



**2010
POPULATION & HOUSING CENSUS REPORT**



**NON-MONETARY POVERTY
IN GHANA**



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Preface and Acknowledgements

In countries where vital registration is very weak, a population census is the most important source of data on the population and its characteristics. Ghana, like many other developing countries, continues to rely mainly on survey and population census data for planning at the national and the sub-national levels.

The 2010 Population and Housing Census, which is the fifth census to be conducted in the country, was a collaborative effort between the Government of Ghana and various Development Partners (DPs). Following the completion of the census data processing, staff of the Ghana Statistical Service (GSS) have, in close collaboration with local consultants from research institutions and universities in Ghana and staff of relevant Ministries, Departments and Agencies (MDAs), prepared a series of reports, including one national and ten regional analytical reports and six monographs from the census data.

The Non-Monetary Poverty monograph is one of the six monographs that have been prepared from the 2010 Population and Housing Census and is meant to provide policy makers and planners with the current levels of poverty in the country using non-monetary measures including the consumption of public services such as education, health and housing, as against poverty measurements using income. One of the key findings from the report is that there is much higher incidence of poverty using non-monetary measurements than income poverty measurements derived from the GLSS 5 in 2006. From the report, the Greater Accra region still remains the least poor region in the country.

Findings from this monograph will assist in the formulation of policies and interventions for reducing poverty in Ghana and improving the lives of the citizenry. The results will also complement that of the Ghana Living Standards Surveys which focuses on income poverty estimates to give a complete picture of poverty levels in the country.

Our profound appreciation goes to the United Nations Development Programme (UNDP) for providing funds for the preparation of this monograph and the United Nations Population Fund (UNFPA) for the lead role it played in mobilizing resources from the UN System and from other DPs for the 2010 PHC. GSS also wishes to thank the Local Consultant, Professor George Owusu, and Mr. Francis B. Mensah of the GSS for their demonstration of competence and dedication in preparing this report.

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Executive Summary

Background

Across much of the developing world, particularly Sub-Saharan Africa, poverty reduction has come to represent the main goal of development interventions. In many countries, poverty is largely defined and measured based on consumption or income measurements. Nevertheless, poverty is widely recognized as multi-dimensional, and as such its definition and measurement based on only income does not provide a full picture of the ‘command of resources’ that an individual or household possesses – neglecting benefits from help provided by family and friends, as well as consumption of public services such as education, health and housing. It is based on these criticisms and limitations that non-monetary poverty measurements have received attention as complementary measurements to income poverty measurements.

Using data from the 2010 Population and Housing Census, this study analyses non-monetary poverty in Ghana based on the Multi-dimensional Poverty Index (MPI). The first two chapters of the study provide a general background to the definition and the challenges of measuring poverty, and the rationale and objectives of the study. In particular, Chapter 2 focuses on the use of non-monetary deprivation indicators to study poverty, and some of the indices that they have been used including the United Nations Development Programme (UNDP)-inspired measurements: Human Development Index (HDI); Inequality-adjusted Human Development Index (IHDI); Gender Inequality Index (GII) and Multi-dimensional Poverty Index (MPI). Chapter 2 also discusses the limitations of the non-monetary poverty approach as well as the justification for the use of the approach, and concludes that their use should be seen as complementary to the existing income poverty measurements.

MPI Methodology

A detailed description of the methodology which is used in computing the MPI index, and the selection of indicators for the MPI index for the study is provided in Chapter 3. In line with the MPI methodology, three dimensions and their associated 10 indicators were selected: education (number of adult household members who have not completed primary school and number of primary school-going children who are not in school); health (number of under-5 death in the last 12 months and maternal mortality) and; standard of living (access to improved water, toilet, cooking fuel, national electricity grid, use of improved dwelling floor and number of persons per room). Generally, the MPI indicators are related or identical to the United Nations’ Millennium Development Goals (MDGs) indicators.

Due to the unavailability of data on child malnutrition for the health dimension and on household assets (such as radio, television, motorbike, bicycle, refrigerator, truck and car) for the living standard dimension from the 2010 Ghana Population and Housing census, these indicators were substituted with maternal mortality and room availability/overcrowding. These substituted indicators, maternal mortality and overcrowding, are equally good measure of household’s health and living standards respectively. In addition, the procedure of substituting indicators is in line with the MPI methodology regarding instances where of data unavailability.

As a thumb rule, a household is defined as deprived if the household has no access to a basic service (improved toilet facility, water, cooking fuel and national electricity grid) or where a household member is affected in terms of the outcomes of the education or health indicators. The MPI estimates the *incidence* of deprivation (proportion of the Ghanaian households experiencing overlapping or multiple deprivations) and the *intensity* of the deprivation (that is, the average number of deprivations faced by households).

Descriptive Analysis of MPI Indicators

Descriptive analyzes of the three dimensions (education, health and living standards) and the ten selected indicators for the MPI are provided in Chapter 4. The analyzes reveal that across Ghana a substantial proportion of households are deprived in a number of indicators. This reflects the level of development and poverty across the country. Again, the analyzes in Chapter 4 reveal wide disparities by region and locality (rural and urban areas). In general, wide disparities exist between the proportion of households deprived in the three northern regions (Northern, Upper East and Upper West Regions) and their counterparts in southern Ghana. This reinforces a widely shared view of the inequality in the level of development between northern and southern Ghana as noted in many earlier studies on Ghana (see Aryeetey 2009).

Across locality, rural households are deprived more than their urban counterparts. Relatively high levels of poverty reflected in low incomes and poor provision of infrastructure by local and central governments in rural areas imply that rural households' decisions on consumption and access to basic services are curtailed. Consequently, for a range of services such as education, health, water, electricity, etc. the proportion of rural households deprived tends to be disproportionately higher than urban areas.

Key Findings from MPI Estimations

Chapter 5 provides the estimation and decomposition of the MPI nationally as well as by region and locality. Using the ten indicators drawn from the three dimensions (education, health and living standards) and the data from the 2010 Population and Housing Census, the key findings can be summarized as follows:

- The overall MPI national incidence of poverty was estimated at 42.7 percent. This is higher than the national income poverty measurement of 28.5 percent derived from the GLSS 5 in 2006. Also, the poverty incidence for each region was higher than the regional estimation from the income poverty measurement.
- Broad regional distribution pattern of poverty incidence of the MPI was generally in line with the pattern observed for income poverty measurement. The Greater Accra Region remained the least poor region or the most developed region while the three northern regions, Northern, Upper East and Upper West Regions remained the poorest and least developed regions of Ghana.
- With the exception of the Greater Accra Region, the incidence of MPI poverty was overwhelmingly higher in rural areas compared to urban areas. The contribution of rural deprivation to national poverty was estimated at 72.3 percent, but higher for the three northern regions: Upper West Region (92.6%); Upper East Region (87.3%) and; Northern Region (80.8%).
- The largest contributor to non-monetary poverty in Ghana is education, and specifically, household deprivation in primary school completion. This raises critical

questions regarding access to education and the impact of non-formal education to poverty reduction and national development.

- There was no correlation between high MPI poverty incidence and high intensity of deprivation. Thus, though the MPI poverty incidence for the three northern regions appeared to be extremely high, the average intensity of deprivation between these regions and the rest of the regions of Ghana was marginal or not significant.

Conclusion and Policy Implications

The study's main conclusions and the policy implications that flow from these are discussed in the final chapter, Chapter 6. In broad terms, the observed patterns of poverty across localities and regions of Ghana per the MPI estimations suggest that the level of poverty may be higher than income poverty measurements would suggest. In policy terms the following observations can be made:

- MPI can be used to complement the income poverty measurements through the estimation of the intensity of different types of deprivation across regions and districts in Ghana. This could enhance efforts towards targeting of interventions by facilitating the identification of the high impact causal pathways by which progress in poverty reduction can be achieved.
- Though deprivations across all the dimensions (education, health and living standards) are widespread, their estimations allow in relative terms to identify the regions with unacceptably high levels of household deprivations. Each region in Ghana will require further analysis that thoroughly scrutinizes the particular clustering of deprivations along district, locality, religion, and ethnic lines.
- Non-correlation between the MPI poverty incidence and high average intensity of deprivation in Ghana raises policy questions regarding the different pathways to approaching poverty reduction and sequencing of interventions. For regions with relatively low MPI poverty incidence but high levels of deprivation such as the Greater Accra Region, poverty interventions may not need to focus on reducing the numbers of the poor but rather the average deprivation. The opposite approach may be required for regions like the three northern regions with high MPI incidence but relatively low levels of deprivation.
- MPI has tremendous practical potential for tracking Ghana's MDGs at both national, regional and district levels. Subsequent MPI estimations based on national dataset could provide evidence of progress in the MPI or otherwise.

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Abbreviations

AR	Ashanti Region
BAR	Brong-Ahafo Region
CHPS	Community Health Services Programme
CR	Central Region
ER	Eastern Region
fCUBE	Free Compulsory Universal Basic Education
FGT	Foster, Greer and Thorbecke
GAR	Greater Accra Region
GDHS	Ghana Demographic and Health Survey
GDI	Gender Related Development Index
GEM	Gender Empowerment Measure
GII	Gender Inequality Index
GLSS	Ghana Living Standard Survey
GoG	Government of Ghana
GPRS	Growth and poverty Reduction Strategy
GSGDA	Ghana Shared Growth and Development Agenda
GSS	Ghana Statistical Service
HDI	Human Development Index
HDR	Human Development Report
IFI	International Financial Institution
IHDI	Inequality-adjusted Human Development Report
IMF	International Monetary Fund
ISSER	Institute of Statistical Social Research
MDG	Millennium Development Goals
MICS	Multiple Indicator Cluster Questionnaire
MMR	Maternal Mortality Ratio
MPI	Multidimensional Poverty Index
NDPC	National Development Planning Commission
NGO	Non-governmental organization
NR	Northern Region
PHC	Population and Housing Census
PRSP	Poverty Reduction Strategy Paper
SFP	School Feeding Programme
UER	Upper East Region
UN	United Nations
UNDP	United Nations Development Program
UNFPA	United Nations Population Fund
UNOWA	United Nations Office for West Africa
UWR	Upper West Region
VR	Volta Region
WC	Water Closet
WCI	Welfare Composite Index
WR	Western Region

Chapter One

General Introduction

1.1 Background

Don't ask me what poverty is because you have met it outside my house. Look at the house and count the number of holes. Look at the utensils and the clothes I am wearing. Look at everything and write what you see. What you see is poverty. *Poor man, Kenya 1997* (Nayaran et al. 2000 cited in Blackmon 2008, p. 179)

Across much of the developing world, particularly Sub-Saharan Africa, poverty reduction has come to represent the main goal of development interventions. In this direction, national policy-makers, international donor agencies such as the United Nations Development Programme (UNDP), World Bank, etc, national and international non-governmental organizations (NGOs) have devoted attention and resources towards achieving poverty reduction. On the broad international front at the turn of the 21st Century, the goal of achieving poverty reduction drove the United Nations (UN) to establish a set of milestones widely referred to as the Millennium Development Goals (MDGs) for developing countries to reach by 2015.

The MDGs initiative has been followed up with a number of interventions. Key among them is the World Bank-inspired Poverty Reduction Strategy Papers (PRSP). Through the PRSPs, the World Bank and the other donor agencies tasked developing countries to develop strategies, which provide the overall framework for addressing poverty within countries. In broad terms, the PRSPs aimed at reducing the number of people living under the situation described as 'poor'. They also aimed at pursuing development goals that lead to poverty reduction, protection of the vulnerable and excluded sections of the population and enhanced access to social services.

Ghana has over the last three decades implemented a number of development policy frameworks as parts of its poverty reduction agenda. These include Ghana's version of the PRSPs framed as medium-term development policy frameworks: the Ghana Poverty Reduction Strategy, 2002-2004 (GPRS I) and the Growth and Poverty Reduction Strategy, 2005-2009 (GPRS II). The current medium-term development policy framework, the Ghana Shared Growth and Development Agenda, 2009-2013 (GSGDA) like its predecessors, GPRS I&II, also focuses on accelerated economic growth with the ultimate goal of reducing poverty (GoG/NDPC 2002, 2005, 2009).

Since the late 1980s, Ghana has periodically conducted a number of surveys, referred to as the Ghana Living Standard Survey (GLSS), to determine the incidence of poverty across localities and socio-economic groups in the country. In all, five rounds of the GLSS (1-5) have been conducted by the public statistical agency, the Ghana Statistical Service (GSS). From these surveys, consumption (expenditure)-based poverty measurement is applied to derive a poverty line which indicates the level of standard of living measure at which minimum consumption must be met (GSS 2000).

Table 1.1: Locality poverty incidence in Ghana, 1991-2006

Ghana Living Standard Survey (GLSS) Report	Poverty Line	
	Standard Poverty Incidence (%)	Extreme Poverty Incidence (%)
1991/1992		
Urban	27.7	15.1
Rural	63.6	47.2
National	51.7	36.5
1998/1999		
Urban	19.4	11.6
Rural	49.5	34.6
National	39.5	26.8
2005/2006		
Urban	10.8	5.7
Rural	39.2	25.6
National	28.5	18.2

Source: Ghana Statistical Service, Ghana Living Standard Survey Reports (2007, pp. 9, 36 and 37).

According to the most recent poverty report by GSS, the overall poverty profile of Ghana show declining levels of poverty across the country with the lowering of the absolute numbers of the poor from about 7.4 million individuals in 1991 to about 6.2 million individuals in 2006 (GSS 2007). In proportional terms, the percentage of the Ghanaian population defined as poor decreased from about 52 percent in 1991 to about 28 percent in 2006 (see Table 1.1). However, the overall picture on declining levels of poverty masks significant differences across localities (rural and urban areas), administrative regions, economic activity and gender (male and female headed houses). For instance, while poverty has declined generally, the decline was significant in the southern forest belt of cocoa and other cash crops production, and actually increased in predominantly food crops producing areas and fishing communities of Ghana (GoG/NDPC 2010).

A key policy debate that has attracted the attention of policy-makers and researchers is the definition and measurement of poverty. According to Owusu and Yankson (2007), defining and measuring poverty in terms of, who the poor are and the methods used are very important and critical as they have a huge impact on the strategies that a country adopt to reduce poverty. They added that the definition and measurement of poverty are also the foundation on which the analyses of the poor are anchored.

However, as Satterthwaite (2004) notes, the way poverty is defined in many developing countries remains rooted in questionable assumptions about what ‘poverty’ is, and the real needs of the poor. In particular, the use of income or expenditure as determinant of the poverty line within the context of the widely accepted view of poverty as a multi-dimensional is problematic. According to Boarini and d’Ercole (2006), income measures do not provide a full picture of the ‘command of resources’ that an individual or household possesses. They add that income measures tend to neglect the ability of individuals and households to borrow, to draw from accumulated savings, and to benefit from help provided family and friends, as well as consumption of public services such as education, health and housing. Therefore, in the light of the criticisms of the monetary poverty measurements, non-income indicators such as access to health, education, housing, etc are increasingly considered in the measurement of

poverty. However, the use of the poverty line is still widely used in many countries, including Ghana (GoG/NDPC 2002; GSS 2007).

The map of the paper is as follows: Chapter 1 provides a general background to the definition and the challenges of measuring poverty. The Chapter also provides the rationale and objectives, as well as the overall methodology of the study. Chapter 2 is on the poverty concept and measurement, highlighting the limitations of the two measurement approaches: monetary and non-monetary.

Chapter 3 presents the Multi-dimensional Poverty Index (MPI) and the methodology for constructing the index. This is followed by Chapter 4 which is a descriptive analysis of non-income indicators dimensions of the MPI based on the 2010 Population and Housing Census data of Ghana. The analysis in the Chapter focuses on housing, education, health, household assets, sources of energy and water and sanitation. This is followed by Chapter 5, which looks at the decomposition of the MPI by regions and locality (rural-urban). The Chapter also analyzes the decomposed MPI results with other poverty indices in Ghana. Chapter 6 provides the summary, conclusions and policy recommendations of the study.

1.2 Defining and measuring poverty: How difficult it is?

What are the dimensions of poverty and how should we measure the economic component of societal well-being? A major strength in the measurement of poverty can be said to be the combination of both economic and social trends. The blend of economic pointers with social indicators seems to provide a better measure due to its explicit recognition that there is much more to ‘well-being’ than economics. While poverty studies have adopted three broadly constructed definitional and measurement approaches – economic well-being, capability, and social exclusion – meaningful efforts are yet to take place to integrate them. The complexity of the issue of defining what poverty really is indicates that the reductionist approach to poverty definition with excessive emphasis on one aspect cannot take us far enough in understanding what factors lay at the core of the poverty issue (Nolan and Whelan 2010).

Osberg and Sharpe (2005) have indicated that distributional issues, particularly poverty and social exclusion should not be considered in isolation, as if tradeoffs between them might not matter. However, to be able to generate adequate index of economic and social indicators that provides a good and bigger picture of the situation of the poor, a better measure of access to resources needed for a decent standard of living is required. Consequently, it has been argued that the impact of economic insecurity on well-being have received too little attention despite the precariousness of daily life for many inhabitants of poor countries and the manifest importance of welfare state risk reduction for the citizens of affluent nations (Osberg and Sharpe 2005). According to Townsend (2010), many people have been uneasily aware of the problems of defining necessities like housing, clothing, or fuel and light. He illustrates that,

“a family might maintain its physical efficiency just as well in a caravan, a nissen hut or even a railway waiting room as in a three-bedroom council house. It could go to bed early and spend nothing on electricity. It could salvage wood from the neighbourhood rather than buy coal, and scrounge clothing from the Salvation Army. The breadwinner might be more physically efficient if he walked to work and saved train fares. We could go on interminably debating

such issues and it is evident that any standard we might adopt must be an arbitrary or conventional one”.

According to Commins (2004), for more than a decade now issues of poverty, deprivation and social exclusion have commanded much attention from researchers and policymakers yet, it is remarkable how little concern there has been about the specific features of poverty in general. Apart from data pertaining to low-income households, there is limited systematic information on the forms and processes of poverty which operate either within a rural economy or an urban economy. Conceived in this way, poverty has many dimensions – the ‘darker side of the entire lifestyle of a people’. Material deprivation (e.g. poor housing) may be distinguished from social deprivation (e.g. lack of rights or of power), while patterns of deprivation may manifest paradoxes as, for instance, when people who are materially prosperous are deprived in their work situation – or vice versa (Townsend 1993, p. 82).

Bowden et al. (2008) are of the view that, just as the development of smallholder export agriculture (and other informal-sector activities) is positive for the expansion of the market for low-income labour so is investment in the health and education of the poor since those also raise their productivity. Thus a sector in which the dominant sectors are capital-intensive (such as, in most economies, oil and gas production or military expenditure), or a country in which production may be labour-intensive but has been repressed by policy; will have a much lesser response of poverty to growth.

According to Townsend (2010), people are rich or poor according to their share of the resources that are available to all. He further opines that, our general theory, then, should be that individuals and families whose resources, over time, fall short of the resources commanded by the average individual or family in the community in which they live are in poverty, whether that community is a local, national or international one. Besides, the resources which society decides to devote to combat poverty can be determined to a large extent by the political process (Madden 2000). However, the extent to which poverty is perceived as a problem will be influenced by the way in which it is measured and measurement will also be influenced by what constitutes poverty. It must be acknowledged without a doubt that, poverty is a dynamic, not a static concept and there are many gaps in the existing knowledge of the qualitative and quantitative aspects of human needs.

1.3 Rationale and objectives

Various studies on poverty in both developing and developed countries have revealed that estimates of poverty using income poverty measurements fail to adequately capture the proportion of the poor within the general population. This is because among other reasons it fails to take into account the multi-dimensional nature of poverty (Sen 2000; Alkire and Santos 2010). According to Sen (2000), human lives are battered and diminished in all kinds of different ways, and the first task is to acknowledge that deprivations of very different kinds have to be accommodated within a general overarching framework. Thus, the view that poverty is complex and multi-dimensional renders the income and expenditure measurement approach inadequate. Consequently, this has guided the search for approaches that captures adequately the multi-dimensional nature of human poverty.

