# African Research Review

## Deprivation Levels in Zambia, 2006 – 2015: An Analytical Profile

**Seshamani, Venkatesh**
Department of Economics
University of Zambia
Box 32379, Lusaka, Zambia
Email: vseshamani@gmail.com
Telephone: 260 0974239171

### Abstract

Zambia has registered impressive economic growth rates since the beginning of this millennium. The question is whether this has resulted in commensurate impacts on reduction in deprivation suffered by a significant percentage of the Zambian population. Has the growth been pro-poor and pro-vulnerable? This paper explored this question by examining the changes in the levels of deprivation during the period 2006-2015. The methodology involved the construction of indices of deprivation based on 15 selected variables and the construction of an aggregate measure of deprivation using these indices. The data used are obtained from the Zambia Living Conditions Monitoring Survey reports for 2006, 2010 and 2015. Based on the results obtained, some key conclusions and policy suggestions have been made.

**Key Words:** Economic growth, poverty, vulnerability, deprivation index, inequality

### Introduction

Since the beginning of this millennium, and especially since 2004, Zambia has recorded impressive growth rates averaging 7.4%. As a result, there was a significant rise in real per capita income that enabled the country to move up the international ladder in terms of its income status. From a low-income country, Zambia was re-classified by the World Bank as a low middle-income country in July 2011.

Table 1 below shows the economic growth rates and per capita incomes for Zambia for the period 2004 to 2015

**Table 1: Zambia: GDP growth rates and Per Capita GDP at constant 2010 prices, 2004 – 2015**

| Year | GDP growth rate (%) | Per capita GDP (at constant 2010 prices) (K'000) |
|------|---------------------|-------------------------------------------------|
| 2004 | 7 | 2,680.60 |
| 2005 | 7.2 | 3,250.43 |
| 2006 | 7.9 | 3,896.00 |
| 2007 | 8.4 | 4,627.00 |
| 2008 | 7.4 | 5,536.00 |
| 2009 | 9.2 | 5,997.00 |
| 2010 | 10.3 | 7,425.00 |
| 2011 | 5.6 | 8,311.56 |
| 2012 | 7.6 | 9280.14 |
| 2013 | 5.1 | 10,379.25 |
| 2014 | 5.0 | 11,113.25 |
| 2015 | 2.9 | 11,868.54 |

*Source:* Living Conditions Monitoring Survey Report 2015

It can be seen from Table 1 that GDP growth has been largely sustained at high levels except for 2015 when there was a notable slump in the rate. But the decline notwithstanding, per capita GDP still registered a rise. The question is whether all this growth has commensurately led to a decline in both income and non-income deprivation suffered by Zambia. Has growth been pro-poor and pro-vulnerable?

In this paper, we provided an analytical profile of changes in Zambia's deprivation levels between 2006 and 2015. The period has been chosen since the analysis is based on the data contained in the living Conditions Monitoring Survey (LCMS) reports of 2006, 2010 and 2015.

**Methodology**

The methodology used is a significantly modified version of the one found in a paper by Seshamani (2000). Revisions have been made in the variables included in the analysis as well as adjustments made in the normalization procedure involved in the calculation of sub-indices and an overall index of deprivation.

**Choice of Variables**

*Variables representing money-metric poverty:*

1. % population in poverty
2. % population in moderate poverty
3. % population in extreme poverty

The calculations based on the above three variables is done using the measures proposed by Foster, Greer and Thorbecke (1984). Variable 1 represents the overall incidence of poverty. Variables 2 and 3 show the intensity of poverty. Poverty intensity nevertheless depends on the distribution of poverty as between moderate and extreme poverty. For instance, 10% moderate poverty and 40% extreme poverty is not the same as 40% moderate poverty and 10% extreme poverty. Although the overall incidence of poverty is the same in both the cases, the intensity of poverty is much greater in the former case. One, therefore, needs to capture this intensity of poverty by assigning a greater weight to extreme poverty than to moderate

poverty. As a rule of the thumb, the weight assigned in this paper is one-third to moderate poverty and two thirds to extreme poverty.

