

Wheat in Zimbabwe is mainly produced in the Mashonaland and Manicaland provinces. This is because in these provinces climatic conditions are conducive for wheat production. According to the Zimbabwe Cereal Producers Association (2007), climatic factors like temperature, frost, moisture and early rain, and hail mainly affect yield of wheat. Temperature is the main climatic factor affecting development and yield of wheat in Zimbabwe. Wheat grows and develops more slowly and yields higher under cool conditions. Wheat is grown in winter under irrigation. The most sensitive periods for water stress in wheat are during heading, flowering and early grain-fill. Water deficits during these periods reduce the grain number and weight. Water stress during early growth stages can also reduce yield potential by reducing the number of ears (Zimbabwe Cereal Producers Association 2007).

Irrigation efficiency is becoming an increasingly important aspect of wheat irrigation because of the increases in energy costs and the fact that water is the limiting factor for wheat production on most farms (*ibid*). Wheat is irrigated using overhead irrigation systems and flood irrigation. Overhead irrigation of wheat is by use of sprinklers and centre pivots. The flood system of irrigation is not commonly used in commercial farming areas and is gravity fed. Sprinkler and centre pivot irrigation systems require electricity for pumping water and moving the centre pivots.

Table 4. Planted area, yield, and production of wheat, by years

| Year | Area (000ha) | Yield (t/ha) | Production (000t) |
|------|--------------|--------------|-------------------|
| 1991 | 44           | 5.9          | 259               |
| 1992 | 11.2         | 5.1          | 57                |
| 1993 | 48           | 5.8          | 272               |
| 1994 | 52.7         | 5.5          | 288               |
| 1995 | 13.9         | 5.1          | 70                |
| 1996 | 47.8         | 5.5          | 363               |
| 1997 | 35.2         | 4.5          | 250               |
| 1998 | 50           | 6            | 300               |
| 1999 | 57.6         | 5.6          | 324               |
| 2000 | 46.4         | 5.4          | 250               |
| 2001 | 45.5         | 7.1          | 325               |
| 2002 | 37.5         | 4.3          | 160               |
| 2003 | 26.5         | 4.5          | 120               |
| 2004 | 26.3         | 4.6          | 122.2             |
| 2005 | 28           | 4.8          | 135               |
| 2006 | 35           | 4.1          | 144               |
| 2007 | 28           | 4            | 120               |

SOURCE: FAO and WFP (2007)

In 1965, wheat yields increased from 1000kg/ha to 1224kg/ha. Since then yields, hectares and production have increased rapidly and in 1985 were 5678kg/ha, 36190 hectares and 205484 tonnes, respectively. The three major factors which contributed to the expansion in wheat production were:

- Extensive use of irrigation,
- Producer prices and
- Increased yields per hectare (Agricultural Marketing Authority 2007).

Table 4 shows the area planted, yield and wheat production from 1991 to 2007 for Zimbabwe.

### 3.6 Power Supply at Farm Level

Availability per day in each season is defined as the average number of hours per day for which power is available at the farm level during time periods when the transformer and the pump motor are in working condition. It should be noted that availability as defined here includes the total number of hours of available supply per day at the farm level irrespective of whether that supply occurred during scheduled or unscheduled periods.

Secondly, note that when either the transformer or the motor is not working then power is not available at the farm level for several days at a stretch until necessary repairs are undertaken. The effect of such continuous periods of lack of power, which is almost

entirely random, is likely to be different from the effect of interruption of power that occurs as a result of regular power rostering. Therefore the effect of availability when transformer and motor is in working condition is defined and analyzed separately from the effect of interruption of power supply due to motor and transformer failures.

For the econometric modelling, it makes sense to look at availability at the farm level which, in general is different from availability at the substation level. Availability at the farm level depends on availability at the substation level plus a host of other factors related to the transmission and distribution system. From a policy perspective, this suggests that availability at the farm level can be increased even if availability at the substation level stays constant provided improvements are made in the transmission and distribution system (Robertson 2003).

#### **4. OBJECTIVE**

This study is to establish if there is a relationship between power outages through load shedding and production of winter wheat particularly on area under crop production and the yield. In addition the study determines the inconveniences suffered by the farmers as a result of continuous power outages in the form of additional alternative sources of energy to pump the water for irrigation and cost of damage to equipment. The study aims at calculating the cost of lost output and the opportunity cost of unplanted area as the cost of power outages to farmers.

#### **5. THEORETICAL REVIEW**

The effect of power outages on irrigation can be viewed from two perspectives which are the agronomist view and the economist view. The agronomist view the effect of electricity on the water stress

caused to the crop while economist view the effect of power outages on the lost output and other related cost. The views are operationalised below in terms of their broad categories.

##### **5.1 Agronomist Review**

Zhang *et al.* (1999) discovered that water stress effects on wheat (*Triticum aestivum* L.) yield can be avoided or minimized by application of irrigation. They examined the multi-seasonal irrigation experiments in four locations of the piedmont and lowland in the region, and developed crop water-stress sensitivity index, relationship between seasonal evapotranspiration (ET) and yield, and crop water production functions. By relating relative yield to relative ET deficit, they found that the crop was more sensitive to water stress from stem elongation to heading and from heading to milking. For limited irrigation, irrigation is recommended during the stages sensitive to water stress. The AREX offices encouraged farmers to use irrigation extensively during the critical stages to minimize water stress effects.

Power outages incapacitated water pumping for irrigation which caused considerable soil water deficiency. This influenced the growth stage of wheat. Wheat is sensitive to water deficits effects especially during heading, flowering and early grain-fill. Water deficits effects have been well studied in the past, for example Zhang and Oweis (1999) reported that the sensitive growth stages of wheat to water deficits were from stem elongation to booting, followed by anthesis and milking. Singh, Mishra and Nahar (2002) concluded that the impact of limited irrigation and soil water deficit on crop depends on the particular growth stage of the crop. Further more, scheduling of irrigation timings becomes more com-

plex, because irrigation decisions have to be based not only on the relationships between grain yield, crop growing phase and crop water use, but also on electricity availability (Chandra, De and Singh 2001).

According to Matsika (1995) wheat is severely affected by interruption in irrigation water supply in Zimbabwe through irrigation equipment problems. Electricity outages cause irrigation pump failures of which some farmers are not geared to repair. Wheat suffered from water stress caused by delays in repairing of the pumps. She argued that the operation and maintenance of the pump are a big issue. The pump operators were not able to solve the problem which resulted in the calling of engineers. This resulted in an exorbitant case of repairs which subsequently resulted in reduction of net income from the wheat production.

In addition, Mittal *et al.* (1987) pointed that the presumed beneficiaries- farmers who irrigate land with electric- powered pump-sets- actually incur a variety of indirect costs attributable to the subsidies, sharp fluctuations in voltage, frequent burnout of the pump' motors and loss of production. The poor quality of supply has several important effects on farmers beyond the additional expenditures on motor re-winding. An obvious consequence is the lower crop yields caused by lack of water while motors are repaired/rewound. For the case of Zimbabwe electricity outages and pump failures caused the 2007 winter cropping season also to be declared a disaster.

## 5.2 Economist Review

Bose *et al.* (2006) estimated the cost of unserved energy (CUE) in agriculture using direct cost method and indirect cost method in India. The CUE was derived from the net production loss method

and the cost of alternative generation method. The value of production loss estimated in agriculture is the net value loss which was based on farmer's perception of reduction in profits due to non-availability of electricity. The study also shows that use of diesel pumps was also expensive as compared to use of electricity. The actual economic loss due to power outages in agriculture sector was estimated at Rs34billion using the production loss and Rs18 billion using the captive generation method.

Adenikinju (2005) stated that due to the erratic power supplies, electricity consumers incur high cost-particularly in the purchase of unnecessary high-powered electric pumps and backups or alternate diesel pumps are notably higher than they would be if supply were reliable and voltage steady. Farmers in Zimbabwe have now adopted the captive generation through backup generators as a way of limiting the effects of power outages. Again small farmers are the most affected as they can not afford to buy generators and the cost of fuel is also high to run the generators for them. The cost of using alternative power sources is higher than using electricity.

Some studies have also considered the varied impact of outage characteristic on outage costs. Power outages can be characterized along a number of dimensions, including duration, frequency, timing, warning time and interruption depth. Each of these characteristic potentially alters the outage costs incurred by a farmer. Billinton, Wacker and Wojczynski (1982) and Ontario Hydro (1980) reported that farmers experience high outage cost initially. They discovered that average hourly cost of power outages diminish rapidly as duration increases levelling off at about 50% of a 1-hour interruption. The studies

also revealed that farmers prefer infrequent short duration interruptions.

## 6. METHODOLOGY

A survey was used to collect data whereby a sample was selected out of a total population and the results were used to infer the effect of power cuts on winter wheat production in Mashonaland Central Province. The population of the study consisted of A2 Farmers (Commercial Farmers). Data was collected from the farm managers or owners using telephone interviews. Schedules and records of the period in question from the Reserve bank of Zimbabwe, Zimbabwean Cereal Producers Association, Grain Marketing Board and Food and Agriculture Organisation were also used.

The targeted population on the research was the totality of A2 farmers in Mashonaland Central Province. These were chosen as they produce wheat on a commercial scale. There are 240 A2 farmers who constituted the targeted population. The sample size is 50. The province has five (5) Districts; Guruve, Mount Darwin, Muzarabani, Bindura, Shamva and Mazowe. One farm was picked from Guruve district as it is the only one producing winter wheat. Ten (10) were selected from Mount Darwin, Muzarabani, Bindura and Shamva. Nineteen (19) were selected from Mazowe because it has more A2 farms than the rest of the districts. Quota sampling was done in working with districts. Simple random sampling was then used whereby the farm names per district were put in a hat and then picked one by one until the required number was achieved. This was done to avoid bias and help to maintain objectivity.

Telephone interviews were used to collect data. These were administered to the farm managers as they have first hand information regarding the

study. In cases where they were not available for the interview, farm owners were interviewed. These were interviewed to find out the effects of power cuts on wheat hectareage, yield, quality and damages to equipment. Secondary data was also used in the form of records and documents from ZESA Holdings (ZEDC), Commercial Farmers Union, the farm records, Grain Marketing Board, Reserve Bank of Zimbabwe, and Agribank for trends during the period April to September, 2007.