The need to address poverty by having an accurate assessment of the poor is more than a moral question. This is because it has been argued that in situations where the poor

predominates, it is more efficient to invest in them than in the non-poor who are prone to absorb more resources than can be economically justified (Mafeje 2001). In other words, it is not only relatively cheaper in terms of capital outlay to invest in the undercapitalised majority (poor) for their own self-development but also it serves as a necessary foundation for economic development (Mafeje 2001). In addition, in an ever increasing and interconnected globalized world, the rich needs the poor and vice-versa as both producers and consumers of goods and services (Owusu and Yankson 2007). Furthermore, in many transitional and young democracies in the developing world, poverty reduction has implications for security, peace and economic prosperity for both the rich and the poor. According to UNOWA (2007), mass poverty is key contributing factor to violence and failed states – a situation that tends to exacerbates the conditions of the poor.

As earlier noted, in Ghana, the consumption (expenditure) approach and subsequent derivation of income poverty line is widely used as a measurement of poverty. However, recent studies have questioned the methodology for the setting of the poverty line and the use of the consumption (income) approach in measuring who is poor in Ghana. According to Owusu and Yankson (2007), even though recent government medium-term development policy frameworks (blueprints which guide overall national development) – all recognized poverty as multi-dimensional, the basis of analyses and projections of poverty are to a large extent still based on the poverty line.

Again, while poverty in Ghana, measured on the basis of the poverty line, is viewed as a predominately rural phenomenon, recent studies using non-income indicators have questioned this widely held assumption. In fact, Owusu and Yankson (2007) conclude from their study that the existing income approach tends to underestimate urban poverty, and consequently the overall poverty level of the country. Although various rounds of the GLSS have found Accra as the ‘most developed’ region in Ghana, the findings tend to mask the clearly deplorable living conditions and numerous pockets of poverty in the city-region (ISSER 2011). There are areas of the city which are characterized by overcrowding, poor sanitation, occasional outbreak of diseases (especially cholera), high unemployment rate and vulnerability to natural disasters such floods, etc. (ISSER 2011). These are indicators given little consideration in income poverty measurements.

This study therefore builds on recent studies which advocate for the use of non-monetary information to measure and understand poverty. It uses the recently developed Multi-dimensional Poverty Index (MPI) to analyze non-monetary poverty in Ghana using data from the 2010 population and housing census. The study also seeks to compare the results of the MPI with those of GLSS in terms of the regional, locality and sex disaggregation of poverty in Ghana. While the vast majority of studies on poverty in Ghana focus on the income, this present study complements the traditional measurement based on income by emphasizing the multidimensionality of poverty.

In this context, this paper intends not only to present estimates of multidimensional poverty in Ghana, which would complement the income poverty estimates performed by the Ghana Statistical Service, but also to suggest the applied methodology as a potential formula for budget allocation among the district assemblies. Data from the 2010 population and housing census is used to perform estimations for national, regional, and rural and urban areas.

1.4 Methodology

This study is largely based on data derived from the 2010 Population and Housing Census. In particular, data for our analyses is derived from key indicators in the areas of housing, education, health, water and sanitation, assets and source of household energy use. Data on these indicators are used to compute the level of deprivation or poverty per the Multi-dimensional Poverty Index (MPI). In Chapter 3, we provide a more detailed account of the indicators and our computation of the MPI.

The unit of analysis for this paper is the household. Even though the data for the study is largely derived from the 2010 Population and Housing Census (PHC), wherever possible other existing data sources or reports such as GPRS I&II, GSGDA, MICS, Ghana Demographic and Health Survey (GDHS), GLSS, etc have been used to support remarks or simply for comparative purposes.

Chapter Two

Using Non-monetary Deprivation Indicators to Study Poverty

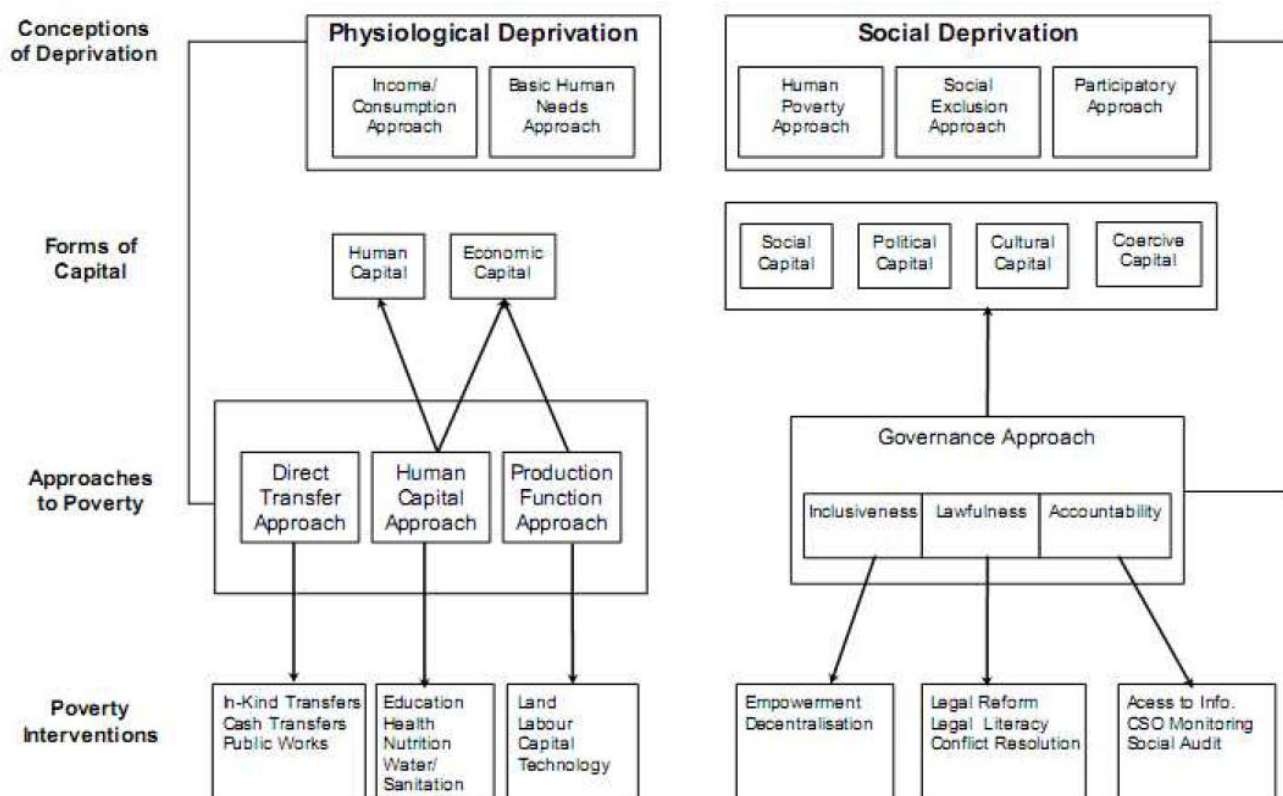
2.1 Introduction

There is a large body of literature on poverty. However, this body of literature is characterized by an unusual level of ambiguity relative to economic theory (Maliki 2011). Consequently, poverty has been defined in various ways, with each of the definitions depending on how poverty was conceptualized leading to a particular identification of the poor. Nevertheless, as Maliki (2011) notes, the level of poverty can be measured generally on the basis of two approaches: the monetary (material or utilitarian) and non-monetary (non-material or non-utilitarian).

It has been argued that shifts or changes in the meaning of ‘development’ over time have impacted on the conceptualization of poverty and how it is measured (Nederveen Pieterse 2001). In line with the changing meanings of development, Shaffer (2008) and Nolan and Whelan (2010) have noted that for the past decade there has been an increasing shift from a physiological model of deprivation (or broadly monetary approach) to social models of deprivation (non-monetary approach) which focus on non-income indicators of poverty including elements of empowerment. According to Maliki (2011, p. 5), in the past, standard analysis of poverty dynamics was based largely, if not exclusively, on economic and human capital that contributes to explaining physiological deprivation. However, in recent decades additional forms of capital such as social, political, cultural and natural have come to constitute an important part of analyzing and assessing deprivation or poverty.

Figure 2.1 shows the two main conceptualizations of deprivation, namely physiological deprivation (largely analyzed using the income or consumption approach, and the basic needs approach) and social deprivation (much of which is captured in recent UNDP-inspired measurements using the human poverty approach, social exclusion approach and participatory/decision-making approach). The Figure also gives indications of the different forms of capital and the approaches employed towards reducing poverty. It also indicates the various poverty interventions or strategies that can be developed.

Figure 2.1: Conceptualization of deprivation and poverty approaches/interventions



Source: Maliki (2011, p. 5)

Clearly, what comes out from Figure 2.1 is that deprivation can be conceptualized in various ways. However, how poverty is conceptualized would require particular forms of capital as well as poverty approaches and interventions. For instance if deprivation is conceived as social then societal capital defined in terms of organization, networks, beliefs and norms, trust and reciprocity, etc need to be given attention. Consequently, the approach will be to improve and strengthen governance for purposes of promoting inclusiveness, lawfulness and accountability. Possible poverty interventions could include the empowerment of weaker members of society, decentralization of authority and resources, legal reform and literacy, strengthen or establish conflict resolution mechanisms and improve citizenry access to information.

This Chapter deals with the explanation of the non-monetary (non-income) approach. It provides information on the various indicators and models for non-monetary poverty measurements. The Chapter also discusses the limitations of the non-monetary poverty approach as well as the justification for the use of the approach.

2.2 Non-Monetary Deprivation Indicators

Even though accepted as difficult to define, research on poverty in many countries has amply demonstrated that poverty is multi-dimensional and that people are classified as poor where their resources (including income) are way below that of the average individual or household to the extent that they are unable to meet their basic needs and/or excluded from society.

According to Nolan and Whelan (2010), poverty has two core elements, namely inability to participate, and inadequate resources. Both elements reinforce each other.

As already noted, quantitative research employing income to distinguish the poor from the non-poor has received a great deal of attention on how best to establish a poverty threshold. However, the setting up of poverty lines based on income poverty approaches has been heavily criticized and questioned (Satterthwaite 2004). The general perspective is that using income alone to determine who is poor does not tell much about what it was like to be poor, and how people arrived in and coped with that situation (Nolan and Whelan 2010). As Ringen (1988) noted, income is both an indirect and unreliable measure of the underlying concept of poverty. It is within this context that increasing attention is being given to non-monetary poverty measures.

Non-monetary poverty approach has its origins in the work of Townsend (1979). The approach rests on the idea that if people are so deprived as to lack the resources to participate in the customary activities in society and thus in some sense are excluded from society, then they may be regarded as being in poverty. This alternative approach for evaluating poverty is what Madden (2000) termed the "deprivation" approach to poverty. To Townsend (1979, p. 15):

Individuals, families and groups in the population can be said to be in poverty when they lack the resources to obtain the type of diets, participate in the activities, and have the living conditions and amenities which are customary, or at least widely encouraged and approved, in the societies to which they belong. Their resources are so seriously below those commanded by the average individual or family that they are in effect, excluded from ordinary living patterns, customs and activities.

If one accepts Townsend's (1979) definition of poverty then clearly a number of indicators of living condition beyond income are required to define a household as poor or non-poor. In addition, the definition of poverty here highlights the multi-dimensional feature of poverty. Consequently, for many non-monetary poverty indices, human development is conceived as an expansion of the freedoms and choices of people to pursue lives that they value and have reason to value (UNDP 2010).

2.2.1 Welfare Composite Index (WCI)

Unlike the monetary poverty indices that proxy household wealth by current house income and expenditure, the welfare composite index (WCI) is based on household asset ownership and housing characteristics (Ayadi et al. 2007). This non-monetary poverty index is based on 11 primary indicators which can be classified into three categories, namely: ownership of durable goods, housing conditions and education (Ayadi et al. 2007).

Ownership of household durable goods is defined to include radio, television, refrigerator, gas cooker, telephone; housing conditions (water access, toilet facilities, quality of floor and number of people per bedroom) and education (literacy of wife/household head). The basic idea is that these 11 primary indicators reflect the living conditions of households. These primary indicators are summarized into a single composite index. The composite index then classifies households as poor and non-poor based on the extent to which they are deprived in terms of the 11 primary indicators.

2.2.2 UNDP-Inspired Human Development Indices

Since the 1990s, the UNDP has led a vigorous campaign aimed at generating comprehensive account of human development across the world. This campaign is well-highlighted in its flagstaff annual publication, Human Development Report (HDR). According to Ravallion (1997), the HDR since its inception has consistently argued that economic growth only promotes human development if efforts could be directed at ameliorating the ills of growth – that is, jobless, ruthless, voiceless, rootless and futureless growth.

In line with the overall view point of the HDR regarding development, the UNDP launched in 1990 as part of the Report, the *Human Development Index (HDI)*. The HDI is a pioneering measure of well-being that went beyond income to reflect health and education (UNDP 2010). According to Osberg and Sharpe (2005), the HDI is the world's best-known index of societal well-being. The HDI is a composite of life expectancy, schooling (literacy and enrollment rates), and average income (per capita GDP).

Although the HDI explicitly recognizes that there is much more to “well-being” than economics, it also holds the view that a key component of overall well-being is “access to economic resources” (Osberg and Sharpe 2005). Some analysts of the HDR and the HDI have found this view to be problematic. In a detailed critique to the HDR, Ravallion (1997) argued that this represents an internal inconsistency of the HDR in advocating for human development as an end, and all else (including economic growth) as a means. In other words, Ravallion's (1997) is of the view that the HDR and HDI ought to see economic growth and human development as twin and interlink goals, rather than one as a means and the other as an end.

Osberg and Sharpe (2005) also noted similar critique arguing that the Human HDI using GDP per capita to measure command over resources *implicitly* makes the strong value judgment that inequality and insecurity do not matter. They add that since statistics on GDP per capita are easily available in comparable form for so many countries, the onus is on critics to show that alternative measures of “command over resources” are possible, plausible and do make some difference.

As a result of the critique of the HDI, there has been a consistent attempt by the UNDP to regularly improve the HDI indicators and the functional specifications. These improvements have reinforced the HDI's value and centrality as an approach to thinking about development (UNDP 2010). UNDP (2010) adds that measurement innovations have developed and applied nationally and locally, and most are highly context driven and may not be practical or relevant across countries due to data constraints. Nevertheless, the national or local-specific innovative measurements provide valuable insight to the question of development measurement and more adequate means of identifying the poor.

According to the UNDP (2010, p. 86), advances in knowledge and data allow for innovations in measuring multi-dimensional inequality and poverty, which can be applied globally to enable comparisons and provide new insights. It adds that the HDI presents averages, concealing wide disparities in human development across people in a country.

To address the challenge of measuring multi-dimensional inequality, the UNDP has introduced the *Inequality-adjusted Human Development Index (IHDI)*. The IHDI captures losses in human development due to inequality in health, education and income. It takes into

account not only a country's average human development as measured by health, education and income indicators but also how it is distributed across localities/regions as well as social groups. The IHDI accounts for inequalities in life expectancy, schooling and income by discounting each dimension's average value according to its level of inequality. In the absence of inequality, the IHDI would be equal to the HDI but the IHDI will be below the HDI in the context of increasing inequality.

Despite progress made towards promoting gender equality, gender inequality still remains across several socio-economic indicators. Thus, though women and girls have made some progress in the last three decades, they are yet to achieve gender equity (UNDP 2010). To measure and monitor gender inequality, the *Gender Inequality Index (GII)* has been introduced. The GII is an improvement on two other earlier gender-related indices, namely the Gender-related Development Index (GDI) and the Gender Empowerment Measure (GEM). GDI measures inequality by gender in the HDI while GEM measures political participation (proportion of women's seats in Parliament/National Legislative Assembly), economic participation (proportion of women occupying high-level and professional positions) and power over resources (income gap) (UNDP 2010). However, these two indices (GDI and GEM) have been criticized including their combination of relative and absolute achievements; extensive imputations due to absence or limited data and; use of indicators which are urban-centred and developed country-biased.

The indicators for measuring the GII include education attainment, economic and political participation and female-specific health (or reproductive health) issues. It captures the political and economic dimensions as one index, and since none of the underlying measures pertains to a country's general level of development, developing countries can perform relatively well if gender disadvantages are limited (UNDP 2010). Similar to the IHDI, the GII captures losses in achievement in key socio-economic indicators due to gender inequality with a range of 0 to 1 (0 implies no inequality while 1 means complete inequality).

A key limitation of GII like its predecessors (GDI and GEM) is data constraints. There are a number of important gender divides which are very critical to women's general well-being. These include time use (working in the labour force and housing keeping/care-giving), ownership of assets (especially immovable assets such as land), domestic violence and participation in local decision-making structures. The absence or limited data or information on these implies that they cannot be factored in any global measure of gender inequality.

In 2010, the UNDP introduced the *Multi-dimensional Poverty Index (MPI)*, as an index to capture the multifaceted and multi-dimensional nature of poverty. The MPI is grounded in Sen's (1985, 1993) capability approach, and attempts to capture the multiple deprivations that plague households. According to the UNDP (2010), the MPI replaces the HDI which has been published since the 1990s. It adds that the MPI addresses a key limitation of the HDI as it captures how many people experience overlapping deprivations and how many deprivations they face on average. The MPI can be disaggregated by region, ethnicity and other groupings as well as by dimension (health, education and standard of living), thus making it an apt tool for policy-makers.¹ In the next Chapter, we provide a detail account of the MPI methodology and how it is applied in this study.

¹ Frequently Asked Questions (FAQs) about the Multidimensional Poverty Index (MPI). http://hdr.undp.org/en/media/FAQs_2011_MPI.pdf. Accessed on August 30, 2012.

2.3 Justification for non-monetary poverty approach

Researchers and policy-makers in both developed and developing countries have devoted a great deal of effort towards a more accurate identification of the poor. While income or monetary poverty measurements are still widely used in many countries, criticisms about their limitations in terms of defining and identifying the poor have become too apparent. As Ayadi et al. (2007) noted, using income or expenditure as an indicator of household wealth is no longer unanimously accepted as the only poverty analysis framework in view of many conceptual and technical problems.

It has been argued that although many household income and expenditure surveys are available for many countries, using these surveys to make inter-temporal comparisons of poverty is problematic (Ayadi et al. 2007). Sahn and Stifel (2003) summed up some of these challenges as follows:

- Continual changes in survey designs thus rendering previous survey results problematic;
- Neglect of essential non-market goods (such as being able to participate fully in society);
- Absence of reliable and valid regional price indices
- Tendency to under-report income from self-employment, critical in economies such as Ghana where this type of employment predominates in the informal sector
- Seasonal variability of earnings

Conceptually, it is now a common view that income covers a limited aspect of living standard (Ayadi et al. 2007). The widely shared view is that other aspects of living conditions and access to basic services (e.g. health and education) and the social context of the individual or household as illustrated in Figure 1 need to be taken into account. Evidence from the recent non-monetary indices from the UNDP and other researchers indicates that these indices do provide valuable information about the situations of households, which help in terms of targeted policies and interventions required to overcome the conditions of the poor.

A further argument for the use of non-monetary indicators is that they can help to capture the multi-dimensionality of poverty and social exclusion. It has long been argued that poverty is not just about money, and the widespread adoption of the terminology of social exclusion and inclusion reflects the concern that focusing simply on income misses an important part of the picture (Nolan and Whelan 2010). Nolan and Whelan (2010) add that social exclusion may involve not only poverty as low income and financial resources, but also educational disadvantage, poor health and access to health services, inadequate housing, and exclusion from the labor market. Reflecting such concerns, an income or monetary approach will not be able to capture the extent of social exclusion which may be beyond the issue of income.

The multiplicity of challenges associated with monetary poverty approach provides justification for non-monetary poverty approach. However, it needs to be stressed that this paper does not call for the replacement of the monetary or income approach as both approaches have their strengths and weaknesses. The study accepts Nolan and Whelan's (2010, pp. 319-320) argument that:

“The conceptual and measurement problems in relying on income alone to identify the poor suggest that incorporating deprivation [non-monetary poverty approach] into the process could have significant potential. Where income is genuinely low but that is an unusual scenario for the household and it has savings to run down, for example, or where income has been misreported as low, non-monetary indicators might correctly suggest a higher standard of living than income”.