*Variables relating to vulnerability:*

4.  Unemployment rate
5.  Morbidity rate

Unemployment often is a fuzzy variable since its measurement is replete with definitional and methodological problems. In the LCMS reports from which the data are obtained for this study, the unemployment rate is defined as the number of unemployed persons expressed as a percentage of the population aged 12 years and above who are in the labour force or economically active at the time of the survey.

Clearly, the data on unemployment could vary significantly with the time at which the survey was undertaken. One would also question whether the unemployed labour force should be defined in relation to population aged 12 years and above when the population aged 12 – 18 years elsewhere would be considered to be children who are expected to be in school. From this perspective, a drop in unemployment rate need not be a salutary change if it occurs at the expense of a reduction in primary and secondary school enrolment rates.

Despite the above kind of problems, unemployment is included in the index of deprivation since it constitutes an important form of deprivation of the population from participation in the economy and hence in the economic development process in general.

Morbidity is another major indicator of vulnerability since it can erode the productivity of the labour force and/or diminish the size of the workforce to the extent that morbidity translates into mortality, leading to a significant deadweight loss in economic growth and welfare. Morbidity is measured by the percentage of the population reporting illness.

6.  Female-headed households
7.  % orphaned children

The above two variables capture the vulnerability of two major groups in society, namely, women and children.

We have included female-headed households for one important reason: the percentage of persons in poverty, especially extreme poverty, has been consistently found to be higher in female-headed households (FHH) than in male-headed households (MHH).

Consider the following table:

**Table 2: Poverty by sex of household head, 2006-2015**

| Poverty | 2006 | | 2010 | | 2015 | |
|---|---|---|---|---|---|---|
| | MHH | FHH | MHH | FHH | MHH | FHH |
| **Overall poverty** | 61.7 | 67.4 | 50.1 | 62.4 | 53.8 | 56.7 |
| **Extreme poverty** | 41 | 49.8 | 41.9 | 44.4 | 40.3 | 42.9 |

*Source:* LCMS reports 2010, 2015

As regards child vulnerability, the 2015 LCMS report says: "Orphans are usually classified into three categories, namely, 'Paternal orphans', those who have lost a father, 'Maternal orphans', those who have lost a mother, and 'Double orphans', those who have lost both

parents. Whatever the category, orphanhood can often affect a child's development, by increasing the risk of missing out on education opportunities, living in a home that is food insecure, suffering from anxiety or depression, as well as other factors." The LCMS reports define an orphan as someone who has lost one or both parents.

Since double orphans are likely to be most affected, we have assigned weights of one-third to those who have lost mothers only or fathers only and two-thirds to those who have lost both parents, in the calculation of the index of orphanhood.

*Variables relating to knowledge deprivation:*

8. % Population with no education (male)
9. % Population with no education (female)

The world today is a globalized society where knowledge is the most critical resource. Knowledge also constitutes a very important factor in human development. Deprivation in knowledge is therefore a very critical form of deprivation. In this study, the LCMS data on the percentage of population with no schooling is used as a proxy for knowledge deprivation.

In here, we have used this variable decomposed on the basis of gender. This is because not only in Zambia but in other countries too, female education is highly correlated with many development variables such as nutritional status of children, enrolment rates in schools, infant mortality, under-5 mortality and so on. The hand that rocks the cradle rules the world! Education of girls promotes the economic empowerment of women, raises the GDP and reduces poverty. By corollary, therefore, deprivation in education of females has even a greater adverse effect on household and national welfare than deprivation of males.

We have calculated the index of knowledge deprivation by assigning one-third and two-thirds weight respectively to the percentage of males and females with no education.

*Access deprivation:*

Access to social services and basic infrastructure facilities is necessary for development. The following variables have been included.

