

*Full Length Research Paper*

# Socioeconomic characteristics of prisoners and food insecurity occurrence and prevalence in Malawi's prisons

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While Malawi's per capita cereal production may be higher than her per capita cereal consumption, Malawi is a net cereal importer and thus food insecure. The food situation is much worse in Malawi's prisons because inmates generally eat one meal per day. The objective of this study was to determine socioeconomic characteristics of prisoners and food insecurity occurrence and prevalence in Malawi's prisons. Using structured questionnaires in face to face interviews, the study collected data from 1000 prisoners and 30 officers-in-charge from all prisons in the country. The data was analysed using Stata 12. Results from the analysis showed that Malawian prisoners were youthful, their mean age being 27.4 years. About 71% of the offenders had either no education at all, or had various levels of primary school education. Few prisoners had secondary school education and only about 1% had tertiary education. Most prisoners came from far away from prison and, consequently, they did not receive meals from home. About 70% of the prisoners considered themselves poor, while 95% considered themselves food insecure. Of these, 89% were severely food insecure.

**Key words:** Malawi's prisons, food insecurity occurrence, food insecurity prevalence, severely food insecure.

## INTRODUCTION

The introduction gives a brief narrative about Malawi's prisons, states the problem and makes a justification for the study. Study objectives are then given and finally, study limitations are presented.

Politically, Malawi is divided into four regions, these being the Northern, the Central, the Eastern and the Southern regions. There are six prisons with a prisoner population of 1,717 in the Northern region. In the Central region, there are eight prisons with a prisoner population of 3,784. The Eastern region has eight prisons with 4,072

prisoners, while the Southern region has 3,025 prisoners in eight prisons. There were thus 12,598 prisoners in Malawi's 30 prisons in 2016 when this study was conducted.

### Statement of the problem

Although Malawi is generally food insecure, it is common in Malawi that most people consume three meals per

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day. What differs is mainly the quality, quantity and variety of the food that they eat. Inmates in Malawi's prisons, however, generally eat one meal per day. Reports by the African Commission on Human and Peoples' Rights (2002) and Penal Reform International (2005) mention food issues as observations made in relation to health and human rights. None of these reports is specifically about socioeconomic characteristics of prisoners and food insecurity occurrence and prevalence in Malawi's prisons. The fact that no report or study determined socioeconomic characteristics of prisoners and food insecurity occurrence and prevalence in Malawi's prisons became a problem that this study intended to address.

### **Justification of the study**

The Malawi Government's overall objective of the Food and Nutrition Security Policy is to significantly improve the food and nutrition security of the Malawi population (Malawi Government, 2005) while the specific objective of the Food Security Policy, is to guarantee that all men, women and the youth in Malawi have, at all times, physical and economic access to sufficient nutritious food required to lead a healthy and active life (Malawi Government, 2006). Since prisons accommodate about 0.08% of the Malawi population, it is important that prisons are food secure and that every prisoner has access to not less than the minimum meal requirement. It was important that this study be carried out so that socioeconomic characteristics of prisoners and food insecurity occurrence and prevalence in Malawi's prisons could be determined in order to lay the foundation upon which efforts to improve and re-engineer the food situation in Malawi's prisons could be based. This would enable policy makers and prison management to take appropriate policy and budgetary measures regarding prison subvention, strategic resource allocation, and food production or procurement to accurately address the problem and improve prison food security. Also, since no study had been conducted in this area, it was important to conduct this study so that the existing knowledge gap could be filled.

### **Objectives of the study**

The general objective of this study was to determine socioeconomic characteristics of prisoners and food insecurity occurrence and prevalence in Malawi's prisons. Specifically, the study aimed to determine:

- (1) Socioeconomic characteristics of prisoners in Malawi's prisons, and
- (2) Food insecurity occurrence and prevalence in Malawi's prisons.

