



"Promoting Quality Education for All"

THE LINK BETWEEN HEALTH, NUTRITION, CHILD DEVELOPMENT AND EDUCATION

A Situational Analysis on Early Childhood Care, