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## Understanding the Spatial Conceptualization of Poverty: Implications for Sustainable Livelihoods in Africa

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*Abstract-* Over the last decades, African Governments, International Organizations and Donors have experimented with a series of approaches for addressing poverty, each giving way to a new paradigm. Despite the ubiquity and persistence of the problem, the very nature of poverty remains poorly understood. This paper shows that to adequately recognize and understand poverty, its nature and extent should be examined from the spatial perspective. The nexus between poverty and the environment is close only when it is considered from the spatial perspective. Using geographical characteristics to explain disparities that underlie spatial perspective of poverty, it is observed that the livelihoods, health and vulnerability of the people are determined predominantly by the context in which they live and the constraints and opportunities this location presents. This spatial conceptualization of poverty gives rise to rural and urban perspectives. In the rural context, the natural capital is the fundamental building blocks of rural livelihoods, whereas in urban livelihoods, recognition is given to the nature of urban settlements and infrastructure (physical capital). It is concluded that urban poverty is much more complex and challenging than rural poverty.

*Keywords:* poverty, spatial, sustainable livelihoods, urban poverty, rural poverty.

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UNDERSTANDING THE SPATIAL CONCEPTUALIZATION OF POVERTY IMPLICATIONS FOR SUSTAINABLE LIVELIHOODS IN AFRICA

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# Understanding the Spatial Conceptualization of Poverty: Implications for Sustainable Livelihoods in Africa

Dr. Jonathan Ali Ogwuche

**Abstract-** Over the last decades, African Governments, International Organizations and Donors have experimented with a series of approaches for addressing poverty, each giving way to a new paradigm. Despite the ubiquity and persistence of the problem, the very nature of poverty remains poorly understood. This paper shows that to adequately recognize and understand poverty, its nature and extent should be examined from the spatial perspective. The nexus between poverty and the environment is close only when it is considered from the spatial perspective. Using geographical characteristics to explain disparities that underlie spatial perspective of poverty, it is observed that the livelihoods, health and vulnerability of the people are determined predominantly by the context in which they live and the constraints and opportunities this location presents. This spatial conceptualization of poverty gives rise to rural and urban perspectives. In the rural context, the natural capital is the fundamental building blocks of rural livelihoods, whereas in urban livelihoods, recognition is given to the nature of urban settlements and infrastructure (physical capital). It is concluded that urban poverty is much more complex and challenging than rural poverty. The paper therefore suggests that for sustainable poverty reduction in Africa, the environment should be explored to allow an understanding of how environmental constraints generate or exacerbate poverty, as each spatial location presents unique characteristics that require corresponding unique prescriptions.

**Keywords:** poverty, spatial, sustainable livelihoods, urban poverty, rural poverty.

## I. INTRODUCTION

Poverty issues took the centre of the development agenda in the early 1990s. The World Bank's 1990 World Development Report (WDR), followed by the 2000 WDR marked position shifts in the thinking of poverty. The concept of poverty has a problem of several conceptualization as it is quite difficult to define due to its multi-dimensional nature, while some see it as affecting many aspects of human conditions including physical, social, psychological, political and economical (Ogwuche, 2005), international development institutions such as the United Nations use the Human Development Index (HDI) as a criteria for conceptualizing it. In spite of all these, the absolute

indicators in the form of physical (environmental) variables are the most simple to define, and the most relevant indicators that seek to lead a life in dignity, including the possibility to develop and exert an influence on their environment. The environment is a composite concept which does not end in the immediate vicinity. The 'local environment' or local ecosystem is dependent in turn on regional and global ecosystems and environmental conditions.

Key concepts behind poverty have evolved in recent years. Today, a more holistic and multi-dimensional conceptualization of poverty, based on the poor's livelihood sources has emerged. The environment is the source of what we need to survive – air, water, food, as well as the source of the materials we require to take care of our lives – shelter, clothing, tools and the infrastructure of collective human settlement (Ogwuche 2005). This growing recognition, especially in Africa, has shown that poverty is linked to the environment, and the nexus between them is better conceptualized when it is examined from the spatial perspective. It therefore means that the well-being of the people is determined predominantly by the environmental context in which they live and the constraints and opportunities this location (space) presents.