### **Limitations of the study**

There were two major limitations to the study. The first was that all interviewees were male. This was because, for security reasons, the research team was only allowed access to prisoners that committed less serious offenses. Such prisoners were allowed to go out for farming activities because they were considered a lower security risk. The research team was advised to interview the sampled ones as they carried out their farming chores. No female prisoners were in this category, not necessarily because they committed serious crimes, but because female prisoners were not allowed to go out for farming duties and the research team was not allowed to enter into the female side of the prison.

The second limitation was that only 1000 prisoners, instead of the required 1418 prisoners were interviewed. This was because some of the prisoners that were selected for interviewing, according to the random sampling method used in the study, were males that were not allowed to go out of confinement because of the nature of their crimes or females, who the research team was not allowed to meet. The research team was not permitted to follow prisoners to their cells.

### **The food situation in Malawi**

The Millennium Development Goals (MDGs) through the medium term development strategy, the Malawi Growth and Development Strategy (MGDS), identified nine key priority development goals (Malawi Government, 2010). The first of these development goals is to eradicate extreme poverty and hunger. To achieve this, the Government's target was to halve, between 1990 and 2015, the proportion of people who suffered from hunger. One of the indicators for monitoring hunger was the proportion of the population living below the minimum level of dietary energy consumption of 2,100 kilocalories per person per day (Ecker and Qaim, 2008; Malawi Government, 1999).

Malawi is an aggregate net exporter of food. The bulk of the food exports, however, are non-cereals such as tea and sugar and so although the country is a net food exporter, it remains a net importer of cereals and thus food insecure. Maize is the staple food in Malawi (Kidane et al., 2006; World Bank, 2008; De Graaff, 1985).

### **The food situation in Malawi's prisons**

It is a requirement of the United Nations that every prisoner should be provided, by the administration at the usual hours, with food of nutritional value adequate for health and strength, of wholesome quality and well prepared and served (Medecins Sans Frontieres, 2009). The Malawi Prison Act (Cap. 9:02, 1983) provides a

dietary schedule for prisoners belonging to various categories of prisons. Despite these legally binding dietary guidelines, the practice on the ground is different. The African Commission on Human and Peoples' Rights (2002) observed that Malawian prisoners receive only one meal per day and that meals are not balanced as prisoners eat the same food every day. The report also observed that the meals comprise of maize (*nsima*) and boiled beans and sometimes pigeon peas or vegetables. It further observed that almost no meat or fish is provided, but that salt is available in all prisons. This is a typical case of food insecurity.

## MATERIALS AND METHODS

### Data collection techniques

Both primary and secondary data were collected using questionnaires, one administered to prisoners, and the other to prison officers-in-charge. These questionnaires were administered by interviewers on face to face basis. Secondary data were collected from official records obtained from the Malawi Prison Service Headquarters and the various prisons that were visited.

### Data analysis

Data were entered in Excel and analysed using Stata 12. The output from the analysis was reported using descriptive statistics such as means, proportions and percentages.

### Sampling methods

All prisons in Malawi formed the field of study and every inmate, except those that had been in prison for less than four weeks, was an eligible interviewee. The four week requirement is a normal procedure followed by the USAID-funded Food and Nutrition Technical Assistance (FANTA) project which developed a questionnaire (Swindale and Bilinsky, 2006; Maxwell and Frankenberger, 1992) upon which the questionnaires used in this study were based. In order to select respondents from the population of inmates, the stratified random sampling and simple random sampling methods were used. The stratified random sampling method was applied to select  $n$  units out of  $N$  sub-populations called strata. In this case, each prison was a strata and from each strata  $n$  number of inmates were selected using simple random sampling in order to give each prisoner an equal chance of being selected (Agresti, 1996; Zikmund, 1997; McGill et al., 2000; Bryars, 1983). In order to select participating inmates, tables of random numbers (Magnani, 1997) were used. In selecting prison officers for the interview, the purposive sampling method was used.