*Access to basic social services:*

10. % Population lacking access to safe water
11. % Population lacking access to toilet facilities
12. % Population lacking access to middle basic school (Grades 1 – 7) (based on a distance measure)
13. % Population lacking access to health facility (based on a distance measure)

*Access to basic infrastructure:*

14. % Households lacking access to input markets (based on a distance measure)
15. % Households lacking access to public transport (based on a distance measure)

It will be noted that for variables 12 – 15, data are available on households and not on population as in the case of the rest of the variables. However, there is no significant statistical difference between % population and % households in the Zambian data. Consider for example, the following provincial distribution of the population and households shown in Table 3.

**Table 3: Distribution of Population and Households in Provinces, Zambia 2015**

| Province | % Population | % Households |
|---|---|---|
| Central | 9.8 | 9.7 |
| Copperbelt | 15.3 | 15 |
| Eastern | 11.7 | 11.3 |
| Luapula | 7.3 | 6.9 |
| Lusaka | 17.9 | 19.6 |
| Muchinga | 5.8 | 5.8 |
| Northern | 8.4 | 8.4 |
| North Western | 5.4 | 5.4 |
| Southern | 12 | 11.2 |
| Western | 6.4 | 6.6 |

*Source:* Living Conditions Monitoring Survey Report 2015

In the case of access variables 12 – 15 measured in terms of distance to the facility, the LCMS reports have four categories of distance to the nearest facility: < 1 km; 2–5 km; 6 – 15 km; and 16+ km. < 1 km implies that the facility is in the neighbourhood which is the most desired situation; 2-5 km is a fairly negotiable distance. But with > 5 km, access becomes increasingly difficult. We, therefore, measure lack of access to a facility by the percentage of households that have to travel 6 km distance or more. But here again, 6 or 7 km distance is not as bad as 16 or 17 km or more distance. In the calculation of lack of access, we therefore assign one-third weight to 6 – 15 km and two-thirds weight to 16+ km.

**Calculation of the Deprivation Index**

Since in the case of poverty intensity and knowledge deprivation, two variables have been reduced to a single variable using weights, we have 13 variables in all. For each of the 13 variables, minimum and maximum values have been fixed and a component index corresponding to the variable is computed as follows:

$$I_i = (\text{Actual Value} - \text{Minimum Value})/(\text{Maximum Value} - \text{Minimum Value})$$

Each component index would have a value between 0 and 1.

For a majority of the variables, 0% and 100% constitute obvious minimum and maximum values. The exceptions are:

- For poverty intensity, the minimum value would be 0% (if there was no poverty all) while the maximum value would be 67% (assuming 100% extreme poverty).

- For the percentage of Female Headed Households, the minimum and maximum values have been fixed at 15% and 40% respectively, after taking into account the national average and the spread of data around the national average for the selected years in this study.

In the case of Female Headed Households, it must be borne in mind that we have included it only because such households tend to be highly vulnerable. There is nothing inherently undesirable about a household being headed by a female. Indeed, if females had the same opportunity for education as males and 100% of the households were female headed (a matriarchal system of sorts), then by the argument we have used earlier, human development should be maximized!

The overall Index of Deprivation is then obtained as a simple arithmetic average of the 13 component index values. That is,

$$ID = (\Sigma I_i)/13$$

The level of deprivation can then be classified as follows, depending on the actual value obtained:

**Table 4: Classification of deprivation indices**

| Index Value | Level of Deprivation |
|---|---|
| 0.250 or lower | Low |
| 0.251 – 0.500 | Moderate |
| 0.501 – 0.750 | High |
| 0.751 or higher | Entrenched |

*Source:* Author's classification

**Results**

The following tables show the values for the component indices and overall Deprivation Index for Zambia for the years 2006, 2010 and 2015. They have been calculated from the data shown in the Appendix Tables.