Finally, the point can be made that although developing countries as well as international financial institutions, IFIs (IMF and the World Bank), UNDP and other Development Partners have devoted much attention and resources towards addressing poverty, levels of chronic and extreme poverty still remain quite high. In the context where income and expenditure poverty approaches have widely been used, one can make the point that perhaps these approaches have failed to realistically defined and identified the poor, hence, the abysmal performance of national governments and the IFIs in terms of reducing poverty, at least in Sub-Saharan Africa. This therefore provides another justification for use of non-monetary poverty approaches against the background of an increasing awareness in the international community about how poverty is crippling the development of the poorest countries (Andrews et al. 1999).

2.4 Conclusion

A review of the literature on poverty in both developed and developing countries reveals a growing interest in the application of non-monetary poverty approaches. Nolan and Whelan (2010) have noted that non-monetary indicators are now being used in a variety of ways in European countries and at EU level in the belief that they can bring out what it means to be poor, help to do a better job than income on its own in identifying the poor, and directly capture the multifaceted nature of poverty and exclusion. However, as Nolan and Whelan (2010) observed there is no consensus about how best to employ them, and the underlying rationale(s) may often be implicit rather than explicit, but the volume of research employing material deprivation indicators and the interest in it in policy circles is certainly growing.

Clearly, despite the growing interest among researchers and the acceptance of non-monetary indicators among policy-makers as well, the approach has its limitations. Again, it must be stressed that the challenges and limitations with monetary poverty approach must not be interpreted as ignoring this approach by focusing on deprivation in measuring and defining poverty. In other words, the two approaches for measuring poverty must be viewed as complementing each other so as to adequately capture the poor and the non-poor. As Nolan and Whelan (2010) argued:

“Given two relevant pieces of information about a household – income and deprivation – each with limitations from both conceptual and measurement perspectives, incorporating both into the measurement process is one way to seek to improve reliability in identifying the poor. A relatively straightforward way of doing so is to focus on those who are both on low (relative) income and experiencing high (relative) levels of deprivation”

Chapter Three

Multi-dimensional Poverty Index: A Composite Index for Measuring Non-monetary Poverty

3.1 Introduction

There is increasing consensus that poverty is now an intrinsically multidimensional phenomenon following Sen's (1985, 1993, 2000) pioneering 'capability approach'. This has resulted in many scholars proposing different multidimensional poverty measures some of which seem to have built-in a multi-dimensional perspective at the expense of the simplicity and intuition that characterize the unidimensional measures. Departing from this, Alkire and Foster (2007) proposed a new family of multi-dimensional poverty measures, which is a variant of the extensively used Foster, Greer and Thorbecke's (1984) class of one-dimension poverty measures, simply referred to as FGT. The dimension adjusted FGT measures keep the simple structure of the one-dimension case and satisfy a set of convenient properties, among which disaggregation across population subgroups and the possibility to break it down by dimension are useful for policy purposes.

The Alkire and Foster's class of measures is applied in this study to estimate multidimensional poverty in Ghana. Ghana has made some significant progress in extending access to safe drinking water and sanitation, protecting and managing the country's natural resources, providing basic health care and increasing access to primary education. However, more can still be done in some of these areas, as well as in others. Within her development agenda, the Millennium Development Goals (MDGs) play a key role, as Ghana is seriously committed to contributing to the realization of the Millennium Declaration.

As earlier noted, the literature on poverty in developing countries confirms that, indeed, income deprivation should not be considered the only dimension of poverty. Deprivation in other dimensions such as education, access to electricity and room availability in the house are significant both in rural and urban areas, and not necessarily related to deprivation in income (Alkire and Santos 2010). Additionally, deprivation in access to roads is a significant component of multidimensional poverty in the rural areas. It is also found that multidimensional poverty is mainly a rural problem (GSS 2007), which is particularly important given the fact that projections from the 2010 PHC indicate that about 49.1 per cent of the population in Ghana still lives in rural areas.

When analyzing poverty at the district level, it is suggested that a ranking of the districts by the multidimensional poverty estimates could prove to be useful for per capita budget allocation among districts and within them across dimensions, given that these rankings seem to be robust across different cutoffs that identify the multi-dimensionally poor.

3.2 Measuring Poverty Multi-dimensionally: A Brief Review

The measurement of poverty has been conceptualized as following two main steps: identification and aggregation (Sen 1985). In the unidimensional context, the identification step is a relatively easy one. Even when it is recognized that the concept of a poverty line – as a threshold that divides the population into the poor and the non-poor – is somehow artificial,

it is agreed to be necessary. Greater attention is given to the properties that should be satisfied by the poverty index that will aggregate individuals' data into an overall indicator.

The identification step is more complex however, in the multi-dimensional context. Given a set of dimensions, each of which has an associated deprivation cut-off or poverty line, it is possible to identify for each person whether he/she is deprived or not in each dimension. However, the thorny task is to decide who is to be considered multi-dimensionally poor. One proposed approach to identify the multi-dimensionally poor has been to aggregate achievements in each dimension into a single cardinal index of well-being, and set a deprivation cut-off value for the well-being measure rather than for each specific dimension. This approach has some practical drawbacks, in particular, that it is based on a number of restrictive assumptions such as the existence of prices for all dimensions. Moreover, it does not agree with the conceptual framework of the capability approach that considers each dimension to be essentially important. Each dimension with its corresponding deprivation cut-off value then needs to be considered at the identification step of the multi-dimensionally poor.

To address these challenges, two extreme approaches have been traditionally used. On one hand, there is the intersection approach, which requires the person to be poor in every dimension under consideration so as to be identified as multi-dimensionally poor. Clearly, this is a demanding identification criterion by which the set of the poor is reduced as the number of dimensions considered increases, and may exclude people that are indeed deprived in several important dimensions. On the other hand, there is the union approach, which requires the person to be poor in at least one of the considered dimensions. Clearly, with this criterion, the set of poor increases as the number of dimensions does, and it may include people that many would not consider to be multi-dimensionally poor (Alkire and Foster 2007, p. 8).

The union approach has received important support both in the theoretical and empirical literature. In particular, Tsui (2002) and Bourguignon and Chakravarty (2003) adopted it for the measures they proposed. Tsui (2002) develops an axiomatic framework for multi-dimensional poverty measurement by deriving two relative multi-dimensional poverty measures: generalization of Chakravarty's (1983) one-dimensional class of poverty indices, and generalization of Watt's (1968) poverty index. He also derives two absolute multidimensional poverty measures.²

Bourguignon and Chakravarty (2003) also distinguish two groups of multidimensional poverty indices, depending on whether they consider dimensions to be independent or to have some substitutability or complementarity. Those that consider attributes to be independent satisfy what they call the One Dimensional Transfer Principle, by which poverty decreases whenever there is a Pigou-Dalton progressive transfer of the achievement in some dimension between two poor people. The progressive nature of the transfer is judged by the achievements of the two poor people in that specific dimension, independent of the achievements in the other dimensions. These indices are additively decomposable.

² Blackorby and Donaldson (1980) distinguished between relative and absolute poverty indices. Relative poverty indices are invariant to changes in scale, such as a doubling of the poverty line and all incomes, while absolute indices are invariant to translations or additions of the same absolute amount to each income and to the poverty line (Foster and Shorrocks 1991). In practice, relative poverty indices are most frequently used.

The second group of indices are non-additive, that is, non-decomposable; they can reflect either substitutability or a complementarity relationship between the dimensions by choosing appropriate values of the parameters. For both groups of indices, extensions of the FGT class are proposed. On a more practice-based perspective, the Unsatisfied Basic Needs Approach, widely used in Latin America, also uses a union criterion, identifying households with unsatisfied basic needs as those that are deprived in one or more of the selected indicators.

In view of the two prevailing criteria to identify the multi-dimensionally poor, Alkire and Foster (2007) propose a new identification methodology which, while containing the two extremes, also allows for intermediate options, such as identifying as multi-dimensionally poor those that are deprived in k number of dimensions out of the total d number of dimensions (three out of four dimensions, for example). For the aggregation step they use the FGT class of poverty indices. The resulting family of measures satisfies a set of convenient properties, including disaggregation by population sub-groups and the possibility of being broken down by dimensions, which make it particularly suitable for policy targeting. Additionally, the class includes measures that can be used with ordinal data, which is very common in a multi-dimensional context.

A final note must acknowledge probably the most popular multi-dimensional poverty measures, the Human Poverty Index (HPI) developed by Anand and Sen (1997), as a companion index to the Human Development Index (HDI). Both indices are periodically estimated by the United Nations Development Programme (UNDP) for all countries to monitor the level of deprivation and development correspondingly with a broader perspective than income. The components of the HPI are survival deprivation (measured by the probability at birth of not surviving to age 40), deprivation of education and knowledge (measured by the adult literacy rate) and economic deprivation (measured by the average of the percentage of population without access to an improved water source and children under weight for their age).

In developed countries the indicators for each of the components are specified according to the higher living standards. An important advantage of the HPI is that it only requires macro-data, which can be especially important for countries in which micro-data collection is undeveloped and its quality is not assured. However, it has some disadvantages. Clearly it can be argued that the three selected dimensions are arbitrary as well as the weighting system used to calculate the measure. Also it does not allow for the identification of households or people suffering multiple deprivations. When micro-data sets are available more informative measures can be calculated, with a higher number of dimensions and alternative weighting systems.

3.3 Methodology for the Construction of Multi-dimensional Poverty Index

According to Alkire and Santos (2010), MPI is an index of acute multi-dimensional poverty, and reflects deprivation in very rudimentary services and core human functions. They add that the MPI reveals the combination of deprivations that batter a household at the same time. A household is identified as multi-dimensionally poor if, and only if, it is deprived in some combination of indicators whose weighted sum exceeds 30 percent of deprivations (Alkire and Santos 2010).

The MPI identifies each person as deprived or not deprived using any available information for household members. The MPI then aggregates across all poor people. This approach is followed in large part because of data constraints and in part because it has a clear logic.³ Some variables reflect the sharing which occurs among household members - for example when educated household members read for others. Other variables such as sanitation or electricity are usually common across household members. Also, some indicators, such as school attendance for children up to 8th grade, do not apply to all household members.

3.3.1 Dimensions and Indicators of the MPI

Globally, the MPI uses ten indicators belonging to three dimensions: education, health and living standards. The ten indicators are two for health, two for education and six for living standards. These indicators were selected after a thorough consultation process involving experts in all three dimensions. During this process, the ideal set of indicators had to be reconciled with the data that are available and are appropriate for cross-country comparison. The intrinsic and instrumental values of these indicators are presented in Alkire and Santos (2010).

The selection of the dimensions for the Ghana multidimensional poverty measure is guided by the eight Millennium Development Goals (MDGs) with some restrictions due to data availability. In general, the MPI indicators are related or identical to the MDG indicators. Therefore, the selected deprivation cut-offs for each indicator are backed by international consensus as they follow the MDG indicators as closely as data permit (see Table 3.1). Table 3.1 summarizes the dimensions, indicators, thresholds and weights used in the MPI. Eight of the ten indicators are connected to MDG indicators. The other two (flooring and electricity) provide some elementary indication of the quality of housing.

In the following, we provide detailed explanation of the three dimensions and the ten indicators for the MPI:

Education

Under the education dimension, two indicators that complement each other are used: number of completed years of schooling of household members, and the other assesses whether children are attending school. Years of schooling acts as a proxy for the level of knowledge and understanding of household members. Even though both years of schooling and school attendance are imperfect proxies, as they do not capture the quality of schooling and the level of knowledge attained or skills, yet both are robust indicators, which are widely available. The two indicators of household education provide the closest feasible approximation to levels of education for household members.

In terms of deprivation cut-offs for this dimension, the MPI requires that at least one person in the household has completed five years of schooling and that all children of school age are attending primary school, or have completed primary education.

³ When data on all members of household are available, complementary measures could be developed to take the individual as the unit of analysis.

Table 3.1: The dimensions, indicators, deprivation thresholds and weights of MPI

Dimensions	Indicator	Household deprived if..	Related To	Relative weight
Education	Years of Schooling	No household member has completed 5 years of education	MDG 2	1/6
	Child School Attendance	Any school-aged child is not attending school up to class 8 (i.e. from kindergarten to Primary 6)	MDG 2	1/6
Health	Child Mortality	Any under-5 year old child died in the household during past 12 months preceding census	MDG 4	1/6
	Maternal Mortality	Death of female household members while pregnant, during delivery, or within 6 weeks after the end of a pregnancy or child birth in past 12 months	MDG 5	1/6
Living Standard	Electricity	The household has no electricity (i.e. the household is not connected to the national grid)	MDG 7	1/18
	Improved Sanitation	The household's sanitation facility is not improved (according to MDG guidelines), or it is improved but shared with other households.	MDG 7	1/18
	Safe Drinking Water	The household does not have access to safe drinking water (according to MDG guidelines)	MDG 7	1/18
	Flooring	The household has an earth, mud or dung floor	MDG 7	1/18
	Cooking Fuel	The household cooks with wood, charcoal, crop residue, saw dust or animal waste	MDG 7	1/18
	Overcrowding	At least 3 people per room	MDG 7	1/18

Source: Adapted from Alkire and Santos (2010)

It is important to note that because of the nature of the MPI indicators, someone living in a household where there is at least one member with five years of schooling is considered non-deprived, even though she may not be educated. Analogously, someone living in a household where there is at least one child not attending school is considered deprived in this indicator, even though she may have completed schooling. Households with no school-aged children are considered non-deprived on this indicator. Hence the incidence of deprivation in this indicator will reflect the demographic structure of the household and country, as well as the educational attainments.

Health

Two health indicators: nutrition and child mortality are used for the health dimension globally. However the 2010 PHC did not collect information on nutrition. In its place, the maternal mortality indicator is used.

The first indicator uses data on death of any child under 5 years. Most, although not all, child deaths are preventable, being caused by infectious disease or diarrhoea. Child malnutrition also contributes to child death. In the MPI all household members are considered to be deprived if there has been at least one observed child death (under 5 years) in the household during the past 12 months preceding the 2010 PHC. The second indicator considers a household as deprived if there is at least one female aged 12-54 years who died pregnant, during delivery or within 6 weeks after the end of a pregnancy or child birth in the past 12 months.

Living standards

The standard of living dimension uses six indicators, three of which are standard MDG indicators that are related to health and living standards, and which particularly affect women: clean drinking water, improved sanitation, and the use of clean cooking fuel. The justification for these indicators is adequately presented in the MDG literature. It also includes three non-MDG indicators: electricity, flooring material and household assets.

On household assets, Alkire and Santos (2010) defines these to include radio, television, telephone, bicycle, motorbike, car, truck and refrigerator. Households are classified as poor if they do not own more than one of these assets (i.e. radio, television, telephone, bicycle, motorbike, car, truck and refrigerator). However, the 2010 PHC has no information on household assets such as radio, television, bicycle, motorbike, car, truck and refrigerator. It, however, asked question whether households have fixed or land telephone line at home.

Based on the principle of flexibility associated with the MPI construction methodology in terms of the selection of indicators as well as the question of availability of data (see Alkire and Foster 2007; Alkire and Santos 2010), this study uses a key UN-Habitat measure or definition of adequate housing indicator, overcrowding, as a substitute for household assets. Per the UN-Habitat internationally accepted definition, overcrowding is defined as more than three persons per room (UN-Habitat 2009, p. 9). Overcrowding measured by the number of household members per room is a good indicator of the adequacy of the basic human need for shelter. Adequacy of room and sleeping place is often associated with certain categories of health risks and provides rudimentary indication of the quality of housing and general standard of living of a household (UN-Habitat 2009).

Again, the decision to substitute household assets with availability of number of household members per room is to be able to use data from the same survey, that is, the 2010 PHC, to compute the MPI. Unlike the other indices such as the Inequality-adjusted Human Development Index (IHDI), all the indicators needed to construct the measure must come from the same survey.⁴

⁴ Frequently Asked Questions (FAQs) about the Multidimensional Poverty Index (MPI). http://hdr.undp.org/en/media/FAQs_2011_MPI.pdf. Accessed on August 30, 2012.

The key indicators for standard of living are thus as follows:

- *Drinking water*: A household has access to clean drinking water if the water source is any of the following types: piped water, public tap, borehole or pump, protected well, protected spring or rainwater. If a household fails to satisfy these conditions, then it is considered deprived in access to water.⁵
- *Improved sanitation*: A household is considered to have access to improved sanitation if it has some type of flush toilet (WC) or pit latrine, or ventilated improved pit (KVIP) or provided that they are not shared. Otherwise it is considered as deprived in sanitation.⁶
- *Electricity*: A household is considered to be deprived if it does not have access or connected to the national electricity grid.
- *Flooring*: A household is considered deprived in flooring material if it is made of earth, mud or dung.
- *Cooking fuel*: If the main source of cooking fuel for the household is wood or charcoal or crop residue, or saw dust or animal waste, the household is considered deprived in cooking fuel.
- *Overcrowding*: A household with three or more people per room is considered to be room deprived, and so are all its members.

3.3.2 Poverty cutoff: Identification of the MPI Poor

In the MPI, the three dimensions (health, education and living standards) are equally weighted, so that each receives a 1/3 weight. The indicators within each dimension are also equally weighted. Thus, each indicator within the health and education dimensions receive a 1/6 weight while each indicator within the living standards dimension receives a 1/18 weight ($1/3 \div 6$).

Each household is assigned a deprivation score according to its deprivations in the component indicators. The deprivation score of each household is calculated by taking a weighted sum of the deprivations experienced, so that the deprivation score for each household lies between 0 and 1. The score increases as the number of deprivations of the household increases and reaches its maximum of 1 when the household is deprived in all ten indicators. A household, which is not deprived in any indicator, receives a score equal to 0. Formally:

$$c_i = w_1 I_1 + w_2 I_2 + \dots + w_d I_d$$

Where $I_i = 1$ if the household is deprived in an indicator i and $I_i = 0$ otherwise, and w_i is the weight attached to indicator i with $\sum_{i=1}^d w_i = 1$.

A second cutoff or threshold is used to identify the multi-dimensionally poor, which in the Alkire-Foster methodology is called the poverty cutoff. The poverty cutoff is the share of (weighted) deprivations a household must have in order to be considered poor, and we will denote it by k . A household is considered poor if its deprivation score is equal to or greater than the poverty cutoff, that is, if $c_i \geq k$. In the MPI, a household is identified as poor if it has

⁵ According to MDG guideline, improved water sources do not include vendor-provided water, sachet or bottled water, tanker truck or unprotected wells and springs.

⁶ Following the MDGs, unimproved toilet facility include no facility, bucket/pan, public toilet or any facility that is shared

a deprivation score higher than or equal to 1/3. In other words, a household's deprivation must be at least a third of the (weighted) indicators to be considered MPI poor.⁷

For those whose deprivation score is below the poverty cutoff, even if it is non-zero, their score is replaced by a '0' and any existing deprivations are not considered in the 'censored headcounts'. We refer to this important step as censoring the deprivations of the non-poor (see Alkire and Foster 2011b, Alkire Foster and Santos, 2011). To differentiate the original deprivation score from the censored one, we use the notation $c_i(k)$ for the censored deprivation score. Note that when $c_i \geq k$, then $c_i(k) = c_i$, but if $c_i < k$, then $c_i(k) = 0$, $c_i(k)$ is the deprivation score of the poor.

3.3.3 Computing the MPI (aggregation)

Following the structure of the Adjusted Headcount (M0) measure of Alkire and Foster (2011a), the MPI combines two key pieces of information: (1) the proportion or incidence of people (within a given population) whose share of weighted deprivations is k or more and (2) the intensity of their deprivation: the average proportion of (weighted) deprivations they experience.

Formally, the first component is called the multidimensional headcount ratio (H): $H = \frac{q}{n}$, where q is the number of people who are multi-dimensionally poor and n is the total population.

The second component is called the intensity (or breadth) of poverty (A). It is the average deprivation score of multi-dimensionally poor people and can be expressed as:

$$A = \frac{\sum_{i=1}^q c_i(k)}{q}$$

where $c_i(k)$ is the censored deprivation score of individual i and q is the number of people who are multi-dimensionally poor.⁸ MPI is the product of both: $MPI = H \times A$.