## II. RATIONALE

For the last four decades, African governments and donors have experimented with a series of alternative strategies for addressing poverty, each giving way to a new paradigm as the persistence of poverty created disillusionment with prevailing strategies. UNDESA (2006), reports that despite all these, poverty appears to be declining only marginally, and, in some cases, even increasing. However, despite the ubiquity of the problem, the very nature of poverty remains poorly understood. Recently there is a growing interest among researches and policy makers in the spatial conceptualization of poverty (WDR 2009, Bird *et al* 2010). For instance, the three theories of poverty from the WDR 2000 – urban bias theory, mismatch hypothesis, and dual labour market theory – all support the spatial conceptualization of poverty. Also, population size, population density, infrastructural characteristics,

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administrative boundaries, and predominant economic activities are the main variables conventionally used to distinguish rural from urban.

The spatial conceptualization of poverty therefore underscores the differences in the physical, social, political and economic components that exist among different parts of the earth's surface that create opportunities for livelihoods and diversification (Jalan and Ravallion 1997, Bird *et al*/2010). This has given rise to a phenomenon called spatial inequality, which refers to the uneven distribution of income or other variables across different locations (space).

Majority of the studies on poverty are usually conducted at national, regional or international levels, and thus lacks particular locational (spatial) perspective. This implies that the variations that exist in different environmental settings are not taken into considerations; and so collapsing the environment at the national, regional or international levels would mask the peculiarities of each spatial entity.

### III. EMERGENCE OF THE SPATIAL CONCEPTUALIZATION OF POVERTY

There is indeed strong evidence that spatial factors play a substantial role in explaining poverty. This gives credence to the spatial poverty traps, which are generally regarded as places where households are (and remain) poor, when they would not be if given different geographical circumstances (Bird *et al*, 2010). This means that different geographical spaces (environments) have different endowments (natural and man-made (cultural)), and the extent to which these endowments are accessed and utilized to achieve livelihoods underscores well-being or poverty. There is therefore the need to know the environment of the people to allow an understanding of how environmental contexts generate or exacerbate poverty (Ogwuche 2003); as spatial locations present unique characteristics and require corresponding unique prescriptions. Spatial dimensions of poverty, therefore implies where the environmental capitals (physical, natural, social, political and human) of an area are low and poverty is high, partly as a result of geographic disadvantage. According to CPRC (2004), spatial poverty traps may be geographically remote (areas that are far from the centres of political and economic activity), low potential or marginal (ecologically disadvantaged areas with low agricultural or natural resources), less favoured (politically disadvantaged areas), or weakly integrated (areas that are poorly linked both physically and in terms of communication and markets). This means that the endowments of an area explain a substantial proportion of the poverty of people living in it (Jalan and Ravallion 1997). For instance, World Bank (2000) revealed that in Africa and Ghana,

poverty incidence is higher in Savannah areas, but lower in coastal areas.

The spatial conceptualization of poverty explains the three forms of poverty – absolute, relative and subjective, as the differentials of provision of infrastructure, adequacy and access in locations define each poverty form. This, according to Dike (2003), explains why a poor person in one country may not be perceived as such in another country. On the other hand, even within the same society, differentials exist, hence poor and non-poor in the same areas (Bello 2006). Essentially, location (space) goes a long way to explaining why the people that live there are poor. To conceptualize this, Bird, McKay and Shinykwa (2010) explores two nature geographic characteristics that play an important role in the existence of spatial poverty. These are the first nature geographical characteristic such as river, and the second nature geographic characteristic such as the geographic distribution of infrastructure and public services. To further buttress this, they identified the following factors that contribute to the emergence of spatial disparities, and by extension spatial poverty:

- i. Agro-ecological characteristics that can influence the ability of residents to meet their basic needs.
- ii. Institutional, political and governance failures at all levels in service delivery.
- iii. Stigma and exclusion in which stereotypes based on ethnicity, race, language, religion or culture can lead to the social exclusion of and discrimination against people living in certain geographical locations, and
- iv. Physical isolation and inadequate infrastructure in less favoured areas such as rural areas with low productivity.