**Table 5: Component indices and overall deprivation index for Zambia, 2006-2015**

| Variable | 2006 | | 2010 | | 2015 | |
|---|---|---|---|---|---|---|
| | Index | Level | Index | Level | Index | Level |
| **Poverty Incidence** | .628 | High | .605 | High | .544 | High |
| **Poverty Intensity** | .525 | Moderate | .344 | Moderate | .318 | Moderate |
| **Unemployment %** | .144 | Low | .132 | Low | .158 | Low |
| **Morbidity** | .092 | Low | .146 | Low | .142 | Low |
| **FHH** | .320 | Moderate | .336 | Moderate | .332 | Moderate |
| **Orphanhood** | .428 | Moderate | .418 | Moderate | .408 | Moderate |
| **No education** | .288 | Moderate | .247 | Moderate | .276 | Moderate |
| **Lack of safe water** | .404 | Moderate | .384 | Moderate | .322 | Moderate |
| **Lack of toilet** | .126 | Low | .119 | Low | .041 | Low |
| **Lack of access to Middle Basic School** | .071 | Low | .050 | Low | .043 | Low |
| **Lack of access to health facility** | .143 | Low | .104 | Low | .105 | Low |
| **Lack of access to input market** | .292 | Moderate | .263 | Moderate | .220 | Low |
| **Lack of access to transport** | .101 | Low | .071 | Low | .052 | Low |
| **Overall deprivation** | **.347** | **M** | **.315** | **M** | **.291** | **M** |

*Source:* Author's calculations based on LCMS data reproduced in Appendix Table A₁

**Table 6: Classification of indices by levels of deprivation in Zambia, 2006 – 2015**

**(Number of indices)**

| Year | Low | Moderate | High | Entrenched |
|---|---|---|---|---|
| **2006** | 6 | 6 | 1 | - |
| **2010** | 6 | 6 | 1 | - |
| **2015** | 7 | 5 | 1 | - |

*Source:* Author's tabulation based on Table 5

**Table 7: Component indices and overall deprivation index for Zambia Rural, 2006-2015**

| Variable | 2006 | | 2010 | | 2015 | |
|---|---|---|---|---|---|---|
| | Index | Level | Index | Level | Index | Level |
| **Poverty Incidence** | .803 | Entrenched | .779 | Entrenched | .766 | Entrenched |
| **Poverty Intensity** | .685High | | .676High | | .691High | |
| **Unemployment** | .034 | Low | .033 | Low | .086 | Low |
| **Morbidity** | .103 | Low | .161 | Low | .179 | Low |
| **FHH** | .320 | Moderate | .348 | Moderate | .316 | Moderate |
| **Orphanhood** | .408 | Moderate | .420 | Moderate | .407 | Moderate |
| **No education** | .358 | Moderate | .291 | Moderate | .340 | Moderate |
| **Lack of safe water** | .594 | High | .508 | High | .485 | Moderate |
| **Lack of toilet** | .188 | Low | .183 | Low | .069 | Low |
| **Lack of access to Middle basic School** | .084 | Low | .079 | Low | .079 | Low |
| **Lack of access to health facility** | .084 | Low | .078 | Low | .068 | Low |
| **Lack of access to input market** | .392 | Moderate | .391 | Moderate | .402 | Moderate |
| **Lack of access to public transport** | .159 | Low | .122 | Low | .105 | Low |
| **Overall rural deprivation** | **.409** | **Moderate** | **.396** | **Moderate** | **.390** | **Moderate** |

*Source:* Author's calculations based on LCMS data reproduced in Appendix Table $A_2$

**Table 8: Classification of indices by levels of deprivation in Zambia Rural, 2006-2015**

| Year | Low | Moderate | High | Entrenched |
|---|---|---|---|---|
| **2006** | 6 | 4 | 2 | 1 |
| **2010** | 6 | 4 | 2 | 1 |
| **2015** | 6 | 5 | 1 | 1 |