Data collected was analyzed using EPI INFO. Tally tables were used to get frequencies of each item on questionnaires. Variables were cross tabulated to reflect patterns quantified on facts and opinions of respondents. Percentages were calculated on a bipolar scale to reflect facts provided by respondents.

Losses from power outages were estimated using the production loss approach (Adenikinju 2005). This approach measures output loss per kWh of electricity lost. However, in this paper the researcher used direct output loss of not yielding the maximum yield per hectare which is attributed to electricity power outages. In addition the researcher used opportunity cost to measure the cost of power outages due to decline in the hectrage put under winter wheat.

The equation of output lost can be stated as follows:

$$WOC_i = LOH_i * P_t$$

(1)

where:

$WOC_i$  = Wheat outage cost per farmer  $i$

$LOH_i$  = Lost output per hectare from the average of 6 tonnes (Average 6- Actual output)

$P_t$  = Price per ton (US\$/ton of wheat) in time  $t$

Table 5. Area under irrigated wheat

| Hectares under wheat | Frequency | Per cent | Cum Per cent |
|----------------------|-----------|----------|--------------|
| 10                   | 4         | 8.0%     | 8.0%         |
| 12                   | 2         | 4.0%     | 12.0%        |
| 15                   | 3         | 6.0%     | 18.0%        |
| 17                   | 1         | 2.0%     | 20.0%        |
| 20                   | 6         | 12.0%    | 32.0%        |
| 25                   | 1         | 2.0%     | 34.0%        |
| 30                   | 4         | 8.0%     | 42.0%        |
| 35                   | 4         | 8.0%     | 50.0%        |
| 40                   | 11        | 22.0%    | 72.0%        |
| 50                   | 5         | 10.0%    | 82.0%        |
| 62                   | 1         | 2.0%     | 84.0%        |
| 70                   | 2         | 4.0%     | 88.0%        |
| 80                   | 1         | 2.0%     | 90.0%        |
| 90                   | 2         | 4.0%     | 94.0%        |
| 120                  | 2         | 4.0%     | 98.0%        |
| 170                  | 1         | 2.0%     | 100.0%       |
| Total                | 50        | 100.0%   | 100.0%       |

The researcher also used the opportunity cost to measure the cost of power outages. The logic is that the farmers are risk averse; they would not want to incur cost as a result of lost output due to power outages. The output they were supposed to harvest if they had put the hectrage under wheat is the opportunity cost of output forgone. This output is then multiplied by price per tonne.

The equation is also given below:

$$WOPC_i = WFA_i * WOPHa_i * P_t \tag{2}$$

where:

$WOPC_i$  = Wheat Opportunity Cost of not growing winter wheat by farmer  $i$ ,

$WFA_i$  = Wheat Forgone Area by farmer  $i$  to be put under irrigation,

$WOPHa_i$  = Wheat Output per hectare for farmer  $i$ ,

$P_t$  = Price per ton (US\$/ton of wheat) in time  $t$

Therefore the total cost of electricity outages can be obtained by summing the direct cost of output lost and the opportunity cost of the area left by the farmers due to fear of electricity outages as follows:

$$TWOC_i = WOC_i + WOPC_i \tag{3}$$

Table 6. Areas intended for wheat production

| Hectares Intended to be Put Under Wheat | Frequency | Per cent | Cum. Per cent |
|---|-----------|----------|---------------|
| 15                                      | 3         | 6.0%     | 6.0%          |
| 20                                      | 6         | 12.0%    | 18.0%         |
| 25                                      | 2         | 4.0%     | 22.0%         |
| 28                                      | 1         | 2.0%     | 24.0%         |
| 30                                      | 4         | 8.0%     | 32.0%         |
| 40                                      | 5         | 10.0%    | 42.0%         |
| 45                                      | 3         | 6.0%     | 48.0%         |
| 50                                      | 7         | 14.0%    | 62.0%         |
| 55                                      | 1         | 2.0%     | 64.0%         |
| 60                                      | 4         | 8.0%     | 72.0%         |
| 70                                      | 3         | 6.0%     | 78.0%         |
| 80                                      | 3         | 6.0%     | 84.0%         |
| 100                                     | 4         | 8.0%     | 92.0%         |
| 120                                     | 2         | 4.0%     | 96.0%         |
| 140                                     | 1         | 2.0%     | 98.0%         |
| 200                                     | 1         | 2.0%     | 100.0%        |
| Total                                   | 50        | 100.0%   | 100.0%        |



Table 7. Expected yield per hectare by

| Expected yield | Frequency | Per cent | Cum. Per cent |
|----------------|-----------|----------|---------------|
| 4              | 5         | 10.0%    | 10.0%         |
| 5              | 10        | 20.0%    | 30.0%         |
| 6              | 35        | 70.0%    | 100.0%        |
| Total          | 50        | 100.0%   | 100.0%        |

Table 8. Actual yield, by percentage

| Actual yield | Frequency | Per cent | Cum .Per cent |
|--------------|-----------|----------|---------------|
| 1            | 2         | 4.0%     | 4.0%          |
| 2            | 12        | 24.0%    | 28.0%         |
| 3            | 11        | 22.0%    | 50.0%         |
| 4            | 18        | 36.0%    | 86.0%         |
| 5            | 7         | 14.0%    | 100.0%        |

The overall cost for all the farmers can be estimated by the following equation:

$$TOC = \sum_{n=1} (WOC_i) + \sum_{n=1} (WOPC_i)$$

(4)

## 7. RESULTS AND DISCUSSION

### 7.1 Area under Irrigated Wheat Crop

Electricity energy input use and hectareage under irrigated wheat (Table 5) showed that most A2 farmers in Mashonaland Central had more farmers with less than 50 hectares, constituting 82% of the total area put under wheat production. The other 18% is for those with hectareage above 50hectares. This indicated not much area was under wheat production. Farmers sited that the major problem of reducing area under wheat production was due to power outages in the 2006 season which resulted in heavy loss of their output and excessive cost of alternative sources of pumping water for irrigation. Farmers also sited other problems besides load shedding for the low hectareage such as lack of inputs and shortage of equipment for land preparation and harvesting.

### 7.2 Intended Area For Irrigated Wheat Crop

The intended area for wheat production is shown in Table 6. It can be seen that the intended area was more than the actual area and this implies that there are problems affecting the quantity of production of wheat and power outage was sited as the main problem. About 46% of the farmers intended to put more than 50 hectares under wheat production, but due to outages, they had to reduce their hectareage.

Table 9. Area left idle due to power outages, by percentage

| Area left idle due to <u>Power Outages</u> | <u>Frequency</u> | <u>Per cent</u> | <u>Cum. Per cent</u> |
|--|------------------|-----------------|----------------------|
| <u>3</u>                                   | <u>2</u>         | <u>4.1%</u>     | <u>4.1%</u>          |
| <u>5</u>                                   | <u>9</u>         | <u>16.3%</u>    | <u>20.4%</u>         |
| <u>8</u>                                   | <u>2</u>         | <u>4.1%</u>     | <u>24.5%</u>         |
| <u>10</u>                                  | <u>15</u>        | <u>30.6%</u>    | <u>55.1%</u>         |
| <u>12</u>                                  | <u>1</u>         | <u>2.0%</u>     | <u>57.1%</u>         |
| <u>15</u>                                  | <u>2</u>         | <u>4.1%</u>     | <u>61.2%</u>         |
| <u>20</u>                                  | <u>7</u>         | <u>14.3%</u>    | <u>75.5%</u>         |
| <u>25</u>                                  | <u>1</u>         | <u>2.0%</u>     | <u>77.6%</u>         |
| <u>30</u>                                  | <u>5</u>         | <u>10.2%</u>    | <u>87.8%</u>         |
| <u>40</u>                                  | <u>1</u>         | <u>2.0%</u>     | <u>89.8%</u>         |
| <u>50</u>                                  | <u>4</u>         | <u>8.2%</u>     | <u>98.0%</u>         |
| <u>80</u>                                  | <u>1</u>         | <u>2.0%</u>     | <u>100.0%</u>        |
| Total                                      | <u>50</u>        | <u>100.0%</u>   | <u>100.0%</u>        |

### 7.3 Expected and Actual Yield per Hectare by Farmers

Farmers have their expected yield of output per hectare given normal supply of electricity.

Table 7 shows that most farmers (70%) in the province expected to get yields of 6 ton/ha and yet most of them got 4 ton/ha or less (86%) as shown in Table 8. Only 14% of the farmers got an average of 5 ton/ha, followed by 36% who got 4 ton/ha, 22% who got 3 ton/ha, 24% who got 2 ton/ha and 4% who got 1 ton/ha. Low yields were realized due to water shortages resulting from continuous power outages.

### 7.4 Areas Left Idle Due to Power Outages

Farmers left some area idle due to power outages and the data is tabulated in Table 9. About 30.6% showed that they left 10 hectares, 16.3% left 5 hectares, 14.3% left 20 hectares and 10.2% left 30 hectares. The maximum number of hectares was 80 and the lowest was 3 hectares. No farmer has indicated that he planted all the hectares as planned. They all cited the power outages as one of their main reasons why leaving out such pieces or hectares idle.

### 7.5 Hours of Electricity Outages

Load shedding hours vary between 4 and not more than 12 hours. Most respondents experienced load shedding hours of between 8 and 12 hours which is 50% of the respondents, 28% stating that they had power outages of more than 12 hours a day and 22% stating that they had power outages between 4 and 8 hours as shown in Table 10.

Table 10. Power outages per day, by frequency

| Hrs. of power outages per day | Frequency | Per cent |
|-------------------------------|-----------|----------|
| 4-8                           | 11        | 22.0%    |
| 8-12                          | 25        | 50.0%    |
| more than 12                  | 14        | 28.0%    |
| Total                         | 50        | 100.0%   |

### 7.6 Damaged Equipment Due to Outages

Table 11 shows that power outages affected most farm equipment like electric pumps, motors and centre pivots due to power disruptions. 70% of the farmers indicated that their equipment was damaged due to power outages. Only 30% were free from interruptions due to equipment damage as a result of power outages.

Table 11. Damage to equipment

| Equipment damaged | Frequency | Per cent |
|-------------------|-----------|----------|
| No                | 15        | 30.0%    |
| Yes               | 35        | 70.0%    |
| Total             | 50        | 100.0%   |

### 7.7 Cost of Lost Yield per Hectare due to Outages

Electricity outages have a lot of cost to farmers. Cost estimated using direct yield loss showed US\$2 118 400 for the 50 farmers interviewed as shown in Table 12.

This shows that farmers were losing greatly as a result of these outages. If the costs are

Table 12. Cost of lost yield per hectare

| Actual yield/ha | No. of Farmers | Difference from expected output of 6 | Hectares under wheat (Ha) | Total yield lost (tons) | Price per tonne (US\$) | Total cost of lost yield (US\$) |
|-----------------|----------------|--------------------------------------|---------------------------|-------------------------|------------------------|---------------------------------|
| 1               | 2              | 5                                    | 103                       | 515                     | 320                    | 164800                          |
| 2               | 12             | 4                                    | 435                       | 1740                    | 320                    | 556800                          |
| 3               | 11             | 3                                    | 580                       | 1740                    | 320                    | 556800                          |
| 4               | 18             | 2                                    | 920                       | 1840                    | 320                    | 588800                          |
| 5               | 7              | 1                                    | 785                       | 785                     | 320                    | 251200                          |
| Total           | 50             |                                      | 2823                      | 134                     |                        | 2118400                         |

aggregated for all the farmers in the province which are approximately 2000, the cost can be a reasonable proportion to the GDP of the country.

Table 13. Opportunity cost of power outages

| Area left Idle (ha) | No// of Farmers | Maximum expected yield (ton/ha) | Maximum expected yield lost (tons) | Price per ton (US\$) | Maximum expected loss (US\$) |
|---------------------|-----------------|---------------------------------|------------------------------------|----------------------|------------------------------|
| 3                   | 2               | 6                               | 36                                 | 320                  | 11520                        |
| 5                   | 9               | 6                               | 270                                | 320                  | 86400                        |
| 8                   | 2               | 6                               | 96                                 | 320                  | 30720                        |
| 10                  | 15              | 6                               | 900                                | 320                  | 288000                       |
| 12                  | 1               | 6                               | 72                                 | 320                  | 23040                        |
| 15                  | 2               | 6                               | 180                                | 320                  | 57600                        |
| 20                  | 7               | 6                               | 840                                | 320                  | 268800                       |
| 25                  | 1               | 6                               | 150                                | 320                  | 48000                        |
| 30                  | 5               | 6                               | 900                                | 320                  | 288000                       |
| 40                  | 1               | 6                               | 240                                | 320                  | 76800                        |
| 50                  | 4               | 6                               | 1200                               | 320                  | 384000                       |
| 80                  | 1               | 6                               | 480                                | 320                  | 153600                       |
| Total               | 50              | 6                               | 5364                               |                      | 1716480                      |

Table 13 shows the opportunity cost of not putting a certain hectare by farmers under winter wheat. The opportunity cost of unplanted area is so high

US\$1 716 480. The nation is losing a lot as a result of the unplanted area. The opportunity cost has been estimated just to show how the country is suffering from these outages.

The total cost of the 50 farmers as a result of electricity outages were estimated at US\$3,834,880 (US\$2 118 400 + US\$1 716 480). This amount is enough to meet imports for one month for the na-

tion. The cost of lost yield and opportunity cost showed how the GDP of the nation is declining, how the exports of the nation are being affected and how the country is subjected to unnecessary cost to import the additional wheat to feed the nation.

## 8. CONCLUSION

The findings show that electricity outages had a negative effect on quantity of wheat. Outages also caused damages to equipment like pumps and motors. As the number of hours of outage increased the hectareage wheat irrigation decreased. Yield also decreased from an average of 6 tonnes per hectare to 4 tonnes per hectare. Other problems that contributed to a reduction in the area under wheat production were lack of inputs and equipment for land preparation and harvesting. In addition, production loss method and opportunity cost were used to calculate the cost of power outages to farmers.

Although a lot of analysts argue that the only solution to solve Zimbabwe's electricity problems will come by resolving governance and political issues in the country, this article recommends some form of solutions to the problem from the view point of ZESA, farmers and the government.

### Recommendations to ZESA

- ZESA should implement proper demand management system (DMS) for electricity taking not of productive sectors demand for electricity. In this context ZESA should be able to provide farmers with some information in terms of the times of power cuts such that farmers can plan when to irrigate. This would assist in minimizing water stress in the crops. Information or warnings provided to farmers would assist in reducing

damages to equipment as farmers would shut down their equipment in time before outages occur. Warnings would give farmers enough time to take measures such as connecting to generators or make use of diesel pumps such that there are no disturbances in the irrigation.

- ZESA should get into special arrangement with farmers for example payment of bills in foreign currency as is happening in mining such that the farmers are not switched off during their time of great need. Foreign bill payment will also assist ZESA in maintaining the grid as 70% of inputs required are paid in foreign currency.
- ZESA should weigh options in terms strategic and non-strategic industries. In this case wheat production is strategic. Effects of poor wheat output can be felt by the whole economy; as a result farmers in wheat production should not be load shedded.

### Recommendations to Farmers

- Farmers should invest in alternative sources of power or irrigation equipment that does not use electricity alone. For example they should invest in generators which can be used during the time of outages. Private generation will assist then having whole year irrigation other than waiting for ZESA to provide electricity. Farmers should understand that the country is under crisis; therefore they should play their role other than continuously blaming ZESA and government.
- Farmers should also keep important spare parts of their irrigation equipment as it has been realized that more time is lost in trying to fix the pumps and motors damaged due to outages. This time lost can even worsen the water stress in the

crops even if power is in supply.

- Farmers should also plan in advance in terms of inputs requirement other than waiting for the season to come and then start looking for inputs.

### Recommendations to Government

- The government should avail some schemes for supporting farmers in acquiring the irrigation equipment in the form of generators, pumps and electric motors. This would assist farmers in acquiring state of the art irrigation equipment. The equipment would help increase hectareage under winter wheat.
- The government should negotiate and resume the importation of electricity from neighbouring countries to cushion the imbalance of supply and demand. Electricity importation will reduce power outages of which farmers should not reduce their hectareage.
- Since farmers did not cite electricity outage as the main problem but also lack of other inputs, government should make sure that the inputs are provided on time.

The concentrated effort of government, the power utility ZESA and the farmers at large can help the wheat farmers rescue the situation and improve wheat output. Even though there was high inflation in Zimbabwe than any other country in the world, the Zimbabwean's case was a special one, as proved theories failed to apply.

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**Delimiting Spheres of Influence  
of Gweru and Their Role in the  
Development Planning of the  
Midlands Province of Zimbabwe**

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Steven Jerie \*

### Abstract

This study aims at identifying the service areas of Gweru and other settlements in the Midlands province of Zimbabwe. This is because a close relationship exists between any settlement and the countryside around it. The delimitation of service areas is based on the study of the economic, social and administrative functions offered by the central places. Questionnaires and interviews were used to gather data from the authorities of these functions. Secondary data sources were also used and these included topographic maps, bus timetables, daily and weekly newspapers, published papers and reports from the Central Statistical Office (CSO). Reilly's Law of Retail Gravitation was also employed as a statistical method to test against the empirical method. It was established that the sphere of influence of Gweru is mostly concentrated about the Midlands Province and it is not hexagonal in shape as predicted by Walter Christaller for most service areas. The distortions in shape are due to several factors that include competition from other centres, elongation along transport routes, the impact of administrative boundaries and other truncation factors. The hierarchy of settlements formed is an unbalanced one with two dominant grade 6 centres, Gweru and Kwekwe, and it shows lack of settlements in the middle orders. This situation is typical of a primate settlement hierarchy. Service area study is vital in development planning of the Midlands Province as it assists in identifying those areas of the region that are lacking in terms of service provision.

**Keywords:** Sphere of influence, Central Place Theory, Reilly's Law of Retail Gravitation, Threshold population, Isotropic plain, Development planning

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## INTRODUCTION

There is a close relationship between a central place and its environs otherwise known as its sphere of influence or service area. The central place owes much of its sustenance to the patronage of the surrounding area, its sphere of influence, which supplies it with a proportion of its visitors or customers who wish to benefit from its economic, social and recreational services (Harvey 1978; Hudson 1981; Heath 1991; Carter 1995). The central place is thus the collecting and marketing centre for a wider area than it covers. It is an epitome of the social and economic character of the whole region under its influence. The central place is also the main agency through which external influences are disseminated to the smaller settlements within its influence (Hudson 1981; Whyne 1990; Daniel and Hopkinson 1994; Johnstone 1994).

Analysis of central places and their service areas is a vital tool for development planning (Barke and O'Hare 1984; Hanratty and Heath 1984; Wekwete 1988; Heath 1991; Carter 1995). The study of the entire urban system enables a rational understanding of the spatial relationships or linkages that exist. Development planning requires an understanding or appraisal of the regional settlement system and the role of each settlement within the provincial framework. Studying a single settlement in isolation is incomplete in that it does not provide linkages that exist within a network of settlements nor does this show rural areas that interact economically and socially with central places.