3.3.4 Decomposition of MPI

The MPI methodology shows aspects in which the poor are deprived and helps to reveal the interconnections among those deprivations. It identifies the joint deprivations poor people experience enabling policymakers to target resources and design policies more effectively. It becomes more useful especially where the MPI shows areas or groups that are characterized by high intensities of deprivation.

The MPI condenses a lot of information. It can and must be unpacked to show the composition of poverty both across countries, regions and the world, as well as within countries by ethnic group, urban and rural location, and other key household and community characteristics. This is why the MPI is sometimes described as a high resolution lens on

⁷ Household with a deprivation score between 1/5 and 1/3 are denoted 'vulnerable' due to their proximity to the poverty cut off.

⁸ The formula of A differs from Alkire and Foster (2007, 2011a) in that it does not contain the number of indicators d in its denominator. This is because d is already included in the deprivation score $c_i(k)$, since it is weighted sum of the deprivations of each poor household, where the indicators' weights add up to 1.

poverty: it can be used as an analytical tool to identify the most prevalent deprivations (Alkire Foster and Santos, 2011).

Four disaggregation were done in this report; disaggregation by population sub-groups, contributions of urban and rural areas to the MPI, disaggregation of MPI by dimensions and indicators and contribution of indicators to the MPI.

3.3.4.1 Decomposition by population sub-groups

The MPI was decomposed by urban and rural using the formula

$$MPI_{country} = \frac{n_u}{n} MPI_u + \frac{n_r}{r} MPI_r$$

where u denotes ‘urban’ and r denotes ‘rural’, and $\frac{n_u}{n}$ is the population of urban areas divided by the total population, and similarly $\frac{n_r}{r}$ is the population of rural areas divided by the total population (and $n_u + n_r = n$).

The contribution of urban or rural to overall poverty is computed as follows

$$\text{Contribution of urban areas to MPI} = \frac{\frac{n_u}{n} MPI_u}{MPI_{country}} * 100$$

and similarly for the rural area.

3.3.4.2 Decomposition of MPI by dimensions and indicators

Once the poor have been identified that is the MPI have been computed, it is decomposed into its component-censored indicators to reveal how people are poor (in other words the composition of deprivations they experience). To decompose by indicators, the censored headcount ratio in each indicator is computed. The censored headcount ratio for an indicator is the sum of the number of people who are deprived in that indicator divided by the total population. It can be verified that the weighted sum of the all censored headcount ratios equals the country’s MPI. That is

$$MPI_{country} = w_1 CH_1 + w_2 CH_2 + \dots + w_n CH_n$$

where w_1 is the weight of indicator 1 and CH_1 is the censored headcount ration for indicator 1, and so on for the other (n-1) indicators, with $\sum_{i=1}^d w_i = 1$.

The percentage contribution of each indicator to overall poverty is calculated as follows:

$$\text{Contribution of indicator } i \text{ to MPI} = \frac{w_i CH_i}{MPI_{country}} * 100$$

Whenever the contribution to poverty of a certain indicator widely exceeds its weight, this suggests that there is a relative high deprivation in this indicator in the country. The poor are more deprived in this indicator than in others. The contributions of all indicators will sum to 100 percent.

3.4 Conclusion

The Chapter has provided a detailed explanation of the methodology which is used in computing the MPI index. It also addressed the question of the selected indicators for the

MPI index for this study. For comparability purposes, this study applied the methodology and the indicators as used by Alkire and Foster (2007), Alkire and Santos (2010) and other global studies on the MPI. The MPI methodology stresses that as far as possible data for the estimation for the MPI index must come from the same survey. However, the unavailability of data on child malnutrition for the health dimension and household assets (such as radio, television, motorbike, bicycle, refrigerator, truck and car) for the living standard dimension from the 2010 Ghana Population and Housing census, resulted in substituting these indicators with maternal mortality and room availability/overcrowding. It must be stressed that the substitute indicators, maternal mortality and overcrowding, are equally good measure of household's health and living standards respectively.

Chapter Four

Descriptive Analysis of Non-monetary Poverty in Ghana

4.1 Introduction

This Chapter provides a descriptive analysis of non-monetary poverty in Ghana based on the 2010 PHC. The analysis is centred on the three dimensions of education, health and standard of living, and the related ten indicators of the Multi-dimensional poverty index (MPI). For each dimension, the analysis is done to include the MPI indicator(s) related to the dimension as well as broadly where possible to cover other aspects of deprivation related to the dimension in question.

4.2 Education

Education has been identified as the most important tool in providing people with the basic knowledge, skills and the competencies to improve their quality of life at all levels of development (GSS 2007). Several studies exist to suggest that beyond productivity and income, education impacts positively on household welfare in terms of better health and nutritional status, and improved life expectancy (Psacharopoulos 1991). According to Psacharopoulos (1991), the mechanism of the relationship between education and household health outcome is that education can help determine both the level of knowledge about how to combat diseases as well as the mode of transmission, and thereby producing better health outcomes in terms of preventive measures. In this study, as already noted, two indicators on education are applied to compute the MPI: number of completed years of schooling of household members, and whether children are attending school.

4.2.1 Primary School Completion

Over the years various indicators in the educational sector have revealed a consistent improvement in school attendance and completion. Indeed, examination of the levels of literacy has also shown a consistent improvement over time. This indicates that more and more of household members are participating in the educational system

Table 4.1 shows the deprivation status of households in terms of school attendance by region. The Table reveals that over 2.3 million households representing 42.8 percent of total number of households in Ghana are deprived in school attendance. In other words, no household member in these households has completed primary education. The national average, however, masks extreme deprivation in school attendance by household members in the three northern regions: Northern Region (87.1%), Upper East Region (83.9%) and Upper West Region (82.6%)

Table 4.1: Household deprivation status in primary school completion by region

		Primary school completion deprivation status		Total No. of Households
		Not deprived	Deprived	
Western	No. of Households	304570	249064	553634
	% of Total Households	55.0	45.0	100.0
Central	No. of Households	296079	230684	526763
	% of Total Households	56.2	43.8	100.0
Greater Accra	No. of Households	810898	225472	1036370
	% of Total Households	78.2	21.8	100.0
Volta	No. of Households	264066	231534	495600
	% of Total Households	53.3	46.7	100.0
Eastern	No. of Households	395747	236298	632045
	% of Total Households	62.6	37.4	100.0
Ashanti	No. of Households	740504	385701	1126205
	% of Total Households	65.7	34.3	100.0
Brong-Ahafo	No. of Households	228830	261683	490515
	% of Total Households	46.6	53.4	100.0
Northern	No. of Households	41149	276970	318119
	% of Total Households	12.9	87.1	100.0
Upper East	No. of Households	28601	149028	177629
	% of Total Households	16.1	83.9	100.0
Upper West	No. of Households	19165	91009	110174
	% of Total Households	17.4	82.6	100.0
All Regions	No. of Households	3129609	2337445	5467054
	% of Total Households	57.2	42.8	100.0

Source: Ghana Statistical Service, 2010 Population Housing Census

Table 4.2 disaggregates the proportion of households deprived in primary school completion as captured in Table 4.2 by region and locality. It reveals that the deprivation is to a large extent a rural phenomenon. With the exception of the Ashanti Region where the proportion deprived is fairly evenly split between rural and urban areas, and the Greater Accra Region where the deprived households are concentrated in urban areas due to its high level of urbanization, in all other regions, the distribution is heavily skewed towards the rural, especially in the three northern regions, Volta and Western Regions.

Table 4.2: Household deprived in primary school completion by region and locality

	Total Household	Urban		Rural	
		No. of Household	Percent	No. of Household	Percent
<i>Total</i>	2337445	910677	39.0	1426768	61.0
Western	249064	77262	31.0	171802	69.0
Central	230684	91499	39.7	139185	60.3
Greater-Accra	225472	192211	85.2	33261	14.8
Volta	231534	63448	27.4	168086	72.6
Eastern	236298	80532	34.1	155766	65.9
Ashanti	385701	191091	49.5	194610	50.5
Brong-Ahafo	261685	98250	37.5	163435	62.5
Northern	276970	77483	28.0	199487	72.0
Upper-east	149028	26705	17.9	122323	82.1
Upper-west	91009	12196	13.4	78813	86.6

Source: Ghana Statistical Service, 2010 Population Housing Census

4.2.2 Child School Attendance

Existing indicators, namely, Gross Enrolment Ratio (GER) (measure of the number of pupils at a given level of education, regardless of age, as a proportion of the number of children in the relevant age group) and the Net Enrolment Rate (NER) (measure of the number of appropriately aged pupils enrolled in school as a proportion of children in the relevant age group) – all show improvement in child school attendance or participation in the education system over the last decade (GSS 2007; GoG/NDPC 2009). This improvement is attributable to a number of interventions introduced into the educational sector including the Free Compulsory Universal Basic Education (fCUBE) and School Feeding Programme (SFP).

Table 4.3 indicates that across Ghana 93 percent of all households recorded that they have children attending school, that is, they are not deprived in children participating in the education system. This proportion is similar to the GER score at the primary school level of 94.9 percent (NDPC 2010). However, the 2010 Annual Progress report on the implementation of the national medium-term development policy framework, Ghana Shared Growth Development Agenda (GSGDA) concluded that the situation threatens the achievement of the MDG 2 of achieving universal primary education by 2015 (NDPC 2010)

Table 4.3: Household deprivation status in child school attendance by region

		Household child school attendance deprivation status		Total No. of Households
		Not deprived	Deprived	
Western	No. of Households	522831	30803	553634
	% of Total Households	94.4	5.6	100.0
Central	No. of Households	501278	25485	526763
	% of Total Households	95.2	4.8	100.0
Greater Accra	No. of Households	1008738	27632	1036370
	% of Total Households	97.3	2.7	100.0
Volta	No. of Households	457658	37942	495600
	% of Total Households	92.3	7.7	100.0
Eastern	No. of Households	597096	34949	632045
	% of Total Households	94.5	5.5	100.0
Ashanti	No. of Households	1088198	38007	1126205
	% of Total Households	96.6	3.4	100.0
Brong-Ahafo	No. of Households	452606	37909	490515
	% of Total Households	92.3	7.7	100.0
Northern	No. of Households	220424	97695	318119
	% of Total Households	69.3	30.7	100.0
Upper East	No. of Households	149888	97695	177629
	% of Total Households	84.4	15.6	100.0
Upper West	No. of Households	86672	23502	110174
	% of Total Households	78.7	21.3	100.0
All Regions	No. of Households	5085389	381665	5467054
	% of Total Households	93.0	7.0	100.0

Source: Ghana Statistical Service, 2010 Population Housing Census

Wide differences exist between the national average as recorded in Table 4.3 and the rest of the regions. Like most other indicators, the three northern regions once again fell behind the national average. Almost a third of households in the Northern Region are deprived in children school attendance; 21.3 percent and 15.6 percent respectively in the Upper West and Upper East Regions.

Table 4.4: Household deprived in child school attendance by region and locality

	Total Household	Urban		Rural	
		No. of Household	Percent	No. of Household	Percent
<i>Total</i>	381665	89124	23.4	292541	76.6
Western	30803	6554	21.3	24249	78.7
Central	25485	10466	41.1	15019	58.9
Greater-Accra	27632	21000	76.0	6632	24.0
Volta	37942	7294	19.2	30648	80.8
Eastern	34949	6192	17.7	28757	82.3
Ashanti	38007	11724	30.8	26283	69.2
Brong-Ahafo	37909	8121	21.4	29788	78.6
Northern	97695	13512	13.8	84183	86.2
Upper-east	27741	2996	10.8	24745	89.2
Upper-west	23502	1265	5.4	22237	94.6

Source: Ghana Statistical Service, 2010 Population Housing Census

Table 4.4 disaggregates the deprived households in child school attendance by region and locality. The distribution pattern recorded is similar to Table 4.2 – household deprivation in child school attendance is largely concentrated in rural areas, especially in the rural northern Ghana. While concern has been raised about achieving the MDG 2 goal of universal primary education by 2015, the challenge is likely to be more daunting in the rural areas and more so in the rural northern Ghana where large numbers of households have their children not still in school.

4.3 Health

The health status of people determines their quality of life, level of productivity and longevity, and this is directly linked to the general state of development of a country (GSS 2007). A key determinant of health status is the maternal mortality and death of children under five. The status of these two vulnerable groups, women and children, of a country or region gives a good indication of the health of the general population and overall general state of development.

In analysis of non-poverty incidence and development of a composite index, two indicators are applied. These are child mortality (death of under-5 year old in a household during the past 12 months preceding census) and maternal mortality (death of female household members while pregnant, during delivery, or within 6 weeks after the end of a pregnancy or child birth in past 12 months).

4.3.1 Households that experienced Death of Children under Five

Under-5 mortality is a broad indicator of social development and the health status of the population, and children in particular. In essence, its evaluation provides information on the impact of interventions on health and general standard of living. The MDG target of reducing infant and child mortality rates by two-thirds between 1990 and 2015 remain a real challenge as existing data from the MICS and GHDS surveys as well as the 2010 PHC indicate that a significant percentage of households continue to experience under-5 deaths (see Table 4.5).

Table 4.5: Proportion of households that experienced death of children under-five by region and locality

	National			Urban		Rural	
	Total Household	No.	As % of Total HH	No.	As % of Affected Household	No.	As % of Affected Household
Total	5467054	45,936	0.8	18,484	40.2	27,452	59.8
Western	553634	4,767	0.9	1,673	35.1	3,094	64.9
Central	526763	4,807	0.9	2,071	43.1	2,736	56.9
Greater-Accra	1036370	5,029	0.5	4,406	87.6	623	12.4
Volta	495600	4,442	0.9	1,102	24.8	3,340	75.2
Eastern	632045	4,189	0.7	1,482	35.4	2,707	64.6
Ashanti	1126205	7,526	0.7	3,935	52.3	3,591	47.7
Brong-Ahafo	490515	4,280	0.9	1,631	38.1	2,649	61.9
Northern	318119	6,038	1.9	1,558	25.8	4,480	74.2
Upper-east	177629	3,048	1.7	487	16.0	2,561	84.0
Upper-west	110174	1,810	1.6	139	7.7	1,671	92.3

Source: Ghana Statistical Service, 2010 Population Housing Census

Table 4.4 reveals that a total of 45,936 households representing about 0.8 percent of total households in Ghana experienced under-5 deaths in the 12 months preceding the census. However, this national average is masked by marked differences by locality (rural/urban) and region. In the Upper East and Upper West Regions, the recorded figure is double the national average and almost 2 percent in the Northern Region. In terms of locality (rural and urban) differentials, also two-thirds of all under-5 deaths occur in rural areas, with exception of the urbanized regions of Greater Accra and Ashanti Regions of Ghana. The shift of the population, in terms of concentration in towns and cities, accounts for the higher urban under-5 deaths in these two regions.

The rural-urban differential for under-5 deaths is high for all regions, but extremely high in four regions: Upper West (92.3%); Upper East (84%), Volta (75.2) and Northern (74.2%). In other words, in the Upper West Region more than 9 out of 10 under-5 deaths occur in rural areas. The large under-5 deaths in rural areas may be due to limited access to health facilities, poor quality drinking water resulting in frequent diarrhea and other infectious diseases, and the general poverty levels of rural households.

4.3.2 Maternal Mortality

Even though maternal mortality ratio (MMR) is said to have reduced, Ghana is far from achieving the MDG target of reducing MMR by three-quarters between 1990 and 2015 (ISSER 2005). Consequently, over the past decade, efforts have been made under the various medium-term national development policy frameworks to improve access to quality maternal and reproductive health services: re-introducing certificate midwifery training and ensuring midwifery service in CHPS compounds; providing comprehensive emergency obstetric care at the district level; providing basic emergency obstetric care at all health centers; scaling up community case management and strengthening high rapid impact delivery (HIRD) and instituting essential newborn care. Other policy measures include implementation of the free health care for pregnant women including deliveries; continuing training and upgrading of

skills of people engaged in traditional maternal health service delivery in deprived areas and; sensitizing the public on entrenched negative cultural beliefs associated with maternal health (GoG/NDPC 2010, p. 102).

Table 4.6: Proportion of household that experienced maternal mortality by region and locality

	Total Household	National		Urban		Rural	
		No.	% of Total HH	No.	% of Affected HH	No.	% of Affected HH
Total	5,467,054	33,347	0.6	14,346	43.0	19,001	57.0
Western	553,634	3,198	0.6	1,261	39.4	1,937	60.6
Central	526,763	3,282	0.6	1,372	41.8	1,910	58.2
Greater-Accra	1,036,370	3,443	0.3	2,991	86.9	452	13.1
Volta	495,600	3,984	0.8	1,106	27.8	2,878	82.2
Eastern	632,045	4,871	0.8	1,884	38.7	2,987	61.3
Ashanti	1,126,205	6,079	0.5	3,154	51.9	2,925	48.1
Brong-Ahafo	490,515	2,979	0.6	1,233	41.4	1,746	58.6
Northern	318,119	2,455	0.8	850	34.6	1,605	65.4
Upper-east	177,629	1,999	1.1	397	19.8	1,602	80.2
Upper-west	110,174	1,057	0.9	98	9.3	959	90.7

Source: Ghana Statistical Service, 2010 Population Housing Census

Table 4.6 provides information on the proportion of households reporting the death of a female household member during and six months after child birth in the last 12 months preceding the census. In general, the trend observed for Table 4.6 bears semblance to the observations made in Table 4.5 on under-5 mortality. While nationally, about 0.6 percent of households reported death of female member through pregnancy and child birth, it was almost double in the case of the Upper East Region, and high for other four regions (Upper West, Northern, Eastern and Volta Regions).

Similar to under-5 deaths, slightly less than two-thirds of all maternal deaths were recorded in rural households (see Table 4.6). It was, however, higher in urban areas of the urbanized regions of Greater Accra and Ashanti. For all other regions, rural maternal mortality was higher than the urban area, with extremely higher figures recorded for rural households in the Upper West Region (90.7%), Volta Region (82.2%) and Upper East Region (80.2%). Poor access to health facilities, limited skilled midwifery staff within communities as well as negative cultural beliefs associated with maternal health partly account for the high maternal mortality rates reported among rural households (GoG/NDPC 2010).

4.4 Standard of Living

4.4.1 Quality of Housing

According to the UNFPA (2007), decent or good quality housing provides people a home; security for their belongings; safety for their families; a place to strengthen their social relations and networks; a place for local trading and service provision; and a means to access basic services. It adds that decent housing is the first step to a better life, and particularly for women, it is significant in terms of poverty, HIV/AIDS, migration and violence. For poor households, many of the difficulties they face are linked to a greater or lesser extent to the quality, location and security of housing (ISSER 2007; Owusu 2011).

Housing, defined to include not only the physical shelter but also access to basic public services such as drinking water, sanitation, health and education, is a critical determinant of standard of living. However, in many developing countries, especially Sub-Saharan Africa, decent or quality housing is in short supply. In rural Ghana, the challenge with housing is all about quality since many housing units are built with poor local materials such as clay/mud and roofed with thatch. Therefore, they are under constant pressure from the vagaries of the weather. On the other hand, the challenge in urban Ghana is reflected in both quality and quantity contributing to overcrowding, depressing environmental conditions and the development of slums (GoG/MWRWH 2009).

4.4.1.1 Construction Material of Floor of Dwelling

Our analysis of deprivation of housing for MPI is on the quality of floor material of the dwelling and the number of household members per room. But as would be seen subsequently other indicators on materials for housing construction such as the roof, walls, etc can also be analyzed to indicate deprivation of households in housing. This is because these indicators provide pointers about the standard of living or the living conditions of the occupants.

Table 4.7: Main construction material for floor of household dwelling by region*

	All Region	WR	CR	GAR	VR	ER	AR	BAR	NR	UER	UWR
Earth/Mud	16.0	14.1	11.3	5.2	17.7	18.8	14.6	23.1	30.7	31.7	31.7
Cement/ Concrete	77.8	81.3	85.2	80.2	80.2	77.8	77.8	74.2	67.4	65.8	65.8
Stone	0.6	0.4	0.4	0.5	0.4	1.0	0.8	0.7	0.4	0.9	0.9
Burnt brick	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Wood	1.0	0.5	0.4	3.8	0.1	0.2	0.5	0.2	0.1	0.0	0.0
Vinyl tiles	1.0	0.8	0.6	2.6	0.2	0.5	1.3	0.4	0.2	0.1	0.1
Ceramic/Porcelain/											
Granite/Marble tiles	1.6	1.2	1.1	3.8	0.8	0.9	1.8	0.8	0.7	0.7	0.7
Terrazzo/ Terrazzo tiles	1.6	1.3	0.7	3.3	0.3	0.6	2.9	0.4	0.1	0.2	0.2
Other	0.3	0.3	0.2	0.4	0.3	0.2	0.2	0.2	0.3	0.5	0.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Ghana Statistical Service, 2010 Population Housing Census

* WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; UWR-Upper West Region.