### Sample size

For more precision on sample size calculation, when population size and population proportions are known, the following formula was used (Kothari, 2004).

$$n = \frac{z^2}{e^2} \frac{p \cdot q \cdot N}{(N-1) + z^2 \cdot p \cdot q} \quad (1)$$

where  $n$  = sample size,  $z = 1.96$  =  $z$ -value yielding 95% confidence level,  $p$  = proportion of the population of interest,  $q = 1 - p$ ,  $N =$

12,598 = the population of interest,  $e = 5\%$  = absolute error in estimating  $p$ .

The population proportion for each prison was calculated as in Equation 2.

$$\text{Prison proportion, } p = \frac{\text{Number of prisoners at a given prison}}{\text{Total prisoner population in Malawi}} \quad (2)$$

In 2016, the total number of both convicted and un-convicted, inmates in Malawi prisons was 12,598 Ministry of Finance, Economic Planning and Development (2016) while the population of Malawi as given by the UNDP in its 2011 Human Development Report was 15,380,900 (UNDP, 2011). Following the reasoning articulated earlier and applying Equation 1, the value of  $n$ , the sample size, was found to be 1418. However, when conducting the survey, only 1,000 inmates were interviewed because of the study limitations.

Data were collected by three trained interviewers using a questionnaire that had been reviewed by a group of key informants, refined by eight prisoners that were representative of the survey population but who were not part of the survey sample, and pretested on fifteen prisoners through a preliminary survey. Data collected were subjected to regression and correlation analysis and results summarized.

## RESULTS AND DISCUSSION

The socioeconomic characteristics of the prisoner that were studied were: sex, age, education level, distance between prison and the prisoner's home, meals per week received from home, prisoners' economic status, and prisoner's perception of food sufficiency/insufficiency.

### Socioeconomic characteristics of prisoners

#### Sex

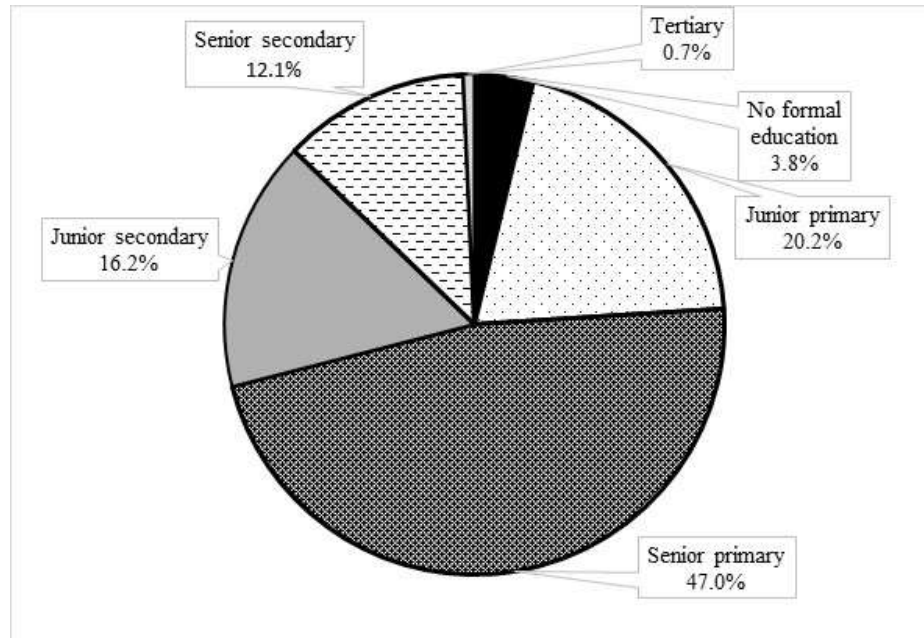
All respondents were male as no female prisoners were allowed out of confinement.

#### Age

The mean age of prisoners in Malawi's prisons was 27.4 years. The oldest prisoners were among those that had no formal education at all, seconded by those that had junior primary school education. The youngest prisoners were among those that had tertiary education. Generally, prisoners in Malawi's prisons were youthful.