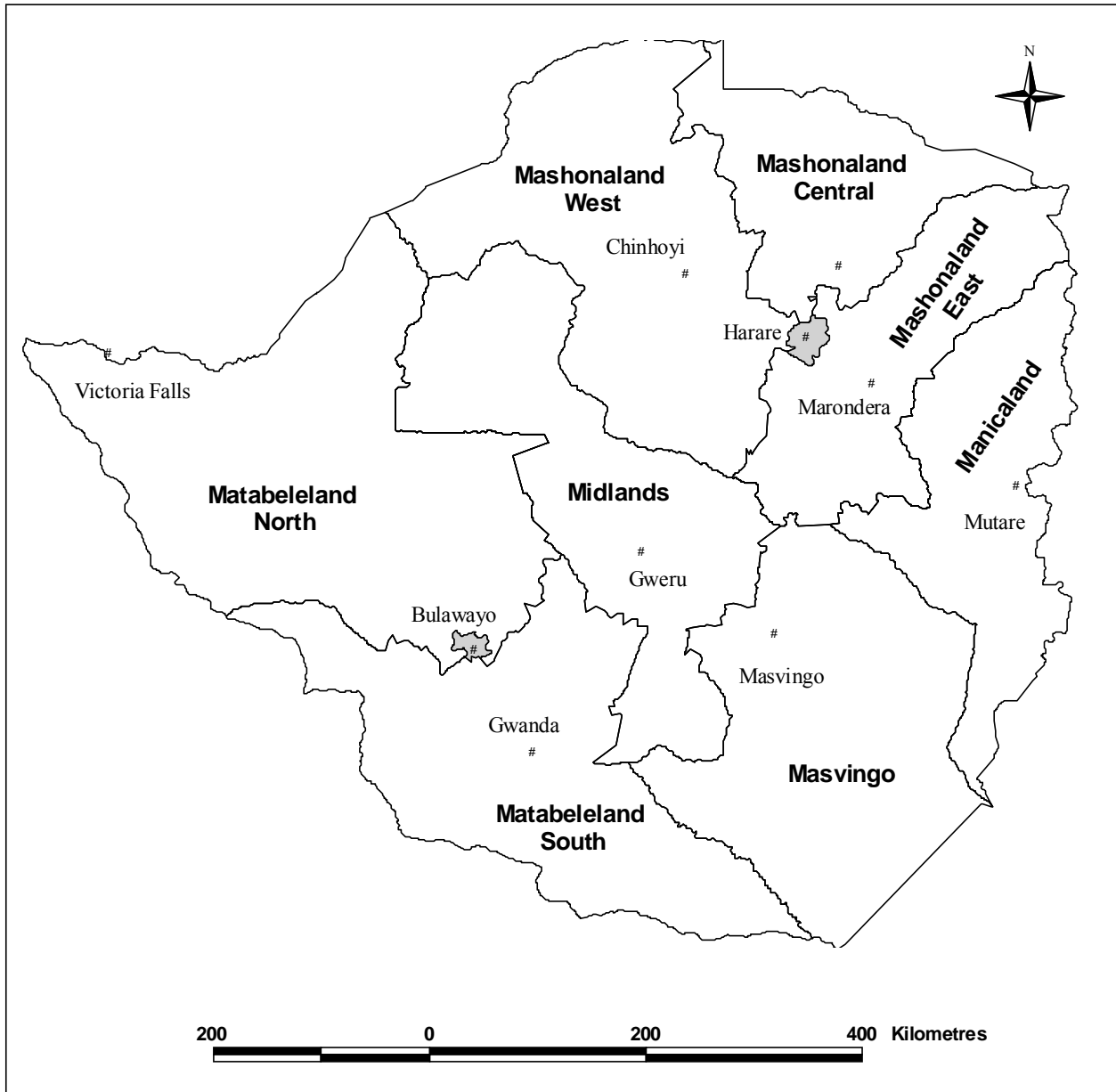


Fig. 1. The Location of the Midlands Province in Zimbabwe

This study aims at determining the spheres of influence of settlements in the Midlands Province of Zimbabwe (Fig. 1). This is in an attempt to determine the socio-economic and administrative linkages of the areas served, thereby examining if there is a relationship between the linkages established and those embodied in Walter Christaller's economic model. Gweru as the provincial capital is a strategic centre in so far as the mapping of the spatial structure of the Midlands Province is concerned. It is therefore vital to examine in depth the social and economic linkages of the region.

Settlements vary in sizes and provide different goods and services (i.e. functions). A settlement that provides these goods and services to the surrounding population is referred to as the central place. In 1933 Walter Christaller attempted to provide a model that described the ordering of central places according to the number of functions they offered and their functional complexity. He developed his ideas based on central places in Southern Germany and the ideas were summarised in a publication entitled *Die Zentralen Orte in Suddeutschland* (meaning "Central Places in Southern Germany"). In his model describing the size and shape of central places, Christaller (1933) noted that the central place provides, among other services obtainable in the smaller centres, relatively complex services like wholesaling, specialised retailing, large banking, tertiary education and specialised medical services ( Dicken and Lloyd 1990). A hierarchy that develops among the centres results chiefly from the degree of complexity attained by different centres. The lowest order settlements perform simple functions which are limited in number and kind by the population within usual range of the centre. A centre of the next higher order

furnishes all the functions of the lower order plus a number of goods and services that it can furnish as a result of its greater range (Daniel and Hopkinson 1994; Hartshorne 1992; McBride 1991; Yeates and Garner 1976). This phenomenon continues until the highest order with the most complex functions is attained. In Zimbabwe attempts were made in 1977 by Harvey and in 1978 by Heath to test certain aspects of the Central Place Theory. Heath undertook her study on a national scale while Harvey confined her study to a specific communal area.

Two economic principles underlie the Central Place Theory and these appear to apply in the real world (Briggs 1982; Bradford and Kent 1982; Dicken and Lloyd 1990; Harmse 1995). The first principle is that of the range of a good or service. The range is the maximum distance a customer is prepared to travel to obtain a good or a service (Bradford and Kent 1982; Briggs 1982; Waugh 1995). The further a person is from a central place, the more costly it will be to obtain the good or service. This is because of the extra costs involved in obtaining a low order commodity such as bread. However, a customer would be prepared to travel longer distances to obtain a higher order good such as a new car or for a higher order service such as university education.

The second principle is that of threshold. In order to provide a particular good or service profitably, there is a minimum population required. This is called the threshold population. Functions depend on different threshold populations, e.g. butchery will have a smaller threshold than a supermarket. It means that a population that supports several butcheries may support only a single supermarket. In order to maximise his/her profit an entrepreneur will aim at obtaining a range of good that is larger than the threshold. In

developing the concepts of the central place theory a number of assumptions were made to simplify reality and these included the following (Bradford and Kent 1982; Heath 1991):

- ◆ There is an unbounded uniform plain and there is ease of transport in all directions and transport costs are proportional to distance with only one form of transport;
- ◆ Population is evenly distributed over the plain;
- ◆ Central places are located on the plain to provide goods, services and administration services to their surroundings;
- ◆ Consumers visit the nearest central place that provides the function in demand to minimise distance travelled;
- ◆ Suppliers of functions act as economic persons in that they maximise their profits by locating on the plain such that they benefit from the largest possible market;
- ◆ High order centres supply high order functions not offered by low order centres and all functions offered in low order centres; and
- ◆ All consumers have the same income and the same demand for goods and services.

These assumptions are too simplified to hold true in the real world and were made as the starting point in the development of the central place theory. The principles of range and threshold, however, seem to hold true in the real world and give some credence to Christaller's ideas.

## METHODOLOGY

The delimitation of the service areas was made chiefly from a study of socio-economic functions of a divergent character (Table 1). Two methods were used in the establishment of the extent of influence of the functions. One method was whereby the customers of the service areas were interviewed to determine the purposes of their visits. The other method is whereby the areas served by the functions were provided by the authorities of the functions for example sales managers in the case of retail shops. Areas served by the functions were then demarcated using single lines following administrative boundaries.

Table 1. Functions used in the delimitation of service areas

| Economic Functions                  | Social Functions              | Administrative Functions        |
|-------------------------------------|-------------------------------|---------------------------------|
| Retail shops                        | Educational institutions      | Provincial administration       |
| Departmental shops                  | Libraries                     | District administration         |
| General dealers                     | Police                        | Council/Municipal               |
| Restaurants/ delicatessens          | Hotels                        | Government ministry departments |
| Financial e.g. banks/ insurances    | Other places of entertainment |                                 |
| Specialist e.g. chemists, opticians | Churches                      |                                 |
| Professional offices                | Museums                       |                                 |
| Service trades                      |                               |                                 |
| Wholesaling                         |                               |                                 |
| Warehousing                         |                               |                                 |
| Automotive/ service garages         |                               |                                 |

$$Ba/Bb = Pa/Pb \times (Db/Da)^2$$

where Ba is business which city A draws from intermediate town T

Bb is business which city B draw from intermediate town T

Pa is population of town/city A

Pb is population of town/city B

Da is distance of city/town A from intermediate town T

Db is distance of city/town B from intermediate town T

The empirical method is compared with the statistical method that uses Reilly’s Law of Retail Gravitation. The law of retail gravitation states that all things being equal, two cities will attract retail trade from any intermediate smaller city or town approximately in direct proportion to the populations of the two cities and in inverse proportion to the distances of the two cities to the intermediate city or town. The general formula for the law of retail gravitation is as follows:

The law of retail gravitation can be restated and hence the number of kilometres from trading centre A to the breaking point computed between straight line AB is:

$$1 + \frac{\text{Distance AB}}{\sqrt{\frac{\text{population of town B}}{\text{population of town A}}}}$$

## Results and Discussion

The service areas based on the type of customer visit and frequency of customer trips are shown in Figs. 2 and 3 respectively. The more frequent visits to Gweru were those on a weekly basis rather than monthly because of the limitations imposed by transport costs and availability as indicated by Fig3. This clearly reflects the impact of the concept of distance decay and range of a good or service whereby with distance from a central place a customer becomes less willing to travel to obtain it.

DELIMITATION OF SPHERES OF INFLUENCE OF GWERU USING THE TYPES OF CUSTOMER TRIPS

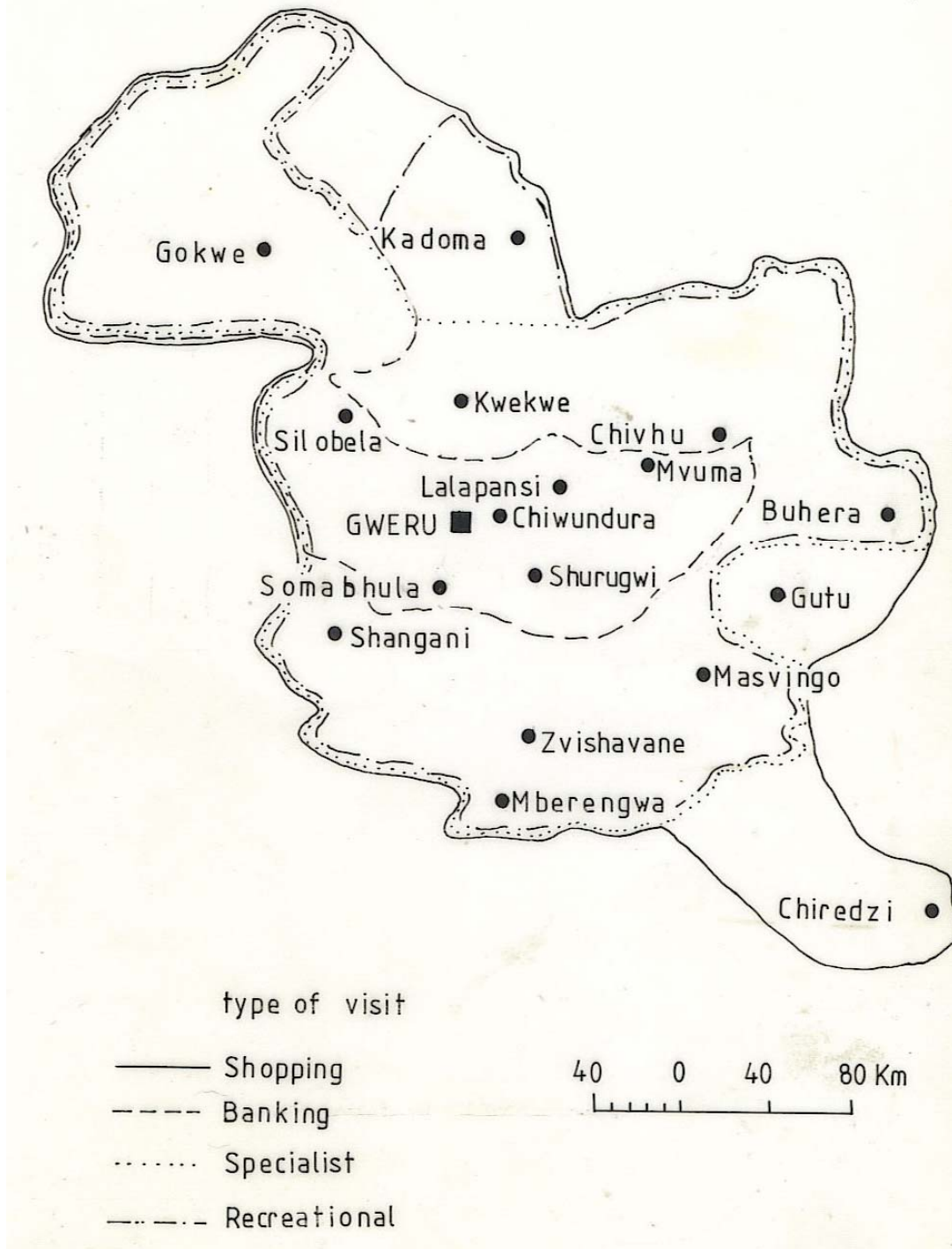


Fig. 2 Spheres of Influence Based on Purpose of Visits



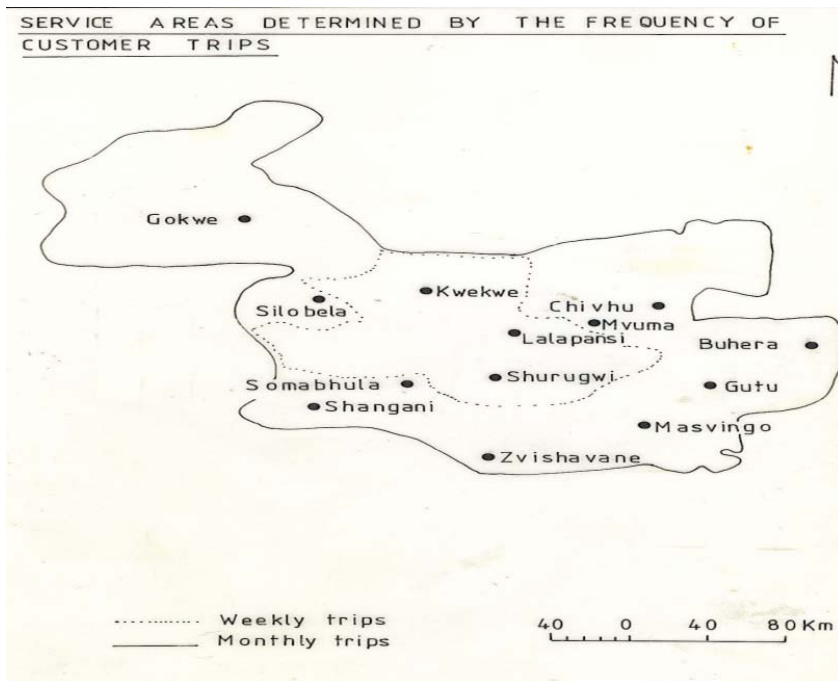


Fig. 3 Spheres of Influence Based on Frequency of Visits

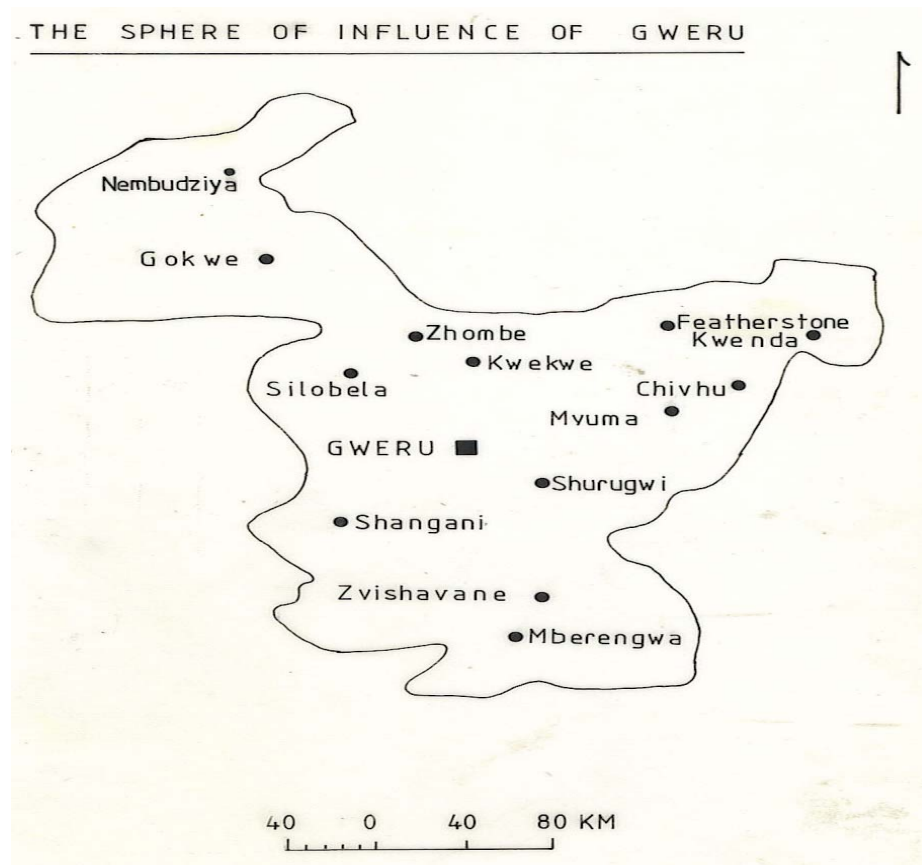


Fig.4. The Overall Sphere of Influence of Gweru Based on Functions

### The Use of Reilly's Law of Retail Gravitation in Delimiting Service Areas

Break points were calculated using the law of retail gravitation and these were based on Gweru as the main centre. The break points were thus calculated between Gweru and three other competing centres namely Bulawayo, Kwekwe and Masvingo. Bulawayo, a seventh order centre and the second largest centre in Zimbabwe, is a serious competitor to Gweru and it would be very interesting to establish how its place on the hierarchy of centres influences the extent of its trade area. The other two competitors are Kwekwe and Masvingo, both sixth order centres like Gweru. The service area delimited for Gweru is shown in Fig.5 and shows a triangular pattern which is very much different from the hexagonal pattern postulated by Christaller.