We defined poor housing as a household dwelling with earth, mud or dung floor. Table 4.7 shows the main construction material for the floor of household dwelling by region. It reveals that across Ghana 16 percent of households had earth or mud as the material used for the construction of their dwelling. This proportion, however, varies across the regions with the least recorded in the Greater Accra Region, the ‘most developed’ region, while the highest of over 30 percent in the three poorest regions of Northern, Upper East and Upper West Regions. A clear observation from Table 9 is extensive use of cement or concrete as the construction material for floors of dwellings. While the national average is about 78 percent, the figures for the three northern regions are far lower than the averages for all other regions.

Table 4.8: Main construction material for floor by urban households*

	All Region	WR	CR	GAR	VR	ER	AR	BAR	NR	UER	UWR
Earth/Mud	6.9	3.7	5.9	4.8	8.6	8.4	7.4	10.3	16.0	7.6	7.6
Cement/Concrete	84.0	88.9	89.0	80.3	88.4	87.1	82.4	86.0	81.5	89.2	89.2
Stone	0.6	0.5	0.4	0.5	0.5	1.0	0.6	0.7	0.6	0.4	0.4
Burnt brick	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Wood	1.6	0.8	0.6	3.9	0.2	0.3	0.8	0.3	0.0	0.0	0.0
Vinyl tiles	1.6	1.3	1.0	2.7	0.5	0.8	1.9	0.6	0.3	0.6	0.6
Ceramic/Porcelain/ Granite/Marble tiles	2.3	1.9	1.5	3.9	1.0	1.1	2.3	1.1	0.9	1.3	1.3
Terrazzo/Terrazzo tiles	2.6	2.6	1.2	3.5	0.5	1.0	4.2	0.7	0.2	0.7	0.7
Other	0.3	0.3	0.2	0.4	0.3	0.2	0.3	0.2	0.4	0.2	0.2
Total	100	100	100	100	100	100	100	100	100	100	100

Source: Ghana Statistical Service, 2010 Population Housing Census

* WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; Upper West Region.

Tables 4.8 and 4.9 show the construction materials for floor of household dwellings by locality (urban and rural). The Tables reveal that the use of earth/mud as construction material of floors of dwelling is predominantly a rural phenomenon, particularly in the three northern regions. For instance, in the Upper West Region over 46 percent of the floor of dwellings in rural areas is constructed with earth/mud (see Table 4.8). Again, though cement/concrete is widely used in both rural and urban areas, its use is much more extensive in the urban areas. Interestingly, the proportion of urban dwellings in the three northern regions compares favourably with the national average as well as the average for the other regions. In fact, the figures for urban Upper East and Upper West Regions are the highest across urban localities in Ghana.

Table 4.9: Main construction material for floor by rural household*

	All Region	WR	CR	GAR	VR	ER	AR	BAR	NR	UER	UWR
Earth/Mud	27.4	22.5	16.4	10.1	22.9	27.9	27.1	35.0	38.1	37.7	46.5
Cement/ Concrete	70.1	75.2	81.5	78.5	75.6	69.7	69.7	63.2	60.4	59.7	52.0
Stone	0.6	0.4	0.5	0.3	0.3	0.9	1.0	0.7	0.3	1.1	0.2
Burnt brick	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1
Wood	0.2	0.2	0.1	2.5	0.0	0.1	0.1	0.1	0.1	0.0	0.0
Vinyl tiles	0.3	0.3	0.3	2.3	0.1	0.2	0.4	0.2	0.1	0.0	0.1
Ceramic/Porcelain/Granite/ Marble tiles	0.8	0.7	0.6	3.5	0.6	0.6	0.9	0.5	0.6	0.6	0.5
Terrazzo/Terrazzo tiles	0.3	0.2	0.3	2.2	0.1	0.2	0.5	0.1	0.1	0.1	0.1
Other	0.3	0.4	0.2	0.4	0.2	0.2	0.2	0.2	0.3	0.6	0.5
Total	100	100	100	100	100	100	100	100	100	100	100

Source: Ghana Statistical Service, 2010 Population Housing Census

* WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; Upper West Region.

Table 4.10 gives a summary of the proportion of households deprived in improved floor by region. In broad terms the proportion of households deprived in improved floor by region is in line with the overall well-being observed across the regions. The relatively ‘well off’ regions of southern Ghana, especially Greater Accra Region, have lower deprivation rates

compared to the three northern regions. In these regions, over a third of all households can be said to be deprived in improved dwelling floor.

Table 4.10: Proportion of households deprived in improved floor by Region

Region		Household deprived in improved floor		Total
		Not deprived	Deprived	
Western	No. of Households	475,775	77,859	553,634
	% Total household	85.9	14.1	100
Central	No. of Households	467,220	59,543	526,763
	% Total household	88.7	11.3	100
Greater Accra	No. of Households	982,380	53,990	1,036,370
	% Total household	94.8	5.2	100
Volta	No. of Households	407,720	87,880	495,600
	% Total household	82.3	17.7	100
Eastern	No. of Households	513,114	118,931	632,045
	% Total household	81.2	18.8	100
Ashanti	No. of Households	961,872	164,333	1,126,205
	% Total household	85.4	14.6	100
Brong-Ahafo	No. of Households	377,287	113,228	490,515
	% Total household	76.9	23.1	100
Northern	No. of Households	220,441	97,678	318,119
	% Total household	69.3	30.7	100
Upper East	No. of Households	121,357	56,272	177,629
	% Total household	68.3	31.7	100
Upper West	No. of Households	67,727	42,447	110,174
	% Total household	61.5	38.5	100
All Region	No. of Households	4,594,893	872,161	5,467,054
	% Total Household	84.1	16	100

Source: Ghana Statistical Service, 2010 Population Housing Census

While the materials used to construct the floor of a dwelling gives an indication of the socio-economic status of the occupants, similar assessment can be made of the materials used to construct other parts of the dwelling. Appendices 1-3 show the main construction material for the outer wall of household dwellings by region and locality. Regionally, poor building material, i.e. mud and earth, for the construction of the outer wall of dwelling is extensively used in the three northern regions as in the case of the use of the same material for floor construction. While the overall national average is about 34 percent, it is about 73 percent, 81 percent and 75 percent in the Northern Region, Upper East Region and Upper West Region respectively. In other words, in these regions for every 10 dwellings, 7 to 8 of the outer wall of these dwellings is built with mud or earth. Disaggregated by locality (rural and urban), similar observation can be made for the northern regions and the rest of Ghana (see Appendices 2-3).

4.4.1.2 Sleeping Room Availability and Overcrowding

The availability of room and the number of persons per room are as important as the materials for the construction of the dwelling. The number of rooms can be analyzed against household size to give an indication of overcrowding, which then demonstrates degree of housing inadequacy and the overall socio-economic status or standard of living of the household. According to K'Akumu (2007), where conventional housing is concerned, the number of rooms is a sufficient indicator since the rooms are subject to certain minimum size standards. He adds that in informal settlements this may not be the case as the rooms are not built to any minimum standards, hence the need for a different measure, that is, floor space. This measure is, however, not captured in the census data.

Nevertheless, the number of persons per sleeping room provides us a good measure of the level of overcrowding in dwelling. This statistic may also not be too precise as it talks of rooms in a dwelling unit, which would include the bedrooms and the living and dining rooms according to the census definition (K'Akumu 2007; GSS 2010). It is for this reason that our MPI measurement emphasizes sleeping rooms rather than rooms in general. However, we do recognize that sleeping rooms within dwellings could serve multiple purposes besides being used as sleeping places.

Table 4.11 shows the proportion of households by regions deprived or overcrowded (defined as more than three persons per room). It indicates that on the average 39.7 percent of households were deprived or overcrowded. However, the average was generally lower for the three northern regions compared to the rest of the country. In particular, deprivation in persons per room was relatively lower for the most urbanized region of Ghana. This is because several studies on housing and land have labeled the Greater Accra Region as the region with the severest housing crisis, and the consequent emergence of slums due to limited housing in both quantity and quality (see Konadu-Agyemang 2001; ISSER 2007; Owusu 2008).

Table 4.11: Proportion of households experiencing overcrowding by region

Region		Overcrowding rooms		Total
		Not deprived	Deprived	
Western	No. of Households	314,939	238,695	553,634
	% of Total Households	56.9	43.1	100
Central	No. of Households	294,304	232,459	526,763
	% of Total Households	55.9	45.1	100
Greater Accra	No. of Households	637,546	398,824	1,036,370
	% of Total Households	61.5	38.5	100
Volta	No. of Households	330,963	164,637	495,600
	% of Total Households	66.9	33.1	100
Eastern	No. of Households	395,310	236,735	632,045
	% of Total Households	62.5	37.5	100
Ashanti	No. of Households	617,195	509,010	1,126,205
	% of Total Households	54.8	45.2	100
Brong- Ahafo	No. of Households	274,388	216,127	490,515
	% of Total Households	55.9	44.1	100
Northern	No. of Households	228,694	89,425	318,119
	% of Total Households	71.9	28.1	100
Upper East	No. of Households	129,461	48,168	177,629
	% of Total Households	72.9	27.1	100
Upper West	No. of Households	74,121	36,053	110,174
	% of Total Households	67.3	32.7	100
All Regions	No. of Households	3,296,921	2,170,133	5,467,054
	% of Total Households	60.3	32.7	100

Source: Ghana Statistical Service, 2010 Population Housing Census

Locality wise, the proportion of deprived households in both rural and urban areas are fairly the same. Table 4.12 indicates that almost 40 percent of households in rural and urban areas are deprived in terms of number of persons per room.

Table 4.12: Household overcrowding status by locality

Locality		Overcrowding rooms		Total No. of Households
		Not deprived	Deprived	
Urban	No. of Households	1,837,688	1,211,678	3,049,366
	% of Total Households	60.3	39.7	100
Rural	No. of Households	1,459,233	958,455	2,417,688
	% of Total Households	60.4	39.6	100
Total	No. of Households	3,296,921	2,170,133	5,467,054
	% of Total Households	60.3	39.7	100

Source: Ghana Statistical Service, 2010 Population Housing Census

4.4.2 Water and sanitation

It has been widely argued that improved access to adequate toilet and sanitation would lead to improvements in the health, hygiene, livelihoods, psychological wellbeing and social interaction of household members (UN-Habitat 2010). Consequently, Ghana's past and present medium-term development policy frameworks, GPRS I&II (2002-2009) and GSGDA (2009-2013) – have all emphasized the need to give serious attention to the provision of water and sanitation not only to achieve health goals but also to facilitate sustained poverty reduction and socio-economic growth (GoG/NDPC 2010).

Critical issues on water and sanitation which have received attention include: inadequate access to quality and affordable water; poor water resource management; inadequate access to sanitation facilities and poor sanitation service delivery; inaccessible and unfriendly environmental, water and sanitation facilities; poor environmental sanitation; poor hygiene practices and inadequate hygiene education; and inadequate financing of environmental sanitation services (GoG/NDPC 2010, p. 90).

This sub-section of the report therefore provides an opportunity to gauge the extent to which investments in the past decade have fared in terms of improving households' access to water and sanitation.

4.4.2.1 Drinking Water

A key necessity of life and standard of living is access to clean drinking or potable water. Using the MPI methodological approach improved drinking water includes piped water, public tap, borehole or pump, protected well, protected spring or rainwater. As earlier noted it excludes water sources such as sachet or bottled water, unprotected well and vended water. A household defined as deprived in access to water if it obtains its drinking water from the excluded and other unprotected sources.

Table 4.13 shows the main source of drinking water by region. The first seven sources of water supply for households in the first column of Table 4.13 are sources that are defined as potable or drinkable water. The Table indicates that nationally almost 77 percent of households have access to good drinking water. However, this average masks significant differences across the regions. Of particular interest is the Greater Accra Region (GAR) where about 67 percent of households have access to good drinking water with about 33 percent deprived. This data is interesting given the fact that the region is the most 'developed' and urbanized region in Ghana. Another interesting observation in Table 4.13 is the extensive use of sachet water by households in the Greater Accra Region. While the national average is 9 percent, it is 28 percent in the Greater Accra Region, with limited use of 8 percent observed in the Central and Eastern Regions.

Table 4.13: Main source of drinking Water by region*

Drinking Water Source	All Regions	WR	CR	GAR	VR	ER	AR	BAR	NR	UER	UWR
Improved sources											
Pipe-borne inside dwelling	14.5	10.5	9.3	26.3	7.4	8.1	22.0	6.1	8.7	6.5	5.5
Pipe-borne outside dwelling	19.0	19.6	20.9	28.1	18.8	14.5	18.7	13.9	12.2	8.5	11.4
Public tap/Standpipe	13.0	16.3	23.3	10.0	19.2	11.3	10.1	17.1	6.9	2.9	4.4
Bore-hole/Pump/Tube well	23.2	18.2	18.2	1.5	16.4	28.0	30.9	33.4	35.1	57.3	64.2
Protected well	5.9	7.0	4.3	0.7	4.6	9.2	7.2	9.4	5.6	12.8	3.6
Rain water	0.7	0.1	1.6	0.2	3.2	1.3	0.1	0.2	0.6	0.1	0.2
Protected spring	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.4	0.3
Not improved sources											
Bottled water	0.4	0.3	0.3	1.1	0.2	0.2	0.3	0.2	0.1	0.0	0.0
Sachet water	9.0	5.4	8.1	28.0	3.3	8.5	3.7	2.7	0.4	0.4	0.7
Tanker supply/Vendor provided	1.1	0.6	2.9	2.9	0.4	0.2	0.4	0.1	0.3	0.2	0.3
Unprotected well	2.1	4.2	1.9	0.2	4.8	1.5	0.7	1.9	4.2	6.2	1.6
Unprotected spring	0.2	0.3	0.2	0.0	0.5	0.3	0.1	0.3	0.3	0.2	0.3
River/Stream	9.2	16.3	7.8	0.4	16.5	15.0	5.2	13.2	17.4	2.5	6.4
Dugout/Pond/Lake/Dam/Canal	1.4	0.6	0.8	0.2	4.4	1.4	0.1	1.3	7.6	1.8	1.2
Other	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.0
Total	100	100	100	100	100	100	100	100	100	100	100

Source: Ghana Statistical Service, 2010 Population Housing Census

* WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; UWR-Upper West Region.

Households' access to good drinking water appears to be highest – 89.6 percent, 89.4 percent and 88.5 percent in that order for the Upper West, Ashanti and Upper East Regions respectively. For the good drinking water sources, the contribution from Bore-hole/Pump/Tube well appears to be relatively high for all regions except the GAR. However, it was highest in the Upper West Region (about 64%) and Upper East Region (about 57%) against a national average of about 23 percent (see Table 4.13).

Table 4.14: Main source of drinking water for urban households*

Drinking Water Source**	All Regions	WR	CR	GAR	VR	ER	AR	BAR	NR	UER	UWR
Pipe-borne inside dwelling	23.9	21.0	15.3	27.8	15.4	15.1	33.3	11.1	22.3	22.5	21.5
Pipe-borne outside dwelling	25.9	29.2	27.0	28.6	29.0	21.9	23.6	20.1	26.9	19.8	29.3
Public tap/Standpipe	14.6	23.3	24.2	9.4	19.5	16.8	10.7	25.3	12.8	5.3	7.7
Bore-hole/Pump/Tube well	9.4	6.4	6.3	1.0	7.6	10.4	16.1	20.2	15.9	34.3	28.6
Protected well	6.3	7.0	5.0	0.5	6.9	13.4	8.2	13.0	8.4	11.1	6.7
Rain water	0.5	0.1	0.9	0.1	3.3	1.3	0.1	0.3	0.5	0.2	0.1
Protected spring	0.4	0.3	0.3	0.3	0.3	0.4	0.5	0.3	0.4	0.3	0.3
Bottled water	0.6	0.5	0.4	1.1	0.2	0.3	0.4	0.2	0.1	0.1	0.1
Sachet water	13.9	8.2	13.4	27.9	6.6	14.1	5.1	4.9	0.6	0.7	2.7
Tanker supply/Vendor provided	1.5	0.3	5.0	2.8	0.3	0.4	0.6	0.1	0.5	0.6	1.1
Unprotected well	0.9	0.8	0.8	0.1	5.2	0.9	0.4	1.3	4.4	3.7	1.0
Unprotected spring	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0
River/Stream	1.7	2.5	1.0	0.1	5.0	4.7	1.0	2.9	3.5	0.6	0.7
Dugout/Pond/Lake/Dam/Canal	0.3	0.2	0.3	0.0	0.6	0.2	0.1	0.1	3.5	0.6	0.2
Other	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.2	0.0
Total	100	100	100	100	100	100	100	100	100	100	100

Source: Ghana Statistical Service, 2010 Population Housing Census

* WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; UWR-Upper West Region.

**Drinking water sources defined as good per MPI are italicized.

In terms of household's access to drinking water by locality, Tables 4.14 and 4.15 show the urban and rural access respectively. In broad terms, the distribution follows the national and regional patterns, with least access to improved water for the GAR and the highest access recorded in the UWR, UER and AR. Also, as expected, access to improved sources of drinking water in urban households is relatively better than their rural counterparts. While the national access rate was 81 percent for urban areas, it was about 71 percent for rural households. Across all regions wide disparity exists between rural and urban households. For instance, in the Western Region, urban household's access to good drinking is 87.3 percent compared to 59.8 for the rural. Similar margin is recorded for the Northern Region.

Table 4.15: Main source of drinking water for rural households*

Drink Water Source**	All Regions	WR	CR	GAR	VR	ER	AR	BAR	NR	UER	UWR
Pipe-borne inside dwelling	2.5	2.0	3.6	9.5	2.9	2.0	2.3	1.4	2.0	1.6	1.2
Pipe-borne outside dwelling	10.3	11.7	15.1	21.9	13.0	8.1	10.2	8.1	4.9	5.0	6.8
Public tap/Standpipe	11.0	10.5	22.5	16.8	19.0	6.6	9.1	9.4	3.9	2.2	3.5
Bore-hole/Pump/Tube well	40.6	27.9	29.4	7.4	21.4	43.3	56.9	45.6	44.7	64.4	73.4
Protected well	5.4	7.1	3.7	2.4	3.2	5.6	5.4	6.0	4.2	13.4	2.9
Rain water	1.0	0.2	2.2	0.7	3.1	1.2	0.2	0.2	0.7	0.1	0.2
Protected spring	0.3	0.4	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.3
Bottled water	0.1	0.2	0.2	0.9	0.1	0.1	0.1	0.1	0.0	0.0	0.0
Sachet water	2.8	3.1	3.1	28.9	1.4	3.7	1.1	0.7	0.3	0.3	0.2
Tanker supply/Vendor provided	0.5	0.9	0.9	3.8	0.5	0.1	0.2	0.0	0.2	0.0	0.1
Unprotected well	3.5	6.9	3.1	1.9	4.7	2.1	1.2	2.5	4.2	7.0	1.7
Unprotected spring	0.4	0.6	0.3	0.2	0.8	0.4	0.2	0.5	0.5	0.3	0.3
River/Stream	18.7	27.7	14.3	3.4	23.0	23.9	12.5	22.8	24.4	3.1	7.8
Dugout/Pond/Lake/Dam/Canal	2.8	1.0	1.3	1.7	6.6	2.4	0.2	2.3	9.7	2.2	1.5
Other	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0
Total	100	100	100	100	100	100	100	100	100	100	100

Source: Ghana Statistical Service, 2010 Population Housing Census

* WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; Upper West Region.

**Drinking water sources defined as good per MPI are italicized.

The relatively limited access to drinking water in some regions as well as the low access in rural areas implies that Ghana has a long way to go in terms of achieving full access. Huge investments would therefore be required in both the short and long-terms in the water sector to improve access especially in rural areas. In particular, the relatively low access in the GAR, the largest population concentrated area, both in size and density, is worrying. This congruence of high population density and poor water access has implications for health and general well-being, especially for the poor (see Davis 2004; Owusu 2010).