#### Education levels

Nationally, 71% of the offenders had either no education at all, or had various levels of primary school education. When secondary school education was considered, it was found that up to 99% of the prisoners had up to 12 years (up to senior secondary school) of education or less. The percentage of prisoners with higher education sharply dwindled as increased education levels were considered, and tailed off to about 1% for tertiary



**Figure 1.** Prisoner education levels.

education. This finding seemed to suggest that if the youth in Malawi were encouraged to stay in school for, at least, the first twelve years of education, criminality in the country would drastically reduce. Figure 1 shows prisoner education levels.

#### ***Distance between prison and the prisoner's home***

More prisoners (about 74%) came from far-away places than from near prison (about 26%). In percentage terms, however, the education levels of prisoners did not differ much between prisoners from far-away places and those from homes that were close to prison.

#### ***Meals per week received from home***

About 81% of the prisoners did not receive meals from outside the prisons, and less than one percent received such meals every day of the week. This was not surprising as most prisoners came from far from prison, making it difficult for relatives to visit often. Of those that did not receive any meal at all from home, most had senior primary school education. Of those that received home meals every day, the greatest recipients had senior primary school, senior secondary school and tertiary education, each category accounting for 28.57% of the receipts. This finding was important because senior primary school, senior secondary school and tertiary education levels are generally viewed as socioeconomic status game changers in Malawi where it is perceived

that people who attain these levels are at the verge of converting to the next higher socioeconomic status. Consequently, it could be that their families treated them better, possibly as a way of booking themselves future favours in case the prisoner upon being released from prison became an economically important person in society.

#### ***Prisoners' economic status***

About 70% of the prisoners considered themselves poor. Most prisoners (49%) with senior primary school education felt that they were poor, while 43% of prisoners with this education level felt that they were rich.

#### ***Perception of food sufficiency/insufficiency***

About 69% of the prisoners perceived themselves as food insufficient. This perception was higher (50%) among prisoners with senior primary school education. Table 1 shows the prisoners' socioeconomic characteristics viewed against their education background.

#### ***Prisoner food insecurity occurrence***

Prisoners perceived food insufficiency through all the eleven conditions of food insecurity. The conditions of food insecurity were: feelings of anxiety, eating un-

**Table 1.** Prisoner socioeconomic characteristics.

Variable	Description	No education	Junior primary school	Senior primary school	Junior secondary school	Senior secondary school	Tertiary education	Row average/Totals	Pearson's Chi2
Age	Age of prisoner	31.684 (14.144)	28.144 (9.376)	26.581 (7.457)	27.827 (7.609)	27.744 (6.911)	25.857 (2.268)	27.428 (8.214761)	322.0586***
Howfar (>5 km)	Distance from prison to home	33 (4.48)	156 (21.2)	342 (46.47)	113 (15.35)	87 (11.82)	5 (0.68)	736 (100.00)	6.3964
Howfar (≤5 km)	Distance from prison to home	5 (1.89)	46 (17.42)	128 (48.48)	49 (18.56)	34 (12.88)	2 (0.76)	264 (100.00)	-
Meals/Week (0)	Received no meal/week	33 (4.08)	174 (21.53)	388 (48.02)	123 (15.22)	88 (10.89)	2 (0.25)	808 (100.00)	117.8207***
Meals/Week (1)	Received one meal/week	3 (2.78)	16 (14.81)	46 (42.59)	21 (19.44)	20 (18.52)	2 (1.85)	108 (100.00)	-
Meals/Week (2)	Received two meals/week	1 (2.00)	8 (16.00)	23 (46.00)	9 (18.00)	8 (16.00)	1 (2.00)	50 (100.00)	-
Meals/Week (3)	Received three meals/week	0 (0.00)	3 (14.29)	9 (42.86)	7 (33.33)	2 (9.52)	0 (0.00)	21 (100.00)	-
Meals/Week (4)	Received four meals/week	0 (0.00)	1 (25.00)	2 (50.00)	0 (0.00)	1 (25.00)	0 (0.00)	4 (100.00)	-
Meals/Week (5)	Received five meals/week	0 (0.00)	0 (0.00)	0 (0.00)	2 (100.00)	0 (0.00)	0 (0.00)	2 (100.00)	-
Meals/Week (7)	Received seven meals/week	1 (14.29)	0 (0.00)	2 (28.57)	0 (0.00)	2 (28.57)	2 (28.57)	7 (100.00)	-
Status (poor)	Economic status of prisoner	22 (3.17)	168 (24.17)	338 (48.63)	104 (14.96)	61 (8.78)	2 (0.29)	695 (100.00)	49.9865***
Status (rich)	Economic status of prisoner	16 (5.25)	34 (11.15)	132 (43.28)	58 (19.02)	60 (19.67)	5 (1.64)	305 (100.00)	-
Food (No)	Not food sufficient	25 (3.62)	131 (18.99)	348 (50.43)	110 (15.94)	71 (10.29)	5 (0.72)	690 (100.00)	13.5336**
Food (Yes)	Food sufficient	13 (4.19)	71 (22.90)	122 (39.35)	52 (16.77)	50 (16.13)	2 (0.65)	310 (100.00)	-