### IV. EMERGENCE OF RURAL AND URBAN POVERTY CONCEPTS

By definition, the poor have few resources of their own, and are therefore particularly dependent on what is available and the nature of the different types, as well as the distribution of natural/cultural resources in the environment around them. From the foregoing, the existence of natural and cultural endowments in different geographical spaces underlies the emergence of rural and urban areas as geographic entities, hence rural and urban poverty concepts. Livelihoods are constructed from the various endowments, which in turn translate to livelihood strategies (Tanner 1986).

The rural environment constitutes mainly ecosystem goods and services – the natural products and processes that ecosystems generate. These natural endowments include land with fertile soil, forests, water, fisheries, pastures, etc. The natural resources are the fundamental building block of most rural livelihoods in developing countries (Ellis and Bahiigwa 2003). More

than 1.3 billion people depend on fisheries, forest and agriculture for employment – close to half of all jobs worldwide (FAO 2004). According to Millennium Assessment (MA) (2005), this dependence of livelihoods on natural systems is nowhere more important than among the rural people. IFAD (2001) reports that in Africa, more than 7 in 10 poor people live rural regions, with most engaged in resource-dependent activities such as small scale farming, livestock production, fishing, hunting, artisanal mining, and logging. Other natural resources are collected, processed, stored and marketed by many families, either as a predominant activity or as part of a diversified portfolio of livelihood strategies. This small scale production accounts for a significant percentage of the Gross Domestic Product (GDP) of many African nations (IFPRI 2004). These natural resources may be sold for cash or used directly for food, heat, building materials or innumerable other household needs. Even those livelihood strategies that include involvement in local crafts and trades, which in some areas have assumed an international dimension, are heavily based on the availability and access to natural resources. Charcoal and salt production, basket and mat making, beer and spirit production, carpentry, pottery and blacksmithing, all rely upon local natural resources availability. Natural resources also play a major part in the coping strategies that people adopt during times of crisis or shocks. The national economics of African countries rely heavily on agriculture and on extraction of natural resources for the income needed to improve the basic services and development essential for the poor.

However, rural farmers face a range of hazards that pose a threat to their productivity and farm-based livelihood strategies. The natural resource base on which so much depends is steadily deteriorating, and the capacity of natural systems to produce goods and services is being lost. The decline of natural systems through soil depletion, deforestation, flood, drought, overpopulation and pollution represents a direct threat to nature-based income and is a contributor to increasing poverty. Also, the severe lack of basic services and rural infrastructure is a building constraint on agricultural growth. People living in rural areas are affected by global environmental degradation such as the effects of climate change, etc. Besides this, they are also exposed to local environmental degradation and mismanagement of natural resources – vicious circles where the exploitation of natural resources leads to lower productivity and thereby an increase in poverty and once again a strong tendency towards overexploitation (Jane 2002, Bird et al 2010, Gabriela et al 2012).

On the other hand, the urban environment, as distinct from rural, is made up of heterogeneous groups engaged in activities that are not mainly agricultural. According to Sterner and Segnestan (2001), the urban

environment has three distinct dimensions – spatial, people or demographic, and activity. Euisoon (1997) sees the urban environment as a complex living spatial entity, as well as an ecosystem consisting of the structures and infrastructure built in a defined area. In a narrow way, DFID (2000) sees it as characterized by the concentration of people in densely populated areas, and by the corresponding need for complex delivery systems to meet their resource needs. However, in a more broad perspective, DFID (2000) considers urban areas as centres of politics, culture, complex service provision systems, and engines of economic activities, enterprise development and innovation. They also create spaces where people can participate in a range of services (environmental, health, education, infrastructural, safety nets, etc) on an efficient and cost effective basis, which can provide benefits for poor people. The adequacy of, and access to physical capital in urban areas are highly needed to enhance sustainable livelihoods, raise productivity, create jobs and wealth, promote sustainable development and guarantee sound and sustainable environmental improvement and management (Ogwuche 2005). To explore the implication of the urban environment for poverty, Mitlin (2003) explains that, first, we must recognize that the nature of the urban settlement differs considerably (hence it is likely that forms of poverty in urban area differs). Secondly, the process of urbanization is one of transition (from rural to urban). Most urban residents live in environmental conditions that are not served with basic services such as electricity, piped borne water, sanitation, good housing, etc. These constitute urban environmental problems that are often regarded as the core dimensions of urban poverty. This situation gave impetus to the second global Conference on Human Settlements, Habitat II, which highlighted, with a sense of urgency, the continuing deterioration of condition of human environment, and recognized that urban poverty has distinctive features which need to be identified correctly so that appropriate interventions are developed. Urban poverty is invariably associated with overcrowded, unsanitary living conditions within large slum settlements, with lack of or inadequate basic infrastructure and social services, as well as limited or no access to them. Satterthwaite (1997) emphasizes that the nature of the urban environment is a major cause of or contributor to urban poverty, and major causes of ill health, injury and death. Meikle (2002) reiterates that the entitlements or rights to access the urban physical assets which the urban residents can transform into basic necessities to secure livelihoods are determined by contextual factors of institutional structures and process that determine people's legal, social and economic rights.