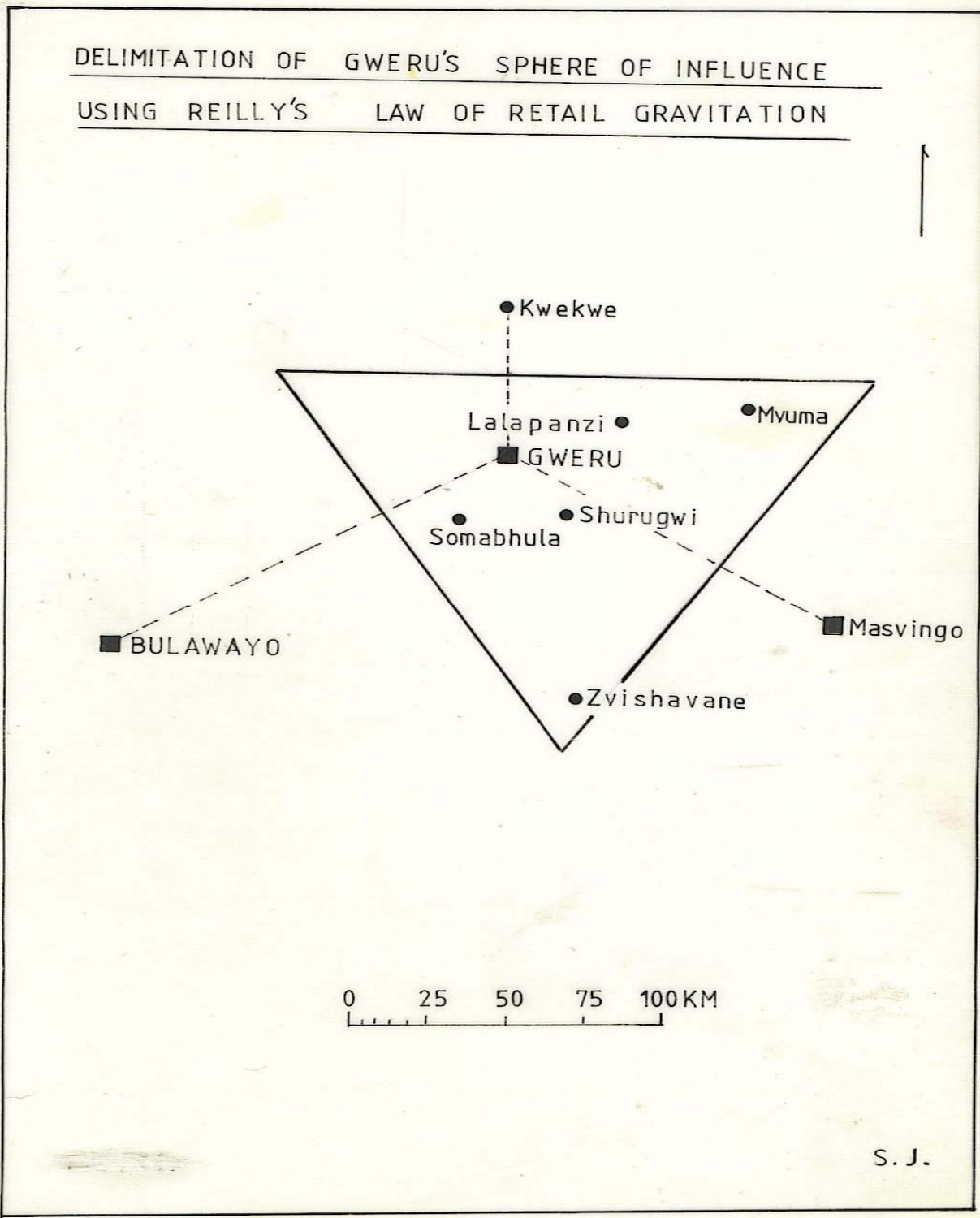


Fig.5 Delimiting Gweru's Sphere of Influence Using Reilly's Law of Retail Gravitation

### Analysis of Service Areas

Central places in the Midlands can be ranked into a hierarchy with Gweru and Kwekwe as the main centres in Group 6 and these are the highest order centres in the province. The overall service area of Gweru shown in Fig. 4 takes on an oval shape. Within it there is some degree of nesting among the other centres. The grade 6 centres i.e. Gweru and Kwekwe are dominant and link directly with the lower order centres in grade 2 namely Shurugwi, Gokwe and Mvuma and those in grade 1 such as Cross-roads, Nkayi, Sessame, Sanyati, Donga, Tongogara and Chinyenyetu. However, this direct link with lower order centres is a reflection of a primate distribution whereby the middle order centres are by-passed by customers as they search for most goods and services in Gweru and Kwekwe instead of simply visiting centres such as Zvishavane, Shurugwi and Gokwe Centre. This confirms the findings made by Heath in 1986 that it is in the middle levels of the functional hierarchy that Zimbabwean central places are least developed and nesting occurs within service areas of higher order centres. These smaller centres only provide lower order services such as clinics, schools, shops, barbers, simple repair facilities and marketing and therefore look to the higher order centres for services such as referral hospital services, higher education, luxury shopping, high quality entertainment and banking. The hierarchy is an unbalanced one as more centres are concentrated in the lower orders and these are dominated by the provincial capital Gweru and Kwekwe the second largest settlement in the Midlands. This hierarchy or spatial organisation is heavily influenced the  $k = 7$  administrative principle. Christaller developed a 'k' value that reflected the number of lower order cen-

tres dominated by the higher order centres. In this case the sphere of influence of Gweru covers the entire Midlands in terms of administrative functions because of its status as the prime city of the province. The administrative principle is thus defined as follows:

$$k = (6 + 1) + 1 = 7$$

This means that the central place dominates wholly all the central places within its jurisdiction and serves its own population as it provides administrative services to them.

Table 2. The hierarchy of central places in the sphere of influence of Gweru

| Grade of Centre | Number of Functions | Centres   |
|-----------------|---------------------|---|
| 6               | 61 and above        | Gweru, Kwekwe/Redcliff  |
| 5               | 49-60               | Zvishavane  |
| 4               | 41-48               | Shurugwi  |
| 3               | 28-40               | Mvuma   |
| 2               | 13-27               | Crossroads, Tongogara, Siyahokwe, Sesame, Chinyenyetu, Mberengwa, Zhombe, Lalapansi, Somabhula, Zhombe, Munyati, Empress Mine, Mataga   |
| 1               | 1-12                | Donga, Chinyemba, Mataga, Insukamini, Masase, Musipane, Mutambi, Bonda, Chegato, Makuva, Mabasa, Matarusa, Mapanzure, Mwembe, Matenda, Mahonde, Muchakata, Njelele, Nyama, Komera, Maboleni, Dendera, Zomba, Manoti, Chireya, Nembudziya, Gwanyika, Goredema, Runyararo, Battlefields, Kurimirana, Mavorombondo, Mwenezi, |

It was also noted that there is a complex relationship between the quality/order of functions offered by a central place and its population size. In Zimbabwe in general, centres in grades 6,7 and 8 (Harare, Bulawayo, Gweru, Mutare, Kwekwe, Kadoma and Masvingo) attain high ranks according to both population and functional complexity. However, the situation becomes complex in the middle and lower orders, for example, in the central place hierarchy of Zimbabwe the Midlands town of Mvuma is ranked 38 according to population, but is 31 according to functional rank. This is attributed to the fact that the town concentrates more on servicing a population inclined towards the commercial sector rather than the rural sector. There are also centres that are associated more

with the mining sector such as Shurugwi, Zvishavane and Mashava that have a lower functional rank in relation to the population rank as these are more involved with a specialised sector of mining than the service provision sector. In terms of threshold population sparsely populated areas have larger service areas than densely populated areas. Areas with a high purchasing power located within commercial farming area meet the requirement of a minimum population that has to be served than those with a sparse population and low purchasing power. Other Zimbabwean settlements with a lower functional rank in relation to population include Hwange, Mhangura,

Triangle, Mashava, Dete and Mutorashanga and this is also attributed to some element of specialisation of economic activity. The hierarchy of some of the dominant central places in Zimbabwe is shown in Table 3 .

Table 3. The hierarchy of central places in Zimbabwe

| Settlement         | Rank according to Population  | Rank according to Functions   |
|--------------------|---|---|
| Harare/Chitungwiza | 1   | 1   |
| Bulawayo           | 2   | 2   |
| Gweru              | 3   | 3   |
| Mutare             | 4   | 4   |
| Kwekwe/Redcliff    | 5   | 5   |
| Masvingo           | 6   | 6   |
| Kadoma             | 7   | 7   |
| Marondera          | 8   | 8   |
| Chinhoyi           | 10  | 9   |
| Bindura            | 11  | 11  |
| Chiredzi           | 24  | 12  |
| Rusape             | 18  | 13  |
| Karoi              | 17  | 14  |
| Zvishavane         | 9   | 15  |
| Other              | Centres with a higher functional rank in relation to population   | Centres with a low functional rank in relation to population  |
|                    | Gwanda, Victoria Falls, Chipinge, Banket, Norton, Beitbribge, Chivhu, Mvuma, Shamva, Gutu, Mutoko, Murewa, Glendale, Filabusi | Hwange, Kariba, Shurugwi, Mhangura, Dete, Triangle, Mashava, Mutorashanga, Nyazura, Penhalonga, Arcturas, Chimanimani, Concession |

The sphere of influence of Gweru and service areas within it reflects a distorted picture of Christaller's primary hexagonal lattice. The distortion can be explained by a number of factors in the absence of an isotropic plain or homogeneous population density. In the first place administrative boundaries were used in the delimitation process and these in themselves are irregular in shape. In the south west of Bulawayo, the presence of a centre with a higher grade than Gweru, Bulawayo, has greatly reduced the extent of the service area of Gweru since it draws more customers. Distortion has also occurred because service regions are elongated along communication routes and away from areas of competition such as Chegutu, Kadoma, Kwekwe, and Masvingo. In the smaller centres the service areas are centred about the central place. These centres include Lalapansi, Munyati, Zhombe, Chinyemba, Insukamini, Makuva, Chireya, Goredema, Nyama and Dendera. Public transport is an important means of movement within the service area of Gweru and this highlights the role of the traffic principle in determining the shapes of service areas. According to the traffic principle low order centres are assumed to be equidistant from two higher order centres. A higher order centre serves half of the population of each of the six surrounding lower order centres and its own population:

i.e.  $k = (1/2 \times 6) + 1 = 4$ ; where  $k$  represents the number of lower order centres dominated by a higher order centre.

The idea of an isotropic plain is therefore difficult to attain due to the fact that population is unevenly distributed in the Midlands and movement of people cannot be equal in all directions. Moreover, human perception is quite complex to predict as not all people act in an economically rational manner by visit-

ing the nearest central place.

The study of the service area of Gweru and other centres within its sphere of influence is vital as it helps in the mapping of the settlement structure of the Midlands. It is possible to arrange the settlements into a hierarchy reflecting the spatial structure and hence identify those areas that require services. The growth point policy used in the decentralisation policy has been premised on the idea of developing the smaller centres such as Gokwe, Zhombe, Mataka, Insukamini, Tongogara, Charandura and Mabasa as centres with identifiable resource bases that can stimulate production and rapid sustained growth. This is an attempt to move away from a polarised economy as reflected by the primate distribution of settlements in the hierarchy of the Midlands. The restructuring of the unbalanced hierarchy in the Midlands and indeed Zimbabwe as a whole would be assisted by developing the rural economy as observed Wekwete in 1988. Wekwete (1988) observed that there was need to develop rural service centres so as to integrate the functions of the lower order settlements serving even up to 10 000 people to avoid walking more than 20 kilometres to the nearest service centres. These would provide the focus for the provision of services such as schools, clinics, local markets, entertainment, telecommunications and ward development centres. District service centres need to be effectively developed into centres that provide higher order functions such as the administration of the district, information, hospitals and training for the district.

## CONCLUSION

The service area of Gweru is complex because it incorporates the service areas of other settlements within its influence. Gweru is the main centre of the Midlands and it is through it that information is disseminated to the settlements within its influence. The socio-economic and political character of the Midlands is epitomised in the sphere of influence of Gweru. It is also possible to arrange settlements within the sphere of influence of Gweru into a hierarchy. However, the resultant hierarchy is an unbalanced one that lacks centres in the middle orders and therefore reflects primacy in the Midlands province and this is associated with a lack of development of most smaller centres. The service area of Gweru is itself oval in shape and nowhere near the primary lattice postulated by Christaller. The ideas of the central place are vital in so far as the development planning of the Midlands is concerned. The polarised hierarchy of the settlement structure can be narrowed down through development of middle and lower order centres by refocusing on the growth point policy. All in all the central place theory assists geographers in planning and policy formulation and it arrived at a time when geography was ready it as the quantitative revolution made the subject scientific in outlook. As noted by Beavon as far back as in 1977, were it not for the dawn of the central place theory, it would not be possible to be so confident of the existence of a theoretical geography independent of any set of mother sciences.

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### Research Reports Submitted

#### Social Science Research Reports

Hussen Eshetu. *The role of non-formal basic education in preventing the spread of HIV to the rural population: Limitations and prospects in Amhara, Ethiopia.*

Kifle Zeleke. *Community response to HIV/AIDS related stigma and discrimination against PLWHA in some selected areas in Ethiopia.*

Richard Wafula Kisaka. *Assessing the relevance of indigenous knowledge systems for sustainable agriculture: A case study of Njoro division, Kenya.*

Sunungurai Dominica Chingarande. *An analysis of the impact of transe-boundary natural resources management on the livelihoods of border communities: The case of ZIMOZA Trans boundary natural resource management area.*

Saif El Din Daoud Abd El Rhman. *The effectiveness of social spending in Sudan: Pro-poor policies or pro-poor spending? Case study of Kassala state.*

Wangenge G. Ouma. *Income generation and the quality crisis in Kenya's public universities.*

Joy Owen. *South Africa. Africa's America: An oasis for African educational migrants?*

Claudious Chikozho. *Policy and institutional dimensions of innovations in Semi-Arid regions: The case of the Makanya-Chome catchments in the Pangani River Basin of Tanzania.*

Edward Mutandwa. *Can biotechnological innovations be considered as a vehicle for revitalizing African agriculture? Case of the Zimbabwean sweet potatoes.*

Carolyn M. Getao. *Flood management in the Kano plains, Kenya: Impacts, people's perception and coping mechanism.*

Euclides Goncalves. *Migrant labour and marriage strategies among youth in southern Mozambique: A study of Ukaba in the administrative*

*post of Mocumbi.*

Jeminos Chipatiso. *The impact of HIV/AIDS stigma on corporate social responsibility: A case study of the mining sector in Zimbabwe.*

Mary Vienney Night & William Kasaija. *The nature and causes of conflict between politicians and public officers in decentralized districts in Uganda.*

Peter Kaumba Lolojih. *The role of civil society in building democracy: A critical assessment of Zambia's return to multiparty politics.*

Richard Wambua. *The making of an engineer: Background characteristics of female engineering students in Kenyan national Polytechnics .*

Satwinder Singh Rehal. *Mining-induced resettlement effects and impoverishment risks: as case study of titanium mineral sands project in Kwale, Kenya.*

Victor Kasulo & J. Luhanga. *Forest resource accounting for improved national income accounts of Malawi.*

Wilson Magaya. *Community based natural resources management: An analysis of community and private sector strategic partnerships as incentives for community participation.*

#### Gender Issues Research Reports

Chikalanga Mweemba Davies. *AIDS Orphans and the Aged/Elderly Women in Zambia.*

Demoz Nigatu Asfaw. *Is HIV/AIDS the gamble girls must take in order to survive? Uncovering the roles of Ethio-American men in persuading the sexual risk-taking behaviors of adolescent girls in Gondar town of Ethiopia.*

Tabarek Lika. *Housing Policy Options for Poor Women in the Ethiopian Urban Slums: Reflections on the Ongoing Condominium Housing Projects and Slums Clearance and Upgrading Schemes in the City of Addis Ababa.*

Nagwa Mohamed Ali El Bashir. *Sudanese Islamist women activists: an Exploration in their Political attitude(s) and perspective(s).*

Sheima Hssan Abdulla. *Knowledge of unmarried adolescent females about reproductive health risks related to Sexual behaviour in Muslim*

*societies in Khartoum Sudan.*

Paul M. Nsimbila. *Violence in marriage in Tanzania: The Case of Shinyanga and Tabora regions.*

Flora O. Kasumba. *Child headed households in Tanzania: A case of Makete district.*

Mutasim Ahmed. Abdelmawla Mohamed. *Gender gap in human development and its impact on economic growth: The case of Sudan (1990 - 2003).*

Andanje Mwisukha. *Towards gender equity in sports: Insights into the under-representation of women in sports leadership in Kenya.*

Basia Dennis Bless. *Gender analysis of urban living conditions of HIV/AIDS orphaned children in Lesotho.*

Celiwe Patience Seyama. *The potential role of civil society in political reform in Swaziland: A case study of civil society groups in the Kingdom of Swaziland.*

Deborah Mulumba. *Sexuality and reproductive health among refugee adolescents in Kampala.*

Idda A. Makawia. *Understanding the linkages between gender roles, ecological deterioration and poverty in Usambara highlands, Tanzania.*

Leah Wambura Kimathi. *Organising from without: The role of women-self help initiatives in reducing poverty in Kibera Slums, Nairobi.*

Mabel Mandela. *Feminization of poverty: An analysis of the informal sector in Zambia.*

Margart Njirambo Matinga. *Integrating gender in the Malawi energy policy and policy formulation.*

Rose Anne Njiru. *Sexual activities and implications for the reproductive health of adolescent street girls in Nairobi.*

Teferi Getahun. *Gender bias in education and its impacts on rural development in Ethiopia: The case of Awi.*

## Latest Publications

### Journal

*Eastern Africa Social Science Research Review*, **XXV, no. 1 (January 2009)**

**Athumani J. Liviga.** *Tanzania: A Bumpy Road to Consolidated Democracy*

**Monageng Mogalakwe.** *The Documentary Research Method – Using Documentary Sources in Social Research*

**Paulos Chanie.** *Disconnect Between Public Sector Management System and Decentralization Reforms: An Empirical Analysis of the Ethiopian Situation*

*Eastern Africa Social Science Research Review*, **XXIV, no. 2 (June 2008)**

Abeje Berhanu. *Matching Extension Service with Farmers' Needs: Towards Combining Social and Agro-Ecological Approaches in Ethiopian Extension*

**Geoffrey Bakunda.** *The Impact of a Liberalised Trade Regime on the Potential for Agricultural Value Addition in Uganda*

**Gebre Yntiso.** *Urban Development and Displacement in Addis Ababa: The Impact of Resettlement Projects on Low-Income Households*

### Book Reviews

*Eastern Africa Social Science Research Review*, **XXIV, no. 1 (January 2008)**

**Degnet Abebaw.** *Determinants of Solid Waste Disposal Practices in Urban Areas of Ethiopia: A Household-Level Analysis*

**Martin Enock Palamuleni.** *An Analysis of the Proximate Determinants of Fertility in Malawi, 1992-2004*

**Emebet Mulugeta.** *Crossing the Hurdle: Survival Strategies of Poor Women in Addis Ababa*

**Sabelo J. Ndlovu-Gatsheni.** *Patriots, Puppets,*

*Dissidents and the Politics of Inclusion and Exclusion in Contemporary Zimbabwe*

**Samuel O. Onyuma.** *Assumptions about Microenterprise Lending as a Precondition for Development: A Critical Review*

#### Book Review

**Eastern Africa Social Science Research Review (Special Ethiopian Millennium Issue XXIII, no. 3 September 2007)**

#### Articles

**Woldeamlak Bewket.** *Rainwater harvesting in drought-prone areas of the Ethiopian Highlands*

**Addis Gedefaw.** *Where is community participation in the Locales? The case of Sida's Woreda support programme in Awabal Woreda*

**Assefa Gebre Habte Wold.** *Opportunities and constraints in agricultural production in Ambo Woreda, Ethiopia*

**Fresenbet Zeleke and Gezahegn Ayele.** *Assessment of comparative advantage of horse bean and lentil production in Basona Werana District, north Shewa, Ethiopia*

**Wassie Berhanu and David Colman.** *Farming in the Borana rangelands of southern Ethiopia: The prospects for viable transition to agro-pastoralism*

**Eastern Africa Social Science Research Review, XXIII, no. 2 (June 2007)**

#### Articles

**Antony W. Odek and James Alan Oloo.** *Challenges facing community home based care programmes in Botswana.*

**Joses Muburi Kirigja; Eyob Zere Asbu, William Greene and Ali Emrouznejad.** *Technical efficiency, efficiency change, technical progress and productivity growth in the national health systems of continental African countries.*

**M. O. Esilaba; N. T. Maara and J. K. Tangus.** *Impact of human-wildlife conflict resolution on wildlife conservation and socio-economic welfare of pastoral communities: A case study of Samburu Pastoralists, Samburu District, Kenya.*

**Ndirangu M.; Mwangi J.K. and Changeiywo J.**

*Educational provision for the academically gifted: Rhetoric or reality? Case of primary schools in Nyandarua District, Kenya.*

**Tesfaye Semela.** *Identification of Factors contributing to gender disparity in an Ethiopian University.*

**Getnet Alemu.** *Revisiting the entitlement approach to famine: Taking a closer look at the supply factor-A critical survey of a literature.*

#### Book Review

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**John Mw Makumbe.** 2009 *Zimbabwe Survival of a Nation*