4.4.2.2 Toilet

Across Ghana significant proportion of households do not have any toilet facilities and therefore defecate in bush, beach and open field – an act often described as ‘free range’. Table 4.16 shows that nationally, over 19 percent of households do not have any toilet facilities, however, this is extremely high in the three northern regions: Northern Region (72.6%); Upper East Region (82.4%) and; Upper West Region (72.9%). The three northern regions also fall behind in the use of all other types of toilet facilities.

Table 4.16: Type of toilet facility by region*

	All regions	WR	CR	GAR	VR	ER	AR	BAR	NR	UER	UWR
No facilities (bush/beach/field)	19.3	11.9	15.4	8.2	27.7	11.3	6.3	17.8	72.6	82.4	72.9
W.C.	15.4	13.4	9.2	31.0	6.0	8.7	23.2	6.7	2.4	3.4	3.1
Pit latrine	19.0	30.1	23.1	9.9	22.6	32.2	17.8	22.9	2.9	3.0	6.2
KVIP	10.5	6.3	11.8	14.4	12.8	15.9	8.7	8.1	4.6	3.5	4.5
Bucket/Pan	0.7	0.4	0.5	2.3	0.5	0.6	0.3	0.2	0.4	0.2	0.1
Public toilet (WC/KVIP/Pit /Pan etc)	34.6	37.4	39.5	33.8	30.0	31.0	43.3	44.0	16.6	7.2	12.7
Other	0.4	0.5	0.5	0.6	0.3	0.3	0.3	0.3	0.6	0.3	0.5
Total	100	100	100	100	100	100	100	100	100	100	100

Source: Ghana Statistical Service, 2010 Population Housing Census

*WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; UWR-Upper West Region.

However, household use of toilet facility changes dramatically when the issue is examined by locality (see Table 4.17). While over 19 percent (or almost 2 out of 10) of households in Ghana do not have access to any toilet facilities, it is 9.3 percent and 32 percent for urban and rural areas respectively. Again, the national averages for both rural and urban areas are masked by extremely high figures for the three northern regions. For instance, in rural Upper East Region, over 9 out of 10 households do not have any toilet facilities. Table 4.17 demonstrates that open defecation is a phenomenon widely practiced in rural areas, most extensively in the three northern regions.

Table 4.17: Type of toilet facility by Locality*

	All regions	WR	CR	GAR	VR	ER	AR	BAR	NR	UER	UWR
Urban											
No facilities (bush/beach/field)	9.3	7.0	14.6	6.0	16.2	5.3	3.4	10.4	42.6	56.7	34.3
W.C.	24.9	26.2	15.1	32.3	13.2	15.4	33.6	11.6	5.2	10.9	10.6
Pit latrine	12.9	15.1	19.7	8.8	12.6	19.7	12.9	18.8	2.8	4.2	5.5
KVIP	12.8	7.5	14.2	14.5	18.9	21.0	8.8	11.3	7.7	6.2	9.4
Bucket/Pan	1.2	0.5	0.8	2.5	0.9	1.0	0.3	0.2	1.0	0.8	0.1
Public toilet (WC/KVIP/Pit /Pan etc)	38.4	43.2	35.0	35.4	37.7	37.2	40.5	47.3	40.1	21.1	39.8
Other	0.5	0.5	0.6	0.5	0.4	0.4	0.4	0.3	0.6	0.2	0.3
Total	100	100	100	100	100	100	100	100	100	100	100
Rural											
No facilities (bush/beach/field)	32.0	15.8	16.1	31.9	34.2	16.5	11.4	24.6	87.6	90.3	82.9
W.C.	3.3	2.9	3.6	16.8	2.0	3.0	5.0	2.1	1.0	1.1	1.2
Pit latrine	26.7	42.3	26.3	22.4	28.3	43.0	26.3	26.8	2.9	2.6	6.4
KVIP	7.5	5.3	9.5	12.4	9.3	11.4	8.6	5.0	3.0	2.7	3.2
Bucket/Pan	0.2	0.3	0.3	0.4	0.2	0.3	0.2	0.1	0.1	0.0	0.1
Public toilet (WC/KVIP/Pit /Pan etc)	29.8	32.7	43.8	15.5	25.7	25.6	48.1	41.1	4.8	2.9	5.7
Other	0.4	0.6	0.4	0.7	0.3	0.3	0.3	0.3	0.5	0.3	0.5
Total	100	100	100	100	100	100	100	100	100	100	100

Source: Ghana Statistical Service, 2010 Population Housing Census

*WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; UWR-Upper West Region.

Tables 4.16 and 4.17 also reveal the extensive use of public toilet facilities (WC, KVIP, pit latrine, etc.) or other types sharing facilities, especially in the regions of southern Ghana. If the proportion of households with no facilities is combined, with household deprivation in toilet as constituting any type of shared toilet facility, then the proportion of households across all regions deprived is quite significant.

Table 4.18: Households with shared toilet facility by region*

Facility	All Region	WR	CR	GA	VR	ER	AR	BAR	NR	UWR	UER
W.C.	24.5	21.3	14.7	36.0	9.1	10.4	38.9	14.0	14.5	20.3	16.1
Pit –latrine	44.5	61.2	53.6	21.5	56.4	55.6	39.0	61.0	27.3	34.1	42.2
KVIP	28.0	15.6	29.2	35.6	32.6	32.1	20.8	23.6	49.7	40.5	37.4
Bucket/Pan	2.1	0.8	1.3	5.9	1.0	1.2	0.6	0.5	3.7	2.4	0.7
Other	0.9	1.1	1.2	1.0	0.8	0.6	0.7	0.8	4.9	2.7	3.5
Total	100	100	100	100	100	100	100	100	100	100	100

Source: Ghana Statistical Service, 2010 Population Housing Census

*WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; Upper West Region.

Disaggregated by locality, significant differences exist between rural and urban households regarding the use of shared toilet facilities (see Table 4.19). In rural areas there is limited sharing of WC largely due to the absence of piped-water within homes and communities. Instead there is widespread use of pit-latrine (which are fairly easy to construct), and to some extent KVIP.

Table 4.19: Households with shared toilet facility by Locality*

	All Region	WR	CR	GAR	VR	ER	AR	BAR	NR	UWR	UER
Urban Households											
WC	35.3	41.9	22.0	37.8	19.7	17.7	50.6	21.2	19.5	32.0	28.4
Pit latrine	29.4	36.5	42.3	19.0	29.7	36.8	28.5	47.9	17.5	25.3	26.5
KVIP	31.5	19.7	32.7	36.0	47.8	42.8	19.6	29.6	52.8	36.9	43.0
Bucket/Pan	2.9	1.0	1.8	6.3	1.9	1.9	0.7	0.6	5.9	4.4	0.7
Other	0.9	1.0	1.2	0.9	0.8	0.7	0.7	0.7	4.3	1.4	1.3
Total	100	100	100	100	100	100	100	100	100	100	100
Rural households											
WC	5.7	4.4	6.3	14.2	2.7	3.5	9.4	4.7	8.2	10.3	9.0
Pit latrine	70.8	81.6	66.7	52.5	72.7	73.7	65.4	78.1	39.5	41.5	51.3
KVIP	21.9	12.3	25.3	30.8	23.4	21.7	23.9	15.9	45.9	43.6	34.2
Bucket/Pan	0.5	0.6	0.6	1.1	0.4	0.5	0.5	0.3	0.9	0.7	0.7
Other	1.0	1.1	1.1	1.4	0.8	0.6	0.8	1.0	5.6	3.8	4.8
Total	100	100	100	100	100	100	100	100	100	100	100

Source: Ghana Statistical Service, 2010 Population Housing Census

* WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; Upper West Region.

4.4.3 Quality and Sources of Energy

Access of households to clean energy sources for cooking, lighting of home and other domestic activities is an indicator of standard of living. This is because this has implications

for in-house pollution and the health and general welfare of household members, especially women and children. Many experts have argued that although all constituents of the environment ultimately exert some influence on human health and well-being, the environment which exerts the greatest and most immediate influence on people's well-being is the intimate environment of their home and neighborhood (Songsore and McGranahan 1993; Owusu 2010). According to Owusu (2010), while this is often conceptualized in health terms, it goes beyond health to encapsulate other aspects of human well-being due to the fact that the quality of housing affects not only physical health and safety, but also emotional and social well-being.

Recent studies related to the environmental transition model argue that the nature of environmental problems changes with levels of economic development, and as a general rule, the environmental hazards that are immediately health threatening are those found in poor homes including smoky kitchens (see McGranahan and Songsore 1994; Songsore 2004). In our computation of the MPI and analysis of non-monetary poverty in Ghana, two standard of living indicators related to household energy use are considered: the type of cooking fuel used and access to the national electricity grid. As earlier noted, a household is considered deprived if its main source of cooking fuel is wood, charcoal, crop residue, saw dust or animal waste. For electricity, the household is deprived if it is not connected to the national electricity grid. However, it should be noted that access to services such as electricity, do not usually depend on the individual households, but on public decision. In other words, access to electricity fully depends on decision beyond household, and this is also true to some extent for water and toilet facilities (GSS 2007).

4.4.3.1 Main energy for cooking

Table 4.20 shows the main cooking fuel by region. It reveals that wood and charcoal, and to some extent gas, are the main sources of cooking fuel for households in Ghana. Nationally, the two poor cooking fuel sources (wood and charcoal) are used in about 74 percent of households. However, similar to other indicators, the distribution across regions is not uniform. Wood is relatively extensively used as means of cooking in northern Ghana compared to southern Ghana, while the reverse is true for charcoal.

Table 4.20: Main cooking fuel by region*

	All Regions	WR	CR	GAR	VR	ER	AR	BAR	NR	UER	UWR
None/no cooking	5.6	5.3	5.1	6.9	2.6	4.6	8.1	6.6	2.1	1.8	2.1
Wood	40.2	48.4	44.2	3.5	57.1	49.9	29.8	60.0	76.5	60.4	73.4
Gas	18.2	15.0	12.5	41.4	9.3	11.8	21.1	7.5	3.3	4.9	4.1
Electricity	0.5	0.6	0.2	0.9	0.2	0.5	0.7	0.2	0.4	0.2	0.4
Kerosene	0.5	0.4	0.6	1.1	0.5	0.5	0.4	0.2	0.4	0.2	0.3
Charcoal	33.7	29.7	36.9	45.4	29.6	32.1	39.3	24.9	16.4	15.2	19.0
Crop residue	0.8	0.3	0.3	0.1	0.5	0.3	0.2	0.4	0.6	16.7	0.7
Saw dust	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.2	0.2	0.1	0.1
Animal waste	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Other	0.1	0.1	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.3	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Ghana Statistical Service, 2010 Population Housing Census

*WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; UWR-Upper West Region.

Table 4.20 also reveals that 18.2 percent of households in Ghana used gas as their main source of cooking fuel. However, this national average is only exceeded by two regions: Greater Accra Region (41.4%) and Ashanti Region (21.1%). For all other regions, the proportion of households using gas for cooking is low, especially in the three regions of northern Ghana. The relatively low patronage of gas by households for cooking despite years of campaigning to promote its usage could be attributed to its relatively higher price compared to other sources as well as the absence of basic infrastructure for the supply of the fuel.

Table 4.21: Main source of cooking fuel by locality*

	All										
Urban	Regions	WR	CR	GAR	VR	ER	AR	BAR	NR	UER	UWR
None no cooking	7.2	6.4	5.8	7.2	2.8	5.9	9.9	8.9	4.3	3.9	3.6
Wood	13.8	16.2	20.0	1.6	24.3	24.4	7.5	35.2	45.1	28.3	17.0
Gas	28.9	27.7	19.8	42.9	19.2	19.8	29.9	13.0	7.5	14.8	13.9
Electricity	0.8	1.0	0.3	1.0	0.3	0.8	0.9	0.3	0.3	0.2	0.6
Kerosene	0.7	0.7	0.7	1.2	0.7	0.7	0.5	0.3	0.4	0.4	0.9
Charcoal	47.9	47.6	52.9	45.6	52.1	47.9	50.8	41.6	41.3	45.2	63.5
Crop residue	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.3	0.4	6.8	0.2
Saw dust	0.2	0.2	0.1	0.3	0.2	0.1	0.2	0.4	0.3	0.1	0.2
Animal waste	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Other	0.2	0.2	0.1	0.3	0.1	0.1	0.2	0.1	0.4	0.2	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Rural											
None no cooking	3.6	4.4	4.4	4.4	2.5	3.5	5.1	4.4	1.0	1.2	1.7
Wood	73.4	74.7	67.0	25.0	75.6	72.0	68.6	82.9	92.2	70.3	88.0
Gas	4.8	4.6	5.7	25.8	3.7	4.8	5.8	2.4	1.2	1.8	1.6
Electricity	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.2	0.5	0.2	0.3
Kerosene	0.3	0.2	0.4	0.7	0.4	0.4	0.2	0.1	0.3	0.2	0.1
Charcoal	15.9	15.1	21.8	43.2	16.9	18.4	19.4	9.4	3.9	5.9	7.5
Crop residue	1.6	0.5	0.4	0.2	0.6	0.4	0.4	0.5	0.7	19.8	0.8
Saw dust	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0
Animal waste	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Other	0.1	0.0	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.4	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Ghana Statistical Service, 2010 Population Housing Census

*WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; UWR-Upper West Region.

In terms of locality, wood and charcoal (combined) are relatively less in urban areas compared to rural areas (see Table 4.21). While on the average 13.8 percent of urban households used wood, this was 73.4 percent in the case of rural areas. It is relatively higher for rural households in the Northern Region (92.2%), Upper West Region (88%) and Brong-Ahafo Region (82.9%). However, the use of wood fuel as cooking fuel is far less in the urban Greater Accra Region (only 1.6%) and to a limited extent in the urban Ashanti Region

(7.5%). For charcoal, there is no significant difference between the averages for all urban areas and the rest of the regions, except in the Upper West Region where the urban average is 63.5 percent. Charcoal is used less in the rural areas, apart from GAR where 43.2% of households use this.. An average of about 16 percent of rural households used charcoal, with far less proportion of households using the product in the three northern regions: Northern Region (3.9%), Upper East Region (5.9%) and Upper West Region (7.5%).

About 29 percent of urban households used gas as main cooking fuel. However, similar to the national distribution, this average is exceeded by only the Greater Accra Region (42.9%) and Ashanti Region (29.9%). In rural areas, the proportion of households using gas as the main source of cooking fuel is just 4.8 percent, and this is even lower in the three northern regions. However, in GAR, 25.8% of rural households report using gas.

Across both regions and localities, there is limited use of electricity as cooking fuel. Even for urban areas where access to electricity is relatively high, less than 1 percent of households use it as a means of cooking. The low use of electricity may be due to cost as well as the presence of alternative cheaper fuel sources such as wood, charcoal and gas.

4.4.4 Access to Electricity

The 2010 PHC indicates that about 64 percent of households in Ghana have access to or are connected directly to the national electricity grid (see Table 4.22). In other words per the MPI indicator on electricity, almost 36 percent of households in Ghana can be described as deprived in electricity as they are not connected to the national grid. Table 4.22 reveals that the overall national proportion deprived in electricity is only exceeded by five regions: Volta (50.5%), Brong-Ahafo (46.2%), Northern (63.9%), Upper East (75.9%) and Upper West (69.1%).

Table 4.22: Households' electricity access deprivation status by region

		Household electricity access status		Total No. of Households
		Not deprived	Deprived	
Western	No. of Households	360,079	193,555	553,634
	% of Total Households	65.0	35.0	100.0
Central	No. of Households	347,998	178,765	526,763
	% of Total Households	66.1	33.9	100.0
Greater Accra	No. of Households	902,831	133,539	1,036,370
	% of Total Households	87.1	12.9	100.0
Volta	No. of Households	245,583	250,017	495,600
	% of Total Households	49.5	50.5	100.0
Eastern	No. of Households	369,961	262,084	632,045
	% of Total Households	58.5	41.5	100.0
Ashanti	No. of Households	828,924	297,281	1,126,205
	% of Total Households	73.6	26.4	100.0
Brong-Ahafo	No. of Households	263,890	226,625	490,515
	% of Total Households	53.8	46.2	100.0
Northern	No. of Households	114,889	203,230	318,119
	% of Total Households	36.1	63.9	100.0
Upper East	No. of Households	42,866	134,763	177,629
	% of Total Households	24.1	75.9	100.0
Upper West	No. of Households	34,044	76,130	110,174
	% of Total Households	30.9	69.1	100.0
All Regions	No. of Households	3,511,065	1,955,989	5,467,054
	% of Total Households	64.2	35.8	100.0

Source: Ghana Statistical Service, 2010 Population Housing Census

The wide gap in terms of access or deprivation among the three northern regions (Northern, Upper East and Upper West) partly explains the development inequality between northern and southern Ghana. This is because limited access to electricity impacts negatively on households business as well as limits better health and education services (African Commission 2009).

Table 4.23: Proportion of households with access to national electricity grid by region and locality

	Total Households	Urban		Rural	
		No. of Households	% of Total Household	No. of Household	% of Total Household
Western	360,079	220,259	61.2	139,820	38.8
Central	347,998	200,176	57.5	147,822	42.5
Greater Accra	902,831	846,630	93.7	56,201	6.3
Volta	245,583	125,001	50.9	120,582	49.1
Eastern	369,961	229,880	62.1	140,081	37.9
Ashanti	828,924	629,802	76.0	199,122	20.9
Brong-Ahafo	263,890	180,123	68.2	83,767	31.8
Northern	114,889	79,687	69.3	35,202	30.7
Upper East	42,866	27,101	63.2	15,765	36.8
Upper West	34,044	17,508	51.4	16,536	48.6
All regions	3,511,065	2,556,167	72.8	954,898	27.2

Source: Ghana Statistical Service, 2010 Population Housing Census

Table 4.23 shows the distribution in terms of region and locality of households which have access to electricity or are connected to the national electricity grid. It shows that this distribution is highly skewed in favour of urban areas. The Table shows that, of about 3.5 million of households with access to electricity, almost 73 percent are in urban areas with only 27 percent in rural areas. With the exception of the Upper West and Volta Regions, all the other regions have wide gap between rural and urban areas.

4.5 Conclusion

Table 4.24 provides a summary of the deprivation status per the ten indicators selected for the MPI. It reveals that across Ghana a substantial proportion of households are deprived in a number of indicators. This reflects the level of development and poverty across the country. As observed in this section (Chapter 4), analyses of the indicators reveal wide disparities by regions and locality (rural and urban areas). In general, wide disparities exist between the proportion of households deprived in the three northern regions (Northern, Upper East and Upper West) and their counterparts in southern Ghana. This reinforces a widely shared view of the inequality in the level of development between northern and southern Ghana (see Aryeetey et al. 2009).

Across locality, rural households are deprived more than their urban counterparts. Relatively high levels of poverty reflected in low incomes and poor provision of infrastructure by local and central governments in rural areas imply that rural households' decisions on consumption and access to basic services are curtailed. Consequently, for a range of services such as education, health, water, electricity, etc, the proportion of rural households deprived tends to be disproportionately higher than urban areas.

Table 4.24: Summary of deprivation status of households in Ghana

Indicator	Deprivation status (%)		Total
	Not deprived	Deprived	
<i>Education:</i>			
Household primary school completion	57.2	42.8	100.0
Child school attendance	93.0	7.0	100.0
<i>Health:</i>			
Death of child	99.2	0.8	100.0
Maternal death	99.4	0.6	100.0
<i>Standard of living:</i>			
Improved dwelling floor	84.0	16.0	100.0
Overcrowding (>3 persons per sleeping room)	60.3	39.7	100.0
Access to good drinking water	76.6	23.4	100.0
Improved toilet facility	23.8	76.2	100.0
Improved cooking fuel	25.2	74.8	100.0
Access to national electricity grid	64.2	35.8	100.0

Source: Ghana Statistical Service, 2010 Population Housing Census

Chapter Five

Disaggregation of Multi-dimensional Poverty Index

5.1 Introduction

The multi-dimensional poverty index (MPI) reflects the number of deprivations poor households experience at the same time (Alkire and Santos 2010), but at varying degrees of intensity and breadth. While households experiencing deprivation in all ten indicators of the three dimensions of education, health and standard of living can be described as extremely poor, the same cannot be said of households deprived in one or two of the indicators. In other words, the MPI allow us to observe the varying degrees of deprivation and poverty across households.