## V. RELEVANCE AND ADVANTAGES OF SPATIAL CONCEPTUALIZATION OF POVERTY

Bird *et al* (2010) enumerates the relevance of the spatial conceptualization of poverty as follows:

- i. The scale of the problem is significant, hence requires policy intervention
- ii. The poverty that the spatially poor experience is likely to be characterized by compound disadvantages—social, economic and political exclusion, and inadequate access to public services
- iii. The bad neighborhood effect constrains the opportunities of the spatially poor and limits poverty exit.
- iv. The exclusion of spatial poverty situation in national or regional poverty surveys is largely responsible for the persistence of spatial poverty, and
- v. The low levels of attention in development policies and debates in addressing spatial conceptualization of poverty.

In the same vein, Iftikhar (no date) identifies the following advantages of spatial conceptualization of poverty:

- i. It improves the targeting of programmes designed to reduce poverty
- ii. It identifies the geographical factors associated with poverty, such as markets, climate or topography. It is used to quantify the disparity in living standards and identify the areas that have lagged behind in the process of economic development.
- iii. It makes for the effectiveness of policy interventions as targeted places are focused, and
- iv. It helps in making decisions on where to prioritize efforts

## VI. IMPLICATIONS FOR SUSTAINABLE LIVELIHOODS IN AFRICA

Many African constitutions contain provisions specifically granting citizens a right to life and healthy environment, and empowering the government to protect the environment. However, the usefulness of these provisions for protecting environmental and natural resources, as it is affected by environmental conditions are only limited to specific contexts, especially in circumstances of direct and indirect consequences to lives of people. For example, courts may more readily invoke the right to life when toxic industrial discharges or wastes actually kill or harm people. Regrettably, this right does not extend to halting low-level contamination or other forms of environmental degradation, which have significant impact on human life and livelihoods. To varying extents, these issues are addressed by courts in countries like Algeria, Burkina-faso, Gabon, Guinea-Bissau, Madagascar and Togo,

where they have recognized that a constitutional right to life includes the right to a clean and healthy environment (Bird et al 2010). The constitutional right-to-life provision can be strong tools on environmental improvement, management and protection, especially the environmental resources from which the people derive livelihoods. The livelihoods of the people are determined predominantly by the context in which they live and the constraints and opportunities this location presents (Ogwuche 2005). Meikle (2002) identifies the contexts as economic, environmental, social and political. These contexts determine the assets accessible to people, how they can use them, and thus their ability to obtain secure livelihoods.

Anti-poverty endeavours of African governments are usually conceived and implemented from the national level without recourse to the manner in which or where the poor live, the assets with which they pursue livelihoods, their participation in decision-making, and the benefit they derive from development processes. This is the challenge of Sustainable Livelihoods Approach (SLA) that needs a realistic understanding, through a holistic and participatory appraisal of the assets available to the poor in implementing their livelihood strategies. The sustainable livelihoods concept surfaced in the Brundtland Report (Our Common Future) of the World Commission on Environment and Development in 1987, and has since then been adopted by international development agencies.

At the centre of the SLA framework are the assets on which the people draw to build their livelihoods. The SLA aims to put people and their households in which they live at the centre of the development process, starting with their capabilities and assets rather than with their problems (Lloyd-Jones 2002). According to DFID (2001), the approach seeks to improve people's lives by building their livelihoods on what they already have, i.e their assets. These are the physical, social, human, natural and financial (DFID 1998). The physical capital comprises of the basic infrastructure and social services which enable people to pursue their livelihoods. The natural capital includes the natural resource stocks from which resource-flows useful for livelihoods are derived. The social capital includes the social resources upon which people draw in pursuit of livelihoods. The human capital comprises the skills, knowledge, ability to labour and good health, which is important to the ability to pursue different livelihood strategies. And the financial capital consists of the financial resources which are available to people and which provide them with different livelihood options. The analysis of these capital assets should reveal much information about the asset status of particular groups in their spatial locations.