\*\*\*Significant at 1%,  $P < 0.01$ ; \*\*significant at 5%,  $P < 0.05$ ; \*significant at 10%,  $P < 0.1$ .

preferred food, eating a limited variety of food, eating unwanted food, eating a smaller meal, eating fewer meals, eating no food at all, sleeping hungry, staying a whole day and night without eating, augmenting prison food with food from outside prison, and using shameful means of obtaining food. The prisoners experienced all the eleven conditions of food insufficiency but perceived the highest levels of food insufficiency in eating un-preferred food, eating a limited variety of food, eating a smaller meal, and eating fewer meals per day. Prisoners perceived the lowest levels in the following conditions of food insufficiency: eating no food at all, staying a whole day and night without eating, and sleeping hungry at night. The eleven conditions of food insecurity were perceived as shown in Table 2, which presents prisoner food insecurity occurrences and

frequencies.

**Anxiety over food:** About 61% of the prisoners reported feelings of anxiety over availability of food at their prison. Of these, 27% reported this perception often.

**Eating un-preferred food:** Eating un-preferred food was the most reported condition of food insecurity. About 82% of the prisoners reported eating un-preferred food. Almost 54% of these reported eating un-preferred food often.

**Eating a limited variety of food:** About 81% of the prisoners perceived themselves as eating a limited variety of food. Some 60% of the prisoners who reported eating a limited variety of food perceived themselves as having suffered from this

condition often.

**Eating unwanted food:** Eating unwanted food was a perception reported by 54% of the inmates. About 32% of these reported this perception often.

**Eating a smaller meal:** About 76% of the prisoners perceived themselves as eating a smaller meal. This was experienced often by 54% of these prisoners.