**Kembo Sure and anathan O. Ogechi.** 2009. *Linguistic Human Rights and Language Policy in the Kenyan Education System*

**OSSREA.** 2009. *Good Governance and Civil society Participation in Africa*

**Michael Wainaina.** 2009. *Gender in Nascent Module II Programmes in Kenyan Public Universities: A Descriptive Survey*

**Woldeamlak Bewket.** 2009. *Adapting to Rainfall Variability in the Drought-Prone Areas of the Amhara Region of Ethiopia: Rainwater Harvesting as a Livelihood Strategy*

**Kembo-Sure and Nathan O. Ogechi.** 2009. *Linguistic Human Rights and Language Policy in the Kenyan Education system*

**Moges Yigezu.** 2009. *Language Ideologies and Challenges of Multilingual/Multiscriptural Vernacular Education: the Case of Harari Region, Ethiop*

**Nsolo J. N. Mijere.** 2009. *Informal cross-border trade in the Southern African Development Community (SADC).*

**J.C. Munene.** 2009. *The management of universal primary education in Uganda.*

**Julius H. Mangisoni.** 2009. *Farm-level economics of soil-conservation practices in the Zomba rural development project of Malawi.*

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- formation and Communication Technology (ICT) in learning: Gender differences in the attitudes of secondary school students of Botswana.
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- Charles Nzioka.** 2009. *Willing fathers, reluctant parents: Young men's perspectives on unwanted pregnancies and abortion in Kenya.*
- Zerihun Gudeta Alemu and Herman Daniel Van Schalkwyk. 2009. *Market Integration in Mozambican Maize Markets.*
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- OSSREA. 2008. *Ebikwata Ku Ndwadde Ya Mukenenya Mu Mbeera Y'olutalo Mu Bukiikakkono Bwa Uganda. Ebyetaago N'enkola Ez'okubeezaawo Abakyala Bannamaka Abalina Siriimu: Okugezesebwa Kwa Disitulikiti Y'e Masaka, Uganda (Translated Summary of The*

*HIV and AIDS challenge in Africa: The case of Uganda*)

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**Habtamu Wondimu.** 2008. *Handbook of peace and human rights education in Ethiopia.* ISBN: 978-99944-55-11-9

**Paul Tiyambe Zeleza and Alfred G. Nhema** (eds.). 2008. *The roots of African conflicts: The causes and costs.* ISBN 978-1-84701-300-2. £17.95.

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*Proceedings of the international conference on international aid, trade and development in Africa: The search for a development paradigm.* ISBN 978 99944 55 00 4.

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**Tesfaye Tafesse.** 2007. *The migration, environment and conflict nexus in Ethiopia: A case study of Amhara migrant-settlers in East Wollega Zone.* xv + 173 pages, ISBN-978-1-904855-84-2 US\$9.00/Eth. Br. 65.00.

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**Mary Njeri Kinyanjui and Meleckidzedek Khayesi.** 2005. *Social capital, micro and small enterprises and poverty-alleviation in East Africa.* xiii + 130 pages, ISBN-13-978-1-904855-60-1, US\$9.00/Eth. Br. 65.00.

**Kennedy Nyabuti Ondimu.** 2005. *Risky sexual behaviours among migrant tea plantation workers in Kenya.* xiii + 127 pages, ISBN-13-978-1-904855-63-6, US\$9.00/Eth. Br. 65.00.

**Richard Y. M. Kangalawe, Amos E. Majule and Elieho K. Shishira.** 2005. *Land-use dynamics and land degradation in Iramba District, Central Tanzania.* xiii + 130 pages, ISBN-13-978-1 904855- 62- 8, US\$9.00/Eth. Br. 65.00.

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**Achola, P.W. Paul et al.** (eds.). 2004. *Governance, society and development in Kenya.* OSSREA Kenya Chapter, Kenya. Moi University Press, X+157 pages. ISBN 9966-854-38-X

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**Nhema, Alfred G.** (ed). 2004. *The quest for peace in Africa: Transformations, democracy and public policy*. 416 pages. ISBN 9057270498. US\$29.95/Eth. Br. 198.00.

**Zewde, Bahru** (ed). 2003. *Land, gender and the periphery: Themes in the history of eastern and southern Africa*. vi + 178 pages. ISBN 0 954538420 paperback. US\$ 15.00/Eth. Br. 65.00.

Salih, M. A. Mohamed (ed). 2003. *African political parties: Evolution, institutionalisation and governance*. Pluto Press. 372 pages. ISBN 0 7453 2038 4 hardback. US\$25.00. ISBN 0 7453 2037 6 paperback. US\$20.00.

Ahmed, Abdel Ghaffar M. 2002. *Changing systems of livelihood in rural Sudan*. 220 pages. ISBN 0 95420302X. US\$10.00/ Eth. Br. 45.00.

\_\_\_\_\_. 2002. *Anthropology in the Sudan: Reflections by a Sudanese anthropologist*. 192 pages. ISBN 90-5727-044-7. US\$17.00/Eth. Br.145.00.

**Babiker, Mustafa** (ed). 2002. *Resource alienation, militarisation and development: Case studies from East African drylands*. vii + 205 pages. US\$10.00/Eth. Br. 45.00.

**Muhereza, Frank**, and **Peter Otim**. 2002. *Pastoral resource competition in Uganda: Case studies into commercial livestock ranching and pastoral institutions*. 192 pages. ISBN 0 95420302X. US\$17.00/Eth. Br.145.00.

**Assefa, Taye; Severine, M. Rugumamu** and **Abdel Ghaffar M. Ahmed** (eds). 2001. *Globalization democracy and development in Africa: Challenges and prospects*. iv +379 pages. ISBN 0 9521269 4 X. US\$15.00/Eth. Br. 100.00.

**Negussie, Getachew Kassa**. 2001. *Among the pastoral Afar in Ethiopia: Tradition, continuity and socio-economic change*. 208 pages. ISBN 90-5727-039-0. US\$17.00/ Eth. Br. 145.00.

**Salih, M. A. Mohamed** (ed). 2001. *Local environmental change and society in Africa*. viii + 225

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**Salih, M. A. Mohamed; Ton Dietz** and **Abdel Ghaffar M. Ahmed** (eds). 2001. *African pastoralism: Conflict, institutions and government*. vii + 311 pages. ISBN 0-7453-1787-1. US\$22.00/Eth. Br. 188.00.

OSSREA. *OSSREA on CD*. 2001. US\$20.00/Eth. Br. 170.00.

#### Environmental Forum Publications Series

**Moleele, Nkobi M.** and **Ntshabane, Tidimane**. 2002. Environmental management in Botswana. Have the national conservation plans worked? *Environmental Forum Publications Series* no. 5 vii + 63 pages. US\$8.00/Eth. Br. 35.00.

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**Shumba, Veronica; Enos, Mutikani** and **Baker, Sibongile**. 2002. Environmental management in Zimbabwe: Have the national conservation plans worked? *Environmental Forum Publications Series* no. 4. viii + 55 pages. US\$8.00/Eth. Br. 35.00.

#### Research Reports

*Social Science Research Report Series*, No. 33. vi + 176 pages. ISSN 1608-6287. US\$8.00/Eth. Br. 63.00. (anthology of three reports)

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**Belete, Zewdu** and **Assefa, Yemesrach**. Willingness-to-pay for protecting endangered environments: The case of Nechsar National Park. *Social Science Research Report Series* No. 31. vii + 31 pages. ISSN1608-6287. US\$5.00/Eth. Br. 22.00.

**Nalugwa, Sarah**. Indigenous approaches to the HIV/AIDS scourge in Uganda. *Social Science Research Report Series* No. 30. ix + 57 pages. ISSN1608-6287. US\$6.00/Eth. Br. 39.00.

**Bewket, Woldeamlak.** Land degradation and farmers' acceptance and adoption of conservation technologies in the Digil watershed, Northwestern Highlands of Ethiopia. *Social Science Research Report Series* No. 29. iiiiv + 65 pages. ISSN1608-6287. US\$5.00/Eth. Br. 35.00.

*Gender Issues Research Report Series*, No. 23. vi + 164 pages. ISSN 1608-6295. US\$7.00/Eth. Br. 59.00. (anthology of three report)

**Onsongo, Jane.** Factors affecting women's participation in university management in Kenya. *Gender Issues Research Report Series* No. 22. ix + 65 pages. ISSN 1608-6295. US\$5.00/Eth. Br.40.00.

**Wawire, Violet K.** Gender and the social and economic impact of drought on the residents of Turkana District in Kenya. *Gender Issues Research Report Series* No. 21. vii + 29 pages. ISSN 1608-6295. US\$5.00/Eth. Br. 30.00.

**Kilavuka, Janet Muyoma.** A comparative study of the socio-economic implications of rural women, men, and mixed self-help groups: A case of Kakamega District. *Gender Issues Research Report Series* No. 20. vii + 57 pages. ISSN 1608-6295. US\$5.00/Eth. Br. 36.00.

#### **Development Research Report Series**

**Huggins, Christopher.** 2003. Rural water tenure in Kenya and Tanzania: Changing tenure patterns, legal regimes and community responses. *Development Research Report Series* No. 5. ISSN 1608-8875. viii + 84 pages. US\$12.00/Eth. Br. 51.00.

**Teka, Tegegne and Azeze, Alemayehu.** 2002. Cross-border trade and food security in the Ethiopia-Djibouti and Ethiopia-Somalia borderlands. *Development Research Report Series* No. 4. ISSN 1608-8875. vi + 63 pages. US\$6.00/Eth. Br. 31.00.

**Ahmed, Abdel Ghaffar M.; Alemayehu Azeze; Mustafa Babiker and Diress Tsegaye.** 2002. Post-drought recovery strategies among the pastoral households in the Horn of Africa: A review. *Development Research Report Series* No. 3. ix + 70 pages. US\$12.00/Eth. Br. 49.00.

## **Forthcoming Publications**

**Pius T. Tanga.** 2009. *Informal Sector and Poverty: The Case of Street Vendors in Lesotho*

**Zn Mfono.** 2009. *Analysis of Changing Rural Women's Reproductive Behaviour Patterns in South Arica*



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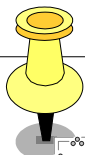
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