*Source:* Author's tabulation based on Table 7

**Table 9: Component Indices and overall deprivation index for Zambia Urban, 2006-2015**

| Variable | 2006 | | 2010 | | 2015 | |
|---|---|---|---|---|---|---|
| | Index | Level | Index | Level | Index | Level |
| **Poverty Incidence** | .297 | Moderate | .275 | Moderate | .234 | Low |
| **Poverty Intensity** | .212 | Low | .201 | Low | .181 | Low |
| **Unemployment** | .186 | Low | .163 | Low | .256Moderate | |
| **Morbidity** | .071 | Low | .116 | Low | .091 | Low |
| **FHH** | .280 | Moderate | .316 | Moderate | .340 | Moderate |
| **Orphanhood** | .425 | Moderate | .438 | Moderate | .409 | Moderate |
| **No education** | .101 | Low | .121 | Low | .183 | Low |
| **Lack of safe water** | .134 | Low | .164 | Low | .108 | Low |
| **Lack of toilet** | .010 | Low | .005 | Low | .004 | Low |
| **Lack of access to middle basic school** | .046 | Low | .007 | Low | .007 | Low |
| **Lack of access to health facility** | .041 | Low | .013 | Low | .009 | Low |
| **Lack of access to input market** | .082 | Low | .068 | Low | .004 | Low |
| **Lack of access to public transport** | .151 | Low | .004 | Low | .003 | Low |
| **Overall urban deprivation** | **.174** | **Low** | **.180** | **Low** | **.180** | **Low** |

*Source:* Author's calculations based on LCMS data reproduced in Appendix $A_2$

**Table 10: Classification of indices by level of deprivation in Zambia Urban, 2006-2015**

| Year | Low | Moderate | High | Entrenched |
|------|-----|----------|------|-----------|
| **2006** | 10 | 3 | - | - |
| **2010** | 10 | 3 | - | - |
| **2015** | 10 | 3 | - | - |

*Source:* Author's tabulation based on Table 9.

**Discussion**

What emerges from the above tables is that despite the high growth rates during the decade 2004 to 2015, the overall pattern of deprivation for Zambia as a whole has remained largely unchanged. Sure, the values of all the component indices have declined but they have not declined enough to take the economy to more desirable lower levels of deprivation. The only exceptions are in the case of lack of access to schooling which has moved from High to Medium category and lack of access to input market which has moved from Medium to Low category.

Particularly noteworthy is the fact that the incidence of money-metric poverty continues to remain high. Poverty intensity also remains in the medium range. This is in line with the findings in Mphuka et al (2017) that the growth elasticity of poverty in Zambia has been relatively low, i.e. relatively inelastic. It is clear that the impressive growth recorded during the study period has not been pro-poor and pro-vulnerable. In fact, the high growth has been accompanied by a steep rise in income inequality.

The following table shows the changes in income inequality based on four standard measures, the Gini Coefficient, the 20:20 ratio, the Palma Ratio and the Hoover or Robinhood Index. Development economists argue that there are inherent limitations in every inequality measure including the most commonly used Gini coefficient and therefore a sole measure cannot be relied upon to give a consistent indicator of inequality trends over time. They therefore advocate the use of more than one measure (Ray, 1998).

**Table 11: Inequality measures for Zambia, 2006-2015**

| Measure | 2006 | 2010 | 2015 |
|---------|------|------|------|
| **Gini coefficient** | 0.60 | 0.65 | 0.69 |
| **20:20 ratio** | 76.3 | 35.1 | 61 |
| **Palma ratio** | 11.79 | 9.23 | 13.02 |
| **Hoover (Robinhood) index** | 0.130 | .165 | 0.182 |

*Source:* Gini coefficient – LCMS 2015 report; other measures: author's computations from data in 2015 LCMS report

There are some differences in the changes depicted by the four measures. The two ratio measures suggest that there was a decline in inequality between 2006 and 2010 and then a subsequent increase from 2010 to 2015, while the Gini coefficient and the Hoover index show a monotonic rise in inequality during 2006-2015. However, all four measures depict a sharp rise in inequality between 2010 and 2015. Further; it is only the value of the 20:20 ratio that is lower in 2015 than in 2006. In the case of the other three measures, the 2015 value is higher than the 2006 value.