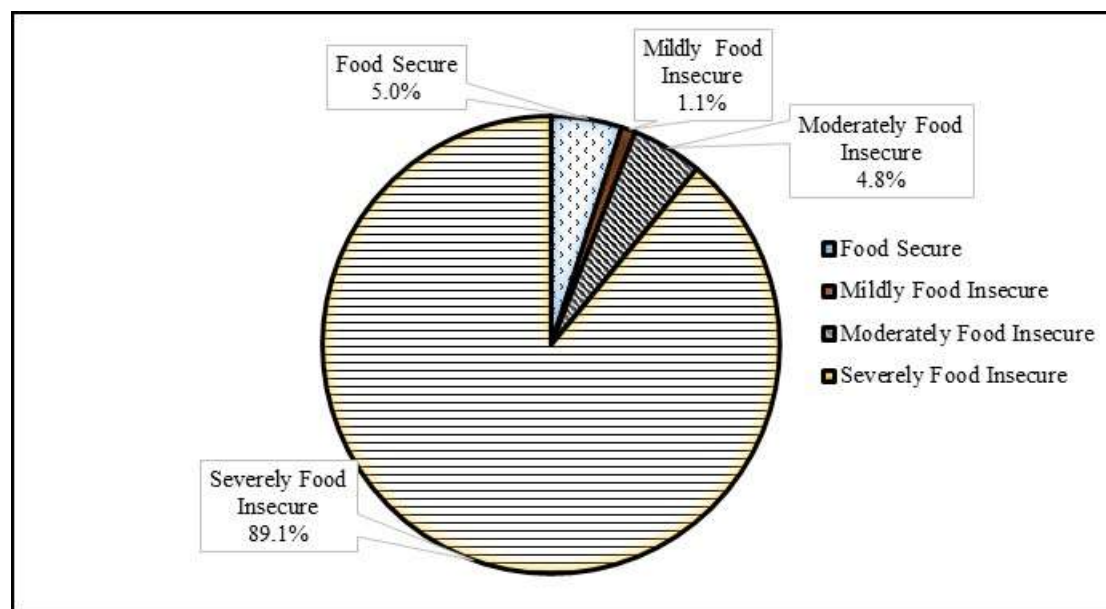
**Eating fewer meals:** Eating fewer meals was a condition perceived by 78% of the prisoners. Of these prisoners, 58% perceived this condition often.

**Eating no food at all:** This condition of food insufficiency was perceived by 10% of the

**Table 2.** Percentage of prisoners by food insecurity occurrence and frequencies.

Frequency	Occurrence										
	Anxiety	Unpreferred food	Limited variety	Unwanted food	Smaller meal	Fewer meals	No food at all	Sleeping hungry	Whole day and night	Augmenting	Shameful means
	(n=1000)	(n=1000)	(n=1000)	(n=1000)	(n=1000)	(n=1000)	(n=1000)	(n=1000)	(n=1000)	(n=1000)	(n=1000)
Rarely	24.0	12.8	9.3	12.0	12.8	9.6	6.9	12.5	8.2	23.5	25.9
Sometimes	10.4	15.1	12.0	9.9	8.9	10.4	1.8	6.0	2.8	11.6	11.8
Often	26.9	54.2	59.6	31.9	54.4	57.8	1.0	2.5	0.7	7.3	24.1
Sub-total	61.3	82.1	80.9	53.8	76.1	77.8	9.7	21.0	11.7	42.4	61.8
Na <sup>a</sup>	38.7	17.9	19.1	46.2	23.9	22.2	90.3	79.0	88.3	57.6	38.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

<sup>a</sup>Na denotes not applicable, that is, prisoner did not experience the condition.



**Figure 2.** Food insecurity prevalence.

prisoners. Seven percent of these perceived this condition rarely.

**Sleeping hungry at night:** About 22% of the prisoners perceived themselves sleeping hungry at night because there was no food to eat at their prison. Of these prisoners, 13% perceived this condition rarely.

**Staying a whole day and night without eating:** Staying a whole day and night without eating was perceived by 12% of the prisoners. Of these prisoners, 8% perceived this condition rarely.

**Augmenting:** Nearly 48% of the prisoners perceived themselves as augment prison food with outside food. Of these, 24% perceived this condition rarely.

**Using shameful means of obtaining food:** Some 62% of the prisoners perceived themselves as using shameful means of obtaining food, such as begging or stealing from other inmates. About 26% of these experienced this perception rarely.

### ***Food insecurity prevalence***

About 95% of prisoners in Malawi's prisons were food insecure. Of the food insecure ones, 89% were severely food insecure. Only 5% of the prisoners were food secure. This group could be those that had access to food from home or relatives. Figure 2 shows prisoner food security prevalence in percentages.