Though the livelihood assets are available in most environments, the natural and physical capitals

predominate in the rural and urban environments respectively. Nevertheless, there is a close correlation between people's overall asset status, the resources upon which people can draw in the face of hardship and their robustness. According to DFID (1998), this robustness can be displayed both by rising out of poverty (including reducing one's vulnerability to shocks and stresses) and by increasing one's ability to influence the policies and institutions which define one's livelihood options (and, indeed, one's access to those asset, which are the basis of robustness).

Building up assets is thus a core component of empowerment. This is the challenge of governance in Africa. The rural poor depend heavily on natural resources as well as the capacity of the environment to provide services essential to the stability of the environment, and that underpins food production and other productive activities. Rural poverty therefore focuses on access to and use of natural resources for livelihoods, and as a result of environmental degradation. To sustain rural livelihoods therefore requires efforts at sustaining the rural environmental resources and provision of rural infrastructure.

On the other hand urban areas are engines of economic and social growth, and sustained growth is dependent on the creation of conditions within which economic development can continue to take advantage of the economics of scale that urban areas provide, matched by the availability of adequate physical capital. The poor in urban areas are disproportionately affected by urban environmental problems, characterized by lack of or inadequate access to physical capital, poor housing, and usually on marginal or degraded lands. These environmental conditions in both rural and urban areas have implications for the people's livelihoods, health and vulnerability. For instance, the people depend upon the environment for livelihoods, and are the most severely affected when the environment is degraded or their access to environmental resources or assets is limited or denied. Also, the people suffer most (health wise) when environmental resources (water, land and air) are polluted. These conditions increase health risks to the people, with corresponding economic costs for healthcare and reduced productivity. DFID *et al* (2002) report that up to one fifth of the burden of disease may be associated with environmental factors, a proportion of which may be amenable to environmental interventions. Also, the poor are most often exposed to environmental hazards and environment-related conflicts, often with the least coping capabilities. In most cases, and where the problems persist, they migrate to other areas as 'environmental refugees' - another cycle of poverty.

Because of the growing awareness of the emerging significance of poverty-environment nexus, especially the spatial conceptualization of poverty, major development institutions and donors have began to

make the environment a more central feature of their efforts to tackle poverty (DFID *et al* 2002, Duraiappah 2004). In the Latin America and the Caribbean's, it has awakened their interest in the concept of development with identity (DWI). DWI seeks to consolidate the conditions in which indigenous people can thrive and grow in harmony with their environment by capitalizing on the potentials of their cultural, natural and social assets. This is the challenge that African leaders should key into if the global efforts to eliminate poverty should be realized.

## VII. CONCLUSION AND RECOMMENDATION

Poverty remains one of Africa's greatest problems, and despite the ubiquity of the problem, the very nature of poverty remains poorly understood. Recognizing and understanding poverty underlies the spatial conceptualization of poverty. This conceptualization underscores the differences in the capital assets that exist among rural and urban parts of the earth's surface that explain the three core dimensions of poverty – livelihoods, health and vulnerability. A further analysis of the dimensions in the rural and urban areas would reveal that poverty in urban areas is much more complex than the visible problems of acute need in the rural areas. There is every reason to believe that in Africa, the proliferation of slums, high densities, limited and dilapidated physical capital and environmental degradation characterize our urban areas. This study therefore recommends that for sustainable poverty elimination in Africa, the environment should be explored to allow an understanding of how environmental constraints generate or exacerbate poverty, as each location presents unique characteristics that require corresponding unique prescriptions.