In this Chapter, we analyze the proportion of the Ghanaian households experiencing overlapping or multiple deprivations (incidence) and the intensity of the deprivation (that is, the average number of deprivations faced by households). Similar to Chapter 4, the analyses in this chapter is done on the basis of locality and region.

5.2 Regional Disaggregation

As earlier noted, the MPI is the product of two components: the headcount or the proportion of the population who are MPI-poor (incidence) and the average proportion of weighted indicators in which the MPI-poor persons are deprived (intensity) (Alkire and Santos 2010). Table 5.1 presents the estimates of the MPI for the whole of Ghana and the 10 regions and the MPI components (headcount or incidence, referred to as H) and the (intensity or the average breath, referred to as A). Based on MPI index (H and A), other estimates such as the proportion of the population vulnerable (or at risk) to poverty (including severe poverty), number and proportion of MPI poor households, and the overall MPI ranking of regions of Ghana can be calculated.

Per the MPI scores as presented in Table 5.1, Greater Accra Region has the least MPI score of 0.072, far below the national average of 0.179. The region also has the least MPI headcount or incidence of 18.5 percent, which is also far lower than the national MPI incidence of 42.7 percent. However, the MPI incidence of 42.7 percent is higher than the national income poverty measurement of 28.5 percent derived from the GLSS 5 in 2006 (GSS 2007). Again, it needs to be stressed that the MPI presentation of the Greater Accra Region as the least poor or the ‘most developed’ region in Ghana is broadly in line with other income poverty measurements such as the Ghana Statistical Service’s GLSS (see GSS 2007).⁹ However, a closer observation of the average proportion of weighted indicators in which the MPI-poor persons in the Greater Accra Region are deprived (intensity) of 38.7 percent is not significantly different from the other regions which though have higher MPI poverty incidence.

⁹ The GSS (2007), however, noted a growing incidence of poverty in the Greater Accra Region. It noted that the after attaining the status as the least poor area in Ghana after four rounds of the GLSS, the Greater Accra Region more than double its poverty incidence from 5.2 percent in 1998 to 11.8 percent in 2006.

Not surprisingly, the three regions of northern Ghana have the highest MPI poverty incidence: Northern Region (80.9%), Upper East Region (80.8%) and Upper West Region (77.6%). MPI poverty headcount (incidence) is also high to some extent in the Brong-Ahafo Region (51.7%) and to limited extent in the Volta Region (44.3%) (see Table 5.1). According to Table 27, the Upper West, Upper East and Northern Regions are ranked as 8th, 9th, and 10th positions respectively. The positions of the three northern regions on the MPI ranking are broadly in with the GSS' poverty measurement which recorded poverty incidence in 2006 of 52.3 percent for the Northern Region, Upper East Region (70.4%) and Upper West Region (87.9%) – far higher than the national average of 28.5 percent.

Interestingly, while the MPI poverty incidence appears to be extremely high for all the three northern regions, the average intensity of deprivation between these regions and the rest of the regions of Ghana is marginal or not significant (see Table 5.1). This observation deviates from Alkire and Santos (2010) who applied the MPI to 104 countries, and found broad uniform relationship between higher MPI headcount and higher average intensity of deprivation. In other words, for the Ghanaian case, higher MPI headcount does not necessarily correlate with higher average intensity. For instance, as revealed in Table 5.1, while regions in southern Ghana (including the Greater Accra Region) tend to have relatively lower MPI headcount, the average intensity of deprivation tends to be high. For example, in the Western Region, the 40.5 percent MPI poverty headcount for the region is the same as its average deprivation intensity. In many of the regions in southern Ghana, a few percentage points separate the MPI incidence and the average intensity of deprivation.

The non-correlation between the MPI poverty incidence and the average intensity of deprivation raises questions regarding poverty intervention and targeting. This suggests that there may be different pathways to approaching poverty reduction in Ghana. For regions such as the Greater Accra Region with relatively low incidence of poverty but higher levels of deprivation, interventions may not need to focus on reducing the numbers of the poor but rather the average deprivation. In this direction, the intervention may require focusing on the specific dimensions of deprivation. The opposite approach may be required in the three northern regions of Ghana, and to some extent the Brong-Ahafo and the Volta Regions where the incidence of poverty is higher. In these regions, the high levels of the incidence of poverty require comprehensive effort towards reducing the higher proportion of the total poor population.

Table 5.1: MPI decomposition by region

Region	Multidimensional poverty			Pop. vulnerable (or at risk) to poverty (experiencing intensity between 20– 32.9%)	Pop. in severe poverty (experien- cing intensity higher than 50%)	Population					
	MPI(H*A)	Headcount ratio: Pop. in multidimensional poverty (H)	Intensity of deprivation among the poor (A)			Household	Total	Number of households MPI poor	% household MPI poor	Number of MPI poor people	MPI rank
	Range 0 to 1	% Population	Average % of weighted deprivations	% Population	% Population						
	Ghana	0.179	42.7	41.8	19.4	11.0	24,076,327	24,658,823	1,738,944	31.8	10,283,634
Western	0.164	40.5	40.5	21.8	7.6	2,307,395	2,376,021	178,513	32.2	933,989	5
Central	0.155	39.1	39.7	22.7	6.4	2,113,766	2,201,863	163,012	31.0	827,069	4
Gt. Accra	0.072	18.5	38.7	17.2	2.9	3,888,512	4,010,054	133,855	12.9	719,535	1
Volta	0.187	44.3	42.2	22.3	11.3	2,086,567	2,118,252	178,042	35.9	924,642	6
Eastern	0.147	35.6	41.3	23.3	7.6	2,574,549	2,633,154	174,946	27.7	917,721	3
Ashanti	0.121	30.8	39.3	20.0	4.6	4,671,982	4,780,380	260,590	23.1	1,441,139	2
B/Ahafo	0.217	51.7	42.0	20.9	12.1	2,265,458	2,310,983	202,262	41.2	1,170,916	7
Northern	0.371	80.9	45.9	13.9	37.0	2,445,061	2,479,461	237,221	74.6	1,978,799	10
U/East	0.335	80.8	41.5	11.4	21.5	1,034,704	1,046,545	133,194	75.0	835,594	8
U/West	0.341	77.6	43.9	14.4	27.8	688,333	702,110	77,309	70.2	534,230	9

Source: Ghana Statistical Service, 2010 Population Housing Census

Table 5.2 presents the contribution of the three dimensions of the MPI (education, health and standard of living) and the selected ten indicators to overall national poverty. This is very useful for understanding the major causes of poverty in Ghana, and across the regions. Table 5.2 reveals that across Ghana the largest contributors to poverty are the dimensions of education and living standards. Health plays a very minor role as its contribution is less than 1 percent of the total contribution to overall poverty. For four regions, Greater Accra, Northern, Upper East and Upper West Regions, education appears to be the largest contributor accounting for over 50 percent to overall poverty. For the rest of the regions, standard of living appears to be the largest contributor to overall poverty.

Again, Table 5.2 provides information on the specific contributions of the ten indicators to overall poverty both nationally and regionally. The non-education of household members both adults and children is the largest contributor to overall poverty per indicator. The education deprivation of households in terms of no household member not completing 5 years of education as well a school-aged children not attending school up to Primary 6 account for the large share of education to overall poverty. However, taking individually deprivation in terms of no household member not completing 5 years of education is the single largest contributor to overall poverty. Nationally, it is almost 39 percent but interestingly highest in the Greater Accra Region (the most developed region of Ghana) – 41.4 percent, and 41 percent in Ashanti Region (a relatively resource-rich and developed region). It is a little over 40 percent in the Central and Upper East Regions.

Beyond the indicators on education, three indicators under living standards: access to improved toilet facilities, cooking fuel and overcrowding contribute moderately to overall national poverty (see Table 5.2). For the contribution of improved cooking fuel and to some extent electricity there is not much difference across the regions. However, substantial difference exists in terms of the contribution of overcrowding to overall poverty. While the national average for overcrowding is 6.7 percent, the contribution of the indicator is highest in the most urbanized regions, Greater Accra and Ashanti Regions, but also the Central Region. The situation of overcrowding in the Central Region requires further attention.

Table 5.2: Percentage contributions of dimensions and indicators to overall national poverty

Region	MPI	Percentage contribution of deprivations of each dimension to overall poverty...			Percentage contribution of each indicator to overall national poverty									
		Education	Health	Living standards	Education		Health		Living standards					
					Years of Schooling	Child school attendance	Child Mortality	Maternal mortality	Electricity	Toilet	Water	Flooring	Cooking fuel	Over-crowding
%	%	%	%	%	%	%	%	%	%	%	%	%	%	
Ghana	0.179	50.2	0.7	49.1	38.8	11.3	0.7	0.1	9.2	11.4	4.3	4.4	13.1	6.7
Western	0.164	48.1	0.7	51.2	39.7	8.4	0.7	0.1	8.6	9.9	6.3	3.9	13.5	9.0
Central	0.155	48.4	0.8	50.8	40.4	8.0	0.7	0.1	8.1	11.8	4.0	2.9	13.8	10.2
Greater Accra	0.072	51.5	0.7	47.8	41.4	10.2	0.6	0.1	4.5	13.0	4.4	1.6	13.3	11.1
Volta	0.187	49.1	0.7	50.2	38.1	11.0	0.7	0.1	10.2	10.5	6.3	4.3	13.0	5.8
Eastern	0.147	48.0	0.7	51.4	38.1	9.9	0.6	0.1	9.8	9.5	5.7	5.2	13.3	7.8
Ashanti	0.121	48.3	0.7	51.0	41.0	7.3	0.7	0.1	7.8	11.8	2.7	4.6	13.9	10.2
Brong-Ahafo	0.217	48.1	0.6	51.3	38.9	9.2	0.6	0.0	9.8	10.9	4.5	5.1	13.1	7.8
Northern	0.371	54.3	0.8	44.9	36.2	18.0	0.8	0.1	9.4	11.7	4.6	4.5	12.0	2.7
Upper East	0.335	50.9	0.8	48.4	40.1	10.8	0.7	0.1	12.3	13.2	1.9	5.1	13.3	2.6
Upper West	0.341	52.0	0.8	47.2	37.8	14.2	0.7	0.0	11.2	12.1	1.7	6.5	12.5	3.2

Source: Ghana Statistical Service, 2010 Population Housing Census

5.3 Rural and Urban Disaggregation of MPI

As already noted in this study, while substantial differences exist among regions in terms of inequalities in development and consequently poverty levels, these differences can also be found across localities – a phenomenon sometimes referred to as the rural-urban differentials. Table 5.3 shows the national MPI, rural MPI and urban MPI as well as the contributions of the rural and urban indices to the national and regional indices. Nationally, the percentage contribution of rural deprivation to overall poverty is 72.3 percent, but as high as 92.6 percent in the Upper West Region: 87.3 percent in the Upper East Region; and 80.8 percent for the Northern Region. With the exception of the Greater Accra Region, where the rural contribution to overall region poverty is 20.9 percent, the MPI estimates seem to reinforce an existing held view that poverty in Ghana is largely a rural phenomenon.

Table 5.3: MPI decomposition by locality and region

Region	Population			National MPI	Urban MPI	Rural MPI	Percentage contribution of deprivations of each locality to overall poverty...	
	Total	Urban	Rural				Urban %	Rural %
Ghana	24,076,327	12,153,739	11,922,588	0.179	0.098	0.261	27.7	72.3
Western	2,307,395	966,474	1,340,921	0.164	0.09	0.217	23.0	77.0
Central	2,113,766	980,804	1,132,962	0.155	0.122	0.184	36.5	63.5
Greater Accra	3,888,512	3,518,927	369,585	0.072	0.063	0.158	79.1	20.9
Volta	2,086,567	697,388	1,389,179	0.187	0.116	0.222	20.7	79.3
Eastern	2,574,549	1,107,552	1,466,997	0.147	0.083	0.196	24.1	75.9
Ashanti	4,671,982	2,817,238	1,854,744	0.121	0.077	0.189	38.2	61.8
Brong-Ahafo	2,265,458	1,000,473	1,264,985	0.217	0.139	0.278	28.4	71.6
Northern	2,445,061	739,013	1,706,048	0.371	0.236	0.43	19.2	80.8
Upper East	1,034,704	215,580	819,124	0.335	0.204	0.369	12.7	87.3
Upper West	688,333	110,290	578,043	0.341	0.158	0.376	7.4	92.6

Source: Ghana Statistical Service, 2010 Population Housing Census

Nationally and across the regions, the rural MPI is far higher and in some instances, twice as high as the urban average. This includes the three northern regions where poverty is generally regarded as high. Again, nationally and across all regions, the urban MPI is lower than the overall national and regional MPI. The higher MPI in rural areas reflects the general high levels of deprivations in rural communities, compared to their urban counterparts. As noted in many studies on rural development in Ghana, the higher levels of deprivation and poverty is a result of limited infrastructure and services, and poor performance of agriculture, the mainstay of the rural economy (Adarkwa 1992; Aryeetey et al. 2009; Owusu and Yankson 2007). Rural-urban migration prevails which further compromises any effort to improve the situation in rural areas while at the same time putting pressure on the existing infrastructure and services in urban areas.

5.3.1 Urban MPI Disaggregation

Table 5.4 reveals the percentage contributions of the three dimensions (education, health and living standards) as well as the ten indicators to overall urban poverty. This provides a good indication of the major causes of poverty in urban areas. Similar to the national pattern, education and standards of living are the largest contributors of overall urban poverty. Looking at Table 5.4 there is no substantial differences across the regions with respect to these two dimensions (education and standard of living).

In terms of the percentage contributions of the indicators to overall national urban poverty, deprivation with respect to non-completion of primary education by household members is the largest contributor to overall national urban poverty. It contributes 42.2 percent to overall urban poverty, and the average is not substantial different from the regional estimates (see Table 5.4). This is followed by non-usage of improved cooking fuel, limited access to improved toilet facilities, overcrowding and school-going children not attending school.

While sharp differences in terms of the regional contribution are difficult to delineate along regional lines, deviations tend to be higher for some regional indicators. For instance, for children's school attendance, while the national average is 8.9 percent, it is as high as 14.9 percent for the Northern Region, and the same could be said for child mortality – 1.1 percent for the region against 0.8 percent for the whole country. A similar argument can be made for access to good drinking for the Greater Region (4.4%) and the Volta Region (4.3%) as against a national average of 2.8 percent.

5.3.2 Rural MPI Disaggregation

To be able to gauge the major causes of rural poverty, we disaggregate the rural MPI by examining the contributions of the three dimensions and the ten indicators to overall national rural poverty. Similar to the pattern observed for the national and urban in terms of the three dimensions, education and standard of living are the largest contributors to overall rural poverty (see Table 5.5). The observed pattern here is that while for regions in southern Ghana (with the exception of the Greater Accra Region), living standards is the single dimension-wise contributor to overall poverty, for the three northern regions it is education.

For the indicators, household members' non-completion of primary education is the largest contributor to overall rural poverty (37.5%). However, the contribution of the indicator to rural poverty is relatively lower than that of the urban, both nationally and across all the regions (see Tables 5.4 and 5.5). After deprivation in terms of non-completion of primary education by household members, the next largest contributors to rural poverty are: poor cooking fuel (12.7%); school-going children not in primary school (12.3%); non-use of improved toilet facilities (10.7%) and; lack of access to national electricity grid (10.6%).

The relatively high contribution of non-use of improved cooking fuel is due to the extensive use of wood and charcoal in urban areas, and wood in rural areas – both sources considered as poor energy sources. The same can be said of access to improved toilet facilities in both localities as there is extensive use of poor facilities (including open defecation) by households and communities members. Also, while access to the national electricity grid contributes relatively less to overall urban poverty, this is high in rural areas. This is because many rural communities are not connected to the national grid, and therefore are deprived in electricity.

Table 5.4: Percentage contributions of dimensions and indicators to overall urban poverty

Region	MPI	Percentage contribution of each indicator to overall urban poverty												
		Percentage contribution of deprivations of each dimension to overall poverty...			Percentage contribution of each indicator to overall urban poverty									
		Education	Health	Living standards	Education			Health			Living standards			
		%	%	%	Yrs of School.	Child school attend.	Child Mortality	maternal mortality	Electricity	Toilet	water	Flooring	Cooking fuel	Overcrowding
		%	%	%	%	%	%	%	%	%	%	%	%	%
Ghana	0.098	51.08	0.83	48.09	42.2	8.9	0.8	0.1	5.4	13.3	2.8	2.4	14.0	10.2
Western	0.090	50.80	0.89	48.31	43.1	7.8	0.8	0.1	4.2	13.4	2.4	1.4	14.4	12.4
Central	0.122	50.37	0.82	48.81	41.2	9.1	0.8	0.1	6.1	13.0	2.8	1.7	13.8	11.5
Gt. Accra	0.063	51.43	0.64	47.93	42.1	9.3	0.6	0.1	3.5	13.4	4.4	1.2	13.4	11.9
Volta	0.116	50.51	0.74	48.75	40.9	9.6	0.7	0.1	7.6	12.8	4.3	2.6	13.9	7.6
Eastern	0.083	48.83	0.80	50.37	42.1	6.7	0.7	0.1	7.1	12.7	3.3	2.7	14.3	10.2
Ashanti	0.077	49.75	0.78	49.47	44.2	5.6	0.7	0.1	4.2	13.9	1.2	2.5	14.6	13.0
B/Ahafo	0.139	49.36	0.74	49.90	42.6	6.8	0.7	0.1	7.1	13.1	2.0	2.9	14.3	10.6
Northern	0.236	55.32	1.18	43.50	40.4	14.9	1.1	0.1	5.4	13.1	3.0	3.5	13.4	5.2
Upper East	0.204	51.99	1.00	47.00	42.4	9.6	0.9	0.1	9.5	13.7	1.8	3.1	14.0	4.8
Upper West	0.158	53.20	0.64	46.17	43.0	10.2	0.6	0.0	6.7	13.7	0.8	2.6	14.3	8.0

Source: Ghana Statistical Service, 2010 Population Housing Census

Table 5.5: Percentage contributions of dimensions and indicators to overall rural poverty by region

Region	MPI	Percentage contribution of deprivations of each dimension to overall poverty...			Percentage contribution of each indicator to overall rural poverty									
		Educa- tion	Health	Living standards	Education		Health		Living standards					
					Years of School.	Child school attendance	Child Mortality	Maternal mortality	Elect- ricity	Toilet	Water	Flo- oring	Cook- ing fuel	Over- crowding
%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Ghana	0.261	49.8	0.7	49.5	37.5	12.3	0.7	0.1	10.6	10.7	4.9	5.2	12.7	5.4
Western	0.217	47.3	0.7	52.0	38.7	8.6	0.6	0.0	9.9	8.8	7.4	4.7	13.2	8.0
Central	0.184	47.3	0.8	51.9	39.8	7.4	0.7	0.1	9.2	11.1	4.7	3.6	13.8	9.5
Gt. Accra	0.158	52.0	0.7	47.3	38.5	13.4	0.7	0.1	8.2	11.4	4.3	2.8	12.8	7.8
Volta	0.222	48.7	0.7	50.6	37.3	11.4	0.7	0.1	10.9	9.9	6.9	4.8	12.8	5.3
Eastern	0.196	47.7	0.6	51.7	36.8	10.9	0.6	0.1	10.7	8.5	6.5	6.0	12.9	7.1
Ashanti	0.189	47.4	0.7	51.9	39.0	8.4	0.6	0.1	10.0	10.5	3.7	5.8	13.4	8.5
B/Ahafo	0.278	47.6	0.6	51.9	37.4	10.2	0.5	0.0	10.8	10.1	5.5	6.0	12.7	6.7
Northern	0.43	54.0	0.8	45.2	35.3	18.8	0.7	0.0	10.4	11.4	4.9	4.7	11.6	2.1
Upper East	0.369	50.7	0.8	48.6	39.7	11.0	0.7	0.0	12.7	13.1	1.9	5.4	13.1	2.3
Upper West	0.376	51.9	0.8	47.3	37.4	14.5	0.7	0.0	11.5	12.0	1.7	6.8	12.4	2.9

Source: Ghana Statistical Service, 2010 Population Housing Census

5.4 Conclusion

This Chapter has analyzed the proportion of Ghanaian households experiencing multiple deprivations (incidence) and the intensity of the deprivation across regions and localities. Clearly, education and living standards are the largest contributors to overall poverty in the regions and localities. We have also observed that the single most important contributor to deprivation and poverty is non-completion of primary education. This raises critical questions regarding access to education and the impact of non-formal education to poverty reduction and national development.

Regionally, the three northern regions (Northern, Upper East and Upper West Regions) are ranked as the poorest regions and the Greater Accra Region as the least deprived region (see Table 5.6). With the exception of the Greater Accra, Brong-Ahafo and Northern Regions, the ranking of the regions changes depending on whether MPI score is viewed regional or locality wise. For instance, the Central Region is nationally ranked fourth, but ranked second and sixth in the MPI scores by rural and urban respectively.

Table 5.6: Ranking of MPI scores by region and locality

Region	National		Rural		Urban	
	MPI	Rank	MPI	Rank	MPI	Rank
Western	0.164	5	0.217	5	0.090	4
Central	0.155	4	0.184	2	0.122	6
Greater Accra	0.072	1	0.158	1	0.063	1
Volta	0.187	6	0.222	6	0.116	5
Eastern	0.147	3	0.196	4	0.083	3
Ashanti	0.121	2	0.189	3	0.077	2
Brong-Ahafo	0.217	7	0.278	7	0.139	7
Northern	0.371	10	0.430	10	0.236	10
Upper East	0.335	8	0.369	8	0.204	9
Upper West	0.341	9	0.376	9	0.158	8
Ghana	0.179	-	0.261	-	0.098	-

Source: Ghana Statistical Service, 2010 Population Housing Census

The changing positions of the regions reflect the spatial concentration of deprivation of the ten regions. It also reflects the level of development in Ghana, as well as government and private investments over the years. Clearly, dealing with poverty and development inequality needs to take into account these spatial dynamics, both regionally and locality wise.

Chapter Six

Summary and Policy Implications

6.1 Summary

The criticisms and challenges associated with monetary poverty measurements have brought in its wake the need to look for alternative means and/or complementary approaches for measuring deprivations and poverty. Consequently, non-monetary poverty measurements have received a lot of attention in recent years. In particular, non-monetary poverty measurements have become attractive since they take into account the widely shared view that poverty is more than income as it also includes other non-income components. Nevertheless, income as a component measure of poverty remained quite important as it allows one to gauge the extent to which individuals and households can access basic services.

This study applied non-monetary poverty measurement, namely, the multi-dimensional poverty index (MPI) to estimate the incidence (the headcount of the population who are MPI-poor) and the intensity of deprivations experienced (i.e., average proportion of weighted indicators in which the MPI-poor persons are deprived). The estimation of the incidence and intensity of deprivations and poverty was carried out using the MPI methodology as applied by the UNDP (2010), Alkire and Foster (2007, 2011) and Alkire and Santo (2010).

Using ten indicators drawn from three dimensions (education, health and living standards), the findings of the study can be summarized as follows:

- The overall MPI national incidence of poverty was estimated at 42.7 percent. This is higher than the national income poverty measurement of 28.5 percent derived from the GLSS 5 in 2006. Also, the poverty incidence for each region was higher than the regional estimation from the income poverty measurement.
- Broad regional distribution pattern of poverty incidence of the MPI was generally in line with the pattern observed for income poverty measurement. The Greater Accra Region remained the least poor region or the most developed region while the three northern regions, Northern, Upper East and Upper West Regions remained the poorest and least developed regions of Ghana.
- With the exception of the Greater Accra Region, the incidence of MPI poverty was overwhelmingly higher in rural areas compared to urban areas. The contribution of rural deprivation to national poverty was estimated at 72.3 percent, but higher for the three northern regions: Upper West Region (92.6 %); Upper East Region (87.3%) and; Northern Region (80.8%).
- The largest contributor to non-monetary poverty in Ghana is education, and specifically, household deprivation in primary school completion.
- There was no correlation between high MPI poverty incidence and high intensity of deprivation. Thus, though the MPI poverty incidence for the three northern regions appeared to be extremely high, the average intensity of deprivation between these regions and the rest of the regions of Ghana was marginal or not significant.

6.2 Policy Implications

While the results of this study as summarized above do not differ broadly in terms of the existing observed patterns of poverty across localities and regions of Ghana, they do suggest that the level of poverty may be higher than income poverty measurements would suggest. Nevertheless, the utility of this study lies in its complementarity to the income poverty measurements in Ghana. In particular, the ability of the MPI to estimate the intensity of different types of deprivation could enhance efforts towards targeting of interventions. In other words, the MPI allows policy-makers and researchers to identify the high impact causal pathways by which progress can be made, in terms of addressing the question of what dimensions or combinations of dimensions can reduce poverty the most.

Secondly, the MPI estimations allow for the identification of the multiple and overlapping deprivations suffered by poor households in the education, health and living standard indicators. Though deprivations across all the dimensions are widespread, their estimations allow in relative terms to identify the regions with unacceptably high proportions of people with education deprivation (as measured by household members' non-completion of primary school education and children not attending primary school) and living standards deprivation (as measured by access to improved and non-shared toilet facilities, non-use of improved cooking fuel, and no access to national electricity grid). The conclusions on these indicators are very broad, and each region of Ghana will require further analysis that thoroughly scrutinizes the particular clustering of deprivations along district, locality, religion, and ethnic distribution lines of poverty.

Further, the non-correlation between the MPI poverty incidence and high average intensity of deprivation as concluded in this study raises policy questions regarding the different pathways to approaching poverty reduction in Ghana. In other words, for regions with relatively low MPI poverty incidence but high levels of deprivation such as the Greater Accra Region, poverty interventions may not need to focus on reducing the numbers of the poor but rather the average deprivation. The opposite approach may be required for regions like the three northern regions with high MPI incidence but relatively low levels of deprivation. Indeed, information or data provided by the MPI could be useful for the sequencing of policies on poverty interventions as it allows policy-makers to have a better idea of what poverty measures to introduce at what MPI poverty incidence and intensity levels.

The MPI has tremendous practical potential for tracking Ghana's MDGs at both national, regional and district levels. As indicated in Chapter 3, nine of the ten indicators used are directly linked to the MDGs, with the only difference being that the *base* population of the MPI is the household, so all members are counted as deprived or not in these indicators, depending on the achievements of the household members (Alkire and Santos 2010). This study represents a one-off estimation of MPI based on the 2010 PHC, and thus, only provides a snap-shot of the MPI incidence and intensity of deprivations and poverty. It is suggested that subsequent MPI estimations based on national dataset be undertaken to provide evidence of progress in the MPI or otherwise. In this direction, progress in the MPI will imply advancement towards the MDGs.

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Appendices

Table A1: Main construction material for outer wall by region*

	All regions	WR	CR	GAR	VR	ER	AR	BAR	NR	UER	UWR
Mud brick/Earth	34.2	40.6	36.4	3.6	48.1	38.9	21.4	46.1	72.9	80.7	75.0
Wood	3.4	3.2	1.8	10.2	0.9	1.8	2.3	1.5	1.6	0.9	0.7
Metal sheet/Slate/Asbestos	0.8	0.5	0.5	1.3	0.6	0.6	0.9	0.5	0.6	0.5	0.5
Stone	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2
Burnt bricks	0.7	0.9	1.0	0.4	0.6	0.9	0.6	1.0	0.2	0.1	0.3
Cement blocks/ Concrete	57.5	50.1	57.4	82.2	45.6	54.0	71.9	46.5	19.1	16.0	21.1
Landcrete	1.8	1.6	1.9	0.3	1.4	2.9	1.7	3.6	3.1	1.0	1.0
Bamboo	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1
Palm leaf/Thatch (grass)/ Raffia	0.7	2.0	0.2	0.2	2.1	0.2	0.2	0.3	1.7	0.2	0.8
Other	0.7	0.6	0.5	1.5	0.4	0.4	0.7	0.3	0.4	0.2	0.3
Total	100	100	100	100	100	100	100	100	100	100	100

Source: Ghana Statistical Service, 2010 Population Housing Census

*WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; UWR-Upper West Region.

Table A2: Main construction material for outer wall by urban household*

	All regions	WR	CR	GAR	VR	ER	AR	BAR	NR	UER	UWR
Mud brick/Earth	12.4	16.4	17.5	1.9	26.3	16.7	5.5	22.2	49.7	54.8	36.6
Wood	4.8	3.3	2.3	10.6	1.0	1.6	2.8	1.5	0.7	0.4	0.4
Metal sheet/Slate/Asbestos	1.0	0.7	0.6	1.3	0.8	0.8	1.0	0.6	0.7	0.6	0.8
Stone	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.4	0.2	0.2
Burnt bricks	0.6	0.8	0.8	0.4	0.7	0.9	0.5	1.3	0.3	0.1	0.4
Cement blocks/ Concrete	78.5	75.8	76.7	83.4	66.5	76.8	88.2	70.8	42.7	42.4	59.5
Landcrete	1.2	1.0	1.3	0.3	1.3	2.5	0.8	2.9	4.7	1.1	1.7
Bamboo	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1
Palm leaf/Thatch (grass)/ Raffia	0.3	1.1	0.1	0.1	2.6	0.1	0.1	0.1	0.3	0.1	0.1
Other	0.9	0.6	0.5	1.5	0.5	0.4	0.8	0.2	0.3	0.2	0.2
Total	100	100	100	100	100	100	100	100	100	100	100

Source: Ghana Statistical Service, 2010 Population Housing Census

*WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; UWR-Upper West Region.

Table A3: Main construction material for outer wall by rural household*

	All regions	WR	CR	GAR	VR	ER	AR	BAR	NR	UER	UWR
Mud brick/Earth	60.5	59.5	53.2	21.4	59.6	57.0	47.9	67.3	84.4	88.9	84.7
Wood	1.8	3.2	1.5	5.1	0.8	1.9	1.6	1.5	2.0	1.0	0.8
Metal											
sheet/Slate/Asbestos	0.5	0.4	0.4	0.8	0.4	0.5	0.7	0.4	0.5	0.4	0.4
Stone	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.3	0.2	0.2
Burnt bricks	0.7	1.0	1.1	0.3	0.5	1.0	0.9	0.7	0.1	0.1	0.3
Cement blocks/											
Concrete	32.1	30.1	40.3	69.3	34.5	35.4	44.7	24.7	7.4	7.7	11.3
Landcrete	2.5	2.1	2.5	1.0	1.5	3.3	3.2	4.3	2.4	1.0	0.8
Bamboo	0.2	0.4	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.1
Palm leaf/Thatch											
(grass)/ Raffia	1.0	2.7	0.3	0.8	1.8	0.2	0.3	0.6	2.4	0.3	0.9
Other	0.5	0.6	0.5	1.1	0.4	0.5	0.4	0.3	0.4	0.3	0.4
Total	100	100	100	100	100	100	100	100	100	100	100

Source: Ghana Statistical Service, 2010 Population Housing Census

*WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; Upper West Region.

Table A4: Households with shared toilet facility by region

	All Region	WR	CR	GA	VR	ER	AR	BAR	NR	UWR	UER
Sharing of toilet facility with other households											
WC	24.5	21.3	14.7	36.0	9.1	10.4	38.9	14.0	14.5	20.3	16.1
Pit latrine	44.5	61.2	53.6	21.5	56.4	55.6	39.0	61.0	27.3	34.1	42.2
KVIP	28.0	15.6	29.2	35.6	32.6	32.1	20.8	23.6	49.7	40.5	37.4
Bucket/Pan	2.1	0.8	1.3	5.9	1.0	1.2	0.6	0.5	3.7	2.4	0.7
Other	0.9	1.1	1.2	1.0	0.8	0.6	0.7	0.8	4.9	2.7	3.5
Total	100	100	100	100	100	100	100	100	100	100	100
Share with other household(s) in same house											
WC	30.8	29.8	19.8	38.2	15.6	13.6	45.4	19.9	18.1	23.9	19.8
Pit latrine	36.7	54.5	46.5	19.3	38.3	47.8	34.2	51.9	25.9	34.1	45.7
KVIP	29.2	14.0	31.3	35.4	43.9	36.7	19.1	26.9	47.5	36.4	30.7
Bucket/Pan	2.5	0.8	1.5	6.3	1.6	1.5	0.6	0.6	4.8	2.8	0.7
Other	0.7	0.9	0.9	0.7	0.6	0.4	0.6	0.7	3.7	2.8	3.1
Total	100	100	100	100	100	100	100	100	100	100	100
Share with other household(s) in different house											
WC	6.1	4.9	3.9	21.1	2.2	2.3	10.5	2.7	8.1	8.1	7.9
Pit latrine	69.9	79.6	69.2	41.6	76.6	76.7	64.3	80.6	35.2	37.7	41.9
KVIP	21.9	13.8	24.9	32.8	20.0	19.6	23.2	15.3	51.1	50.5	44.4
Bucket/Pan	0.7	0.6	0.7	2.2	0.3	0.4	0.6	0.4	1.0	1.2	0.7
Other	1.4	1.2	1.4	2.2	0.9	1.0	1.5	1.0	4.7	2.5	5.2
Total	100	100	100	100	100	100	100	100	100	100	100
Share with other household(s) and located in different house											
WC	4.3	3.3	2.6	15.2	1.7	1.5	5.3	2.8	8.1	5.3	6.5
Pit latrine	65.1	68.2	70.4	34.8	76.2	75.8	57.3	75.1	35.2	27.1	17.4
KVIP	27.9	26.1	24.2	43.2	20.4	20.5	35.7	20.4	51.1	64.7	71.7
Bucket/Pan	0.7	0.7	0.7	2.5	0.3	0.4	0.4	0.3	1.0	0.9	1.1
Other	2.0	1.7	2.0	4.3	1.3	1.8	1.2	1.3	4.7	2.1	3.3
Total	100	100	100	100	100	100	100	100	100	100	100.0

Source: Ghana Statistical Service, 2010 Population Housing Census

*WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; Upper West Region.

Table A5: Households with shared toilet facility by urban households

	All Region	WR	CR	GAR	VR	ER	AR	BAR	NR	UWR	UER
Sharing of toilet facility with other households											
WC	35.3	41.9	22.0	37.8	19.7	17.7	50.6	21.2	19.5	32.0	28.4
Pit latrine	29.4	36.5	42.3	19.0	29.7	36.8	28.5	47.9	17.5	25.3	26.5
KVIP	31.5	19.7	32.7	36.0	47.8	42.8	19.6	29.6	52.8	36.9	43.0
Bucket/Pan	2.9	1.0	1.8	6.3	1.9	1.9	0.7	0.6	5.9	4.4	0.7
Other	0.9	1.0	1.2	0.9	0.8	0.7	0.7	0.7	4.3	1.4	1.3
Total	100	100	100	100	100	100	100	100	100	100	100
Share with other household(s) in same house											
WC	38.7	48.0	24.9	39.5	23.2	19.6	54.5	25.4	24.9	36.0	33.5
Pit latrine	27.0	34.4	39.2	17.6	24.0	33.9	27.0	43.9	16.7	25.0	29.0
KVIP	30.5	15.7	33.0	35.5	49.9	44.0	17.3	29.5	48.5	32.5	35.4
Bucket/Pan	3.2	1.0	2.0	6.7	2.2	2.1	0.7	0.7	7.6	4.9	0.7
Other	0.7	0.9	1.0	0.7	0.6	0.4	0.6	0.6	2.4	1.6	1.4
Total	100	100	100	100	100	100	100	100	100	100	100
Share with other household(s) in different house											
WC	15.0	16.7	7.9	25.0	7.7	6.2	21.2	5.9	7.3	14.0	15.6
Pit latrine	49.1	55.1	61.8	35.0	50.5	57.6	46.2	65.5	24.2	29.2	26.3
KVIP	32.8	25.9	27.5	35.0	39.0	33.1	30.6	26.8	63.8	54.4	56.6
Bucket/Pan	1.3	1.0	0.9	2.7	0.9	1.1	0.7	0.4	1.4	1.7	0.4
Other	1.8	1.2	1.9	2.3	1.8	1.9	1.3	1.3	3.3	0.6	1.0
Total	100	100	100	100	100	100	100	100	100	100	100
Share with other household(s) and located in different house											
WC	9.7	9.0	6.0	17.5	5.1	3.5	9.6	5.7	6.0	7.5	13.6
Pit latrine	40.2	35.9	52.7	27.1	50.6	55.1	35.4	58.9	11.1	22.2	10.4
KVIP	45.8	52.5	37.4	47.7	42.0	37.2	52.8	33.7	61.6	67.8	73.6
Bucket/Pan	1.3	1.0	0.8	3.0	0.6	0.7	0.5	0.4	2.9	2.2	1.2
Other	3.0	1.5	3.2	4.7	1.7	3.5	1.6	1.3	18.3	0.3	1.2
Total	100	100	100	100	100	100	100	100	100	100	100

Source: Ghana Statistical Service, 2010 Population Housing Census

*WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; Upper West Region.

Table A6: Households with shared toilet facility by rural households

	All Region	WR	CR	GAR	VR	ER	AR	BAR	NR	UWR	UER
H13b: Sharing of toilet facility with other households											
WC	5.7	4.4	6.3	14.2	2.7	3.5	9.4	4.7	8.2	10.3	9.0
Pit latrine	70.8	81.6	66.7	52.5	72.7	73.7	65.4	78.1	39.5	41.5	51.3
KVIP	21.9	12.3	25.3	30.8	23.4	21.7	23.9	15.9	45.9	43.6	34.2
Bucket/Pan	0.5	0.6	0.6	1.1	0.4	0.5	0.5	0.3	0.9	0.7	0.7
Other	1.0	1.1	1.1	1.4	0.8	0.6	0.8	1.0	5.6	3.8	4.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Yes with other household(s) in same house											
WC	9.0	6.9	10.3	17.9	5.5	5.1	13.2	8.5	8.7	12.2	11.4
Pit latrine	63.7	79.6	60.0	45.7	57.0	67.7	59.8	68.9	38.5	42.8	56.1
KVIP	25.7	11.9	28.2	34.0	36.0	26.1	25.8	21.4	46.1	40.2	27.8
Bucket/Pan	0.7	0.6	0.7	1.4	0.8	0.7	0.6	0.4	1.1	0.7	0.7
Other	0.9	0.9	0.8	1.1	0.7	0.4	0.6	0.8	5.6	4.0	4.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Yes with other household(s) in different house											
WC	1.8	1.5	2.1	4.8	1.1	1.1	3.2	1.1	8.7	5.4	4.6
Pit latrine	80.0	86.6	72.4	69.7	81.8	82.2	76.7	88.1	44.4	41.6	48.5
KVIP	16.7	10.3	23.7	23.5	16.3	15.6	18.1	9.5	40.4	48.7	39.1
Bucket/Pan	0.4	0.5	0.5	0.4	0.2	0.2	0.5	0.3	0.7	1.0	0.8
Other	1.1	1.2	1.2	1.6	0.7	0.8	1.5	0.9	5.9	3.3	6.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Yes with other household(s) and located in different house											
WC	1.5	1.2	1.5	4.8	1.0	0.9	2.3	1.1	2.8	3.8	1.5
Pit latrine	78.4	80.1	76.4	70.2	81.5	82.4	73.0	84.7	30.0	30.3	22.3
KVIP	18.3	16.4	19.8	22.1	16.0	15.2	23.5	12.5	62.1	62.6	70.4
Bucket/Pan	0.4	0.6	0.7	0.1	0.2	0.3	0.3	0.3	0.3	-	1.0
Other	1.4	1.8	1.7	2.7	1.2	1.2	1.0	1.4	4.9	3.2	4.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Ghana Statistical Service, 2010 Population Housing Census

*WR –Western Region; CR-Central Region; GAR-Greater Accra Region; VR-Volta Region; ER-Eastern Region; AR-Ashanti Region; BA-Brong-Ahafo Region; NR-Northern Region; UER-Upper East Region; Upper West Region.