Policies are therefore needed that will raise growth levels but not at the expense of redistribution. Redistributive policies are as important as growth-resuscitating policies at this juncture. Else, even if growth occurs, deprivation levels may continue unabated.

It is also abundantly clear that the benefits of the high economic growth during the decade from 2004 have largely accrued to the urban areas. The rural areas have apparently received a step motherly treatment in the sharing of the benefits of growth and Zambia's up-gradation in terms of its income status. In each of the three years 2006, 2010 and 2015, the value of the overall derivation index for rural Zambia has been more than twice the corresponding value for urban Zambia.

Money-metric poverty on which much of empirical research is focused is of particular concern. In the latest LCMS report of 2015, one can see that in comparison to the urban areas, the incidence of poverty is more than three times and poverty intensity is nearly four times in the rural areas.

Not only are there big disparities in deprivation between rural and urban areas, within the rural (and urban) areas themselves there can be significant disparities with some intense pockets of deprivation that may have been existing beyond the reaches of development. The study by Seshamani (2000) based on the LCMS data of 1998 identified a few such districts in deep deprivation. Shangomboin the Western Province at that time was a prominent development outlier. Of the 13 sub-indices of deprivation, 9 fell in the Entrenched and 2 in the High category in Shangombo! It is likely that such pockets of deprivation still exist in the far-flung and remote areas.

**Conclusion**

It is high time that development programmes and policies are directed to areas where they are most needed. Welfare economics tell us that social optimality is a function of both equity and efficient growth. Each of these components is a necessary but not a sufficient condition in itself for the maximization of human development. It is only a judicious combination of both that can constitute the necessary and sufficient condition.

In this regard, it is heartening to hear news of massive injection of funds in road construction and the building of a new township Kabitakain Solwezi; the setting up of a solar plant in Shangombo; and other such investments in infrastructure projects which are needed to change the iniquitous development landscape of Zambia.

**References**

Foster, J., Greer, J. & Thorbecke, E. (1984). A class of decomposable poverty measures. *Econometrica,* 52(3), pp.751–766.

Mphuka, C., Kaonga, O. & Tembo, M. (2017). Economic growth, inequality and poverty: Estimating the growth elasticity of poverty in Zambia, 2006-15. Paper presented at the conference on Inequality in Africa organized by Cornell Institute for African Development and Southern African Institute for Policy and Research, Livingstone, Zambia, August 3-4, 2017.

Ray, D. (1998). *Development economics*. Princeton, New Jersey.

Republic of Zambia (2016). *2015 living conditions monitoring survey report*. Lusaka: Central Statistical Office.

Republic of Zambia (2011). *Living conditions monitoring survey report 2006 and 2010.* Lusaka: Central Statistical Office.

Seshamani, V. (2000). *Deprivation in Zambia: District-level profiles and rankings based on an index of deprivation*. Lusaka: UNICEF-sponsored study.