### **Conclusion**

Only male prisoners were involved in this study because female prisoners were not allowed out of their confinement and researchers were not allowed to follow prisoners into restricted areas. Generally, prisoners in Malawi's prisons were youthful, their mean age being 27.4 years. About 71% of the offenders had either no education at all, or had various levels of primary school education. Few prisoners had secondary school education and only about 1% had tertiary education. Most prisoners came from far away from prison and, consequently, most prisoners did not receive meals from home or relatives. Less than 1% of the prisoners received home meals every day of the week. Most prisoners (70%) in Malawi considered themselves poor or unimportant.

However, all prisoners perceived all the eleven conditions of food insufficiency in varied ways. Food insufficiency was most highly perceived in the following conditions: eating un-preferred food, eating a limited variety of food, eating fewer meals per day, and eating a smaller meal. Food insufficiency was least perceived in the following conditions: eating no food at all, staying a

whole day and night without eating, and sleeping hungry at night. About 95% of the prisoners in Malawi's prisons were found to be food insecure. Of these, 89% were severely food insecure.

### **CONFLICT OF INTERESTS**

The authors have not declared any conflicts of interest.

### **REFERENCES**

- African Commission on Human and Peoples' Rights (2002). Prisons in Malawi-Report on a Visit 17 to 28 June 2001 by Dr. V.M. Chirwa Special Rapporteur on Prisons and Conditions of Detention in Africa. Paris, France.
- Agresti A (1996). An introduction to categorical data analysis. New York: Wiley and Sons Inc. .
- Bryars D (1983). Advanced Level Statistics . Slough : University Tutorial Press.
- Ecker O, Qaim M (2008). Income and price elasticities of food demand and nutrient consumption in Malawi. Orlando: Am. Agric. Econ. Ass.
- De Graaff J (1985). Introduction to the economics of maize. (Unpublished manuscript).
- Kidane W, Maetz M, Dardel P (2006). Food security and agricultural development in Sub-Saharan Africa; building a case for more public support. Rome: FAO.
- Kothari C (2004). Research Methodology: methods and techniques, 2nd edition . New Delhi: New Age International.
- Magnani R (1997). Sampling Guide. IMPACT Monitoring Project. Va: Arlington.
- Malawi Government (1983). Laws of Malawi, The Prison Act (Cap. 9:02). Zomba: Malawi Government.
- Malawi Government (1999). Food Security and Nutrition Bulletin. Lilongwe: Ministry of Economic Planning and Development.
- Malawi Government (2005). Food and Nutrition Security Policy. Lilongwe.: Ministry of Agriculture and Food Security.
- Maxwel S, Frankenberger T (1992). Household Food Security: concepts, indicators and measurements; a technical review. New York: UNICEF and IFAD.
- McGill F, McLennan S, Migliorini J (2000). Complete Advanced Level Mathematics – Statistics . Cheltenham : Stanley Thornes.
- Medecins Sans Frontieres (2009). No food or medicine here until you die. Retrieved from <http://www.doctorswithoutborders.org/publications/article.cfm?id=3433&cat=special-report>.
- Ministry of Finance, Economic Planning and Development (2016). Annual Economic Report. Lilongwe: Malawi Government.
- Penal Reform International (2005). A model for good prison farm management in Africa. Penal Reform in Africa 2000. Retrieved from [http://www.panelreform.org/download/prison\\_farms\\_eng.pdf](http://www.panelreform.org/download/prison_farms_eng.pdf)
- Swindale A, Bilinsky P (2006). Development of a universally applicable household food insecurity measurement tool: Process, current status and outstanding issues . J. Nutrition 136:1449s-1452s.
- UNDP (2011). Human Development Report. UNDP.
- World Bank (2008). World development report 2008. Washington D.C.: World Bank.
- Zikmund WG (1997). Business Research Methods, fifth edition. Fort Worth: The Dryden Press.