## REFERENCES RÉFÉRENCE REFERENCIAS

1. Bello, M. L (2006) Reflections on Poverty Reduction Strategies, in Hassan A. et al Democracy and Development in Nigeria, Vol. 2, *Economic and Environmental Issues*, Concept Publications, Lagos.
2. Bird, K, Higgins, K and Haris, D. (2010) *Spatial Poverty Traps: An Overview*, Chronic Poverty Research Centre Working Paper NO. 161 and ODI Working Paper NO 321, London.
3. Bird, K, Hulme, D, Moore, K, and Shepherd, A (2002) *Chronic Poverty and Remote Rural Areas*, Chronic Poverty Research Centre Working Paper No. 13, IDPM, University of Birmingham.
4. Chronic Poverty Research Centre (CPRC, 2004) *Chronic Poverty Report 2004-2005*, University of Manchester, Manchester.
5. DFID (1998) *Sustainable Rural Livelihoods: What Contributions Can We Make?* London.
6. DFID (2000) *Achieving Sustainability: Poverty Elimination and the Environment*, London.

7. DFID, EC, UNDP and the World Bank (2002) *Linking Poverty Reduction and Environmental Management: Policy Challenges and Opportunities*. A Contribution to the World Summit on Sustainable Development.
8. Dike, V. D (2003) *The Global Economy and Poverty in Nigeria*
9. Ellis, F. and Bahiigwa, G (2003) Livelihoods and Rural Poverty Reduction in Uganda, *World Development* 31(6), pp 997-1013
10. Euisoon, S (1997) *Valuating the Economic Impacts of Urban Environmental Problems*. UMP Working Paper Series No 13.
11. Food and Agricultural Organization (FAO) (2004) *The State of Food and Agriculture 2003-2004: Agricultural Biotechnology – Meeting the Needs of the Poor*, Rome.
12. Gabriela C, Oliver I, Heiderose K, and Timothy M (2012) *Vulnerability and Resilience from a Socio-Spatial Perspective: Towards a Theoretical Framework*. HIS Working Paper No 45.
13. International Food Policy Research Institute (IFPRI) (2004) *Ending Hunger in Africa: Prospects for the Small Farmer*, Washington, D. C
14. International Fund for Agricultural Development (IFAD) (2001) *Rural Poverty Report 2001*, Rome.
15. Jalan, J and Ravallion, M (1997) *Spatial Poverty Traps*. Policy Research Working Paper 1798, World Bank, Washington D.C
16. Jane K (2002) *Rural Poverty Rights and Environmental Resource Management in Kenya*. Beijer International Institute of Ecological Economics Research Workshop, Durban, South, Africa
17. Lftikhar, A. C (No date) *Tracing the Spatial Dimensions of Poverty*. Oxford Policy Management, London.
18. Lloyd-Jones (2002) "The Sustainable Livelihoods Approach and the DFID" in Rakoch with Lloyd-Jones (ed) *Urban Livelihoods: A People-centred Approach to Reducing Poverty*, Earthcans.
19. Meikle, S. (2002) "The Urban Context and Poor People " in Rakodi with Lloyd-Jones (eds) *Urban Livelihoods; A People-centred Approach to Reducing Poverty*, Earthscan Publication Ltd, London
20. Millennium Assessment (MA) (2005) *Ecosystems and Human Well-being: Synthesis*. Washington D. C, Island Press.
21. Mitlin, D. (2003) *The Economic and Social Process Influencing the Level and Nature of Chronic Poverty*, Research Centre Working Paper No. 29, University of Manchester, UK
22. Ogwuche J.A (2005) *Assessment of Physical Capital as a Sustainable Livelihoods Approach to Poverty Reduction in Otukpo*, Nigeria. Ph. D Thesis, Enugu State University of Science and Technology, Enugu, Nigeria.
23. Ogwuche, J.A (2003) *Poverty-Environment Linkages in Otukpo Urban Area of Benue State*, Nigeria. Seminar Paper, Enugu State University of science and Technology, Enugu, Nigeria.
24. Satterthwaite, D. (1997) "Urban Poverty: Reconsidering its Scale and Nature" *IDS Bulletin*, Vol. 28, NO. 2, pp 9-23
25. Sterner, T and Segnestam, M (2001) *The Environment and Poverty*. SIDA, Dept for National Resources and the Environment.
26. Tanner, C. (1986) *Small Scale Farmers and Malnutrition in Northeast Brazil*, Ph. D Thesis, Cambridge University.
27. World Bank (2000) *Poverty Assessment 1997*. Washington DC
28. World Development Report (WDR) (2009) *Reshaping Economic Geography*