**APPENDIX**

**Table A₁: Data on selected variables of deprivation in Zambia, 2006 – 2015**

| Variable | 2006 | 2010 | 2015 |
|---|---|---|---|
| % Poverty | 62.8 | 60.5 | 54.4 |
| % Moderate poverty | 20.1 | 18.2 | 13.6 |
| % Extreme poverty | 42.7 | 42.3 | 40.8 |
| % Unemployment | 14.0 | 13.2 | 15.8 |
| Morbidity: % population reporting illness | 9.2 | 14.6 | 14.2 |
| % FHH | 23 | 23.4 | 23.2 |
| % Single orphans | 74 | 71.3 | 77.1 |
| % Double orphans | 26 | 28.7 | 22.9 |
| % Population No education (male) | 26.8 | 22.3 | 25.2 |
| % Population No education (female) | 29.8 | 25.8 | 28.7 |
| % Population No safe water | 40.4 | 38.4 | 32.2 |
| % Population No toilet | 12.6 | 11.9 | 4.1 |
| Distance to middle school 6-15 km | 11.4 | 10.8 | 9.0 |
| Distance to middle school > 16 km | 5.1 | 2.2 | 1.5 |
| Distance to health facility 6-15 km | 20.9 | 18.2 | 18.8 |
| Distance to health facility > 16 km | 11.0 | 6.5 | 6.4 |
| Distance to input market 6-15 km | 18.6 | 20.2 | 18.7 |
| Distance to input market > 16 km | 34.4 | 29.3 | 31.9 |
| Distance to public transport 6-15 km | 12.4 | 8.6 | 6.43 |
| Distance to public transport > 16 km | 9.0 | 7.3 | 4.2 |

*Source:* LCMS 2010, 2015

**Table A₂: Data on selected variables of deprivation in Rural and Urban areas of Zambia, 2006 – 2015**

| Variable | 2015 | | 2010 | | 2006 | |
|---|---|---|---|---|---|---|
| | Rural | Urban | Rural | Urban | Rural | Urban |
| % Poverty | 76.6 | 23.4 | 77.9 | 27.5 | 80.3 | 29.7 |
| % Moderate Poverty | 15.8 | 10.6 | 20.2 | 14.4 | 21.8 | 16.7 |
| % Extreme Poverty | 60.8 | 12.8 | 57.7 | 13.1 | 58.5 | 13.0 |
| % unemployment | 8.6 | 25.6 | 3.3 | 16.3 | 3.4 | 18.6 |
| Morbidity: % population reporting illness | 17.9 | 9.1 | 16.1 | 11.6 | 10.3 | 7.1 |
| % FHH | 22.9 | 23.5 | | | 23 | 22 |
| % single orphans | 77.3 | 76.9 | 73.5 | 68.2 | 75 | 72 |
| % Double orphans | 22.7 | 23.1 | 26.6 | 31.8 | 2428 | |
| % population no education (male) | 31.4 | 16.4 | 22.7 | 10.4 | 33.6 | 13.6 |
| % population no education (female) | 35.3 | 19.3 | 32.3 | 13 | 36.9 | 15.7 |
| % population no safe water | 48.5 | 10.8 | 50.8 | 16.4 | 59.4 | 13.4 |
| % population no toilet | 6.9 | 0.4 | 18.3 | 0.5 | 18.8 | 1.0 |
| Distance to middle school 6-15 km | 13.9 | 1.4 | 17.3 | 0.7[*] | 15.4 | 3.3 |
| Distance to middle school > 16 km | 3.3 | 0.4 | 3.1 | 0.7[*] | 5.0 | 5.3 |
| Distance to health facility 6-15 km | 31.4 | 2.2 | 27.9 | 1.3 | 30.9 | 2.6 |
| Distance to health facility >16 km | 11.1 | 0.2 | 9.5 | 1.3 | 14.4 | 4.8 |
| Distance to input market 6-15 km | 24.6 | 7.1 | 21.4 | 18.5 | 22.1 | 11.3 |
| Distance to input market >16 km | 47.9 | 0.7 | 47.8 | 1.0 | 47.6 | 6.7 |
| Distance to public transport 6-15 km | 14.8 | 0.2 | 14.6 | 0.6 | 20.5 | 0.3 |
| Distance to public transport >16 km | 8.4 | 0.4 | 11.0 | 0.3 | 13.7 | 2.1 |

*Source:* 2010 LCMS; 2015 LCMS

\* Data are for Upper Basic School (1 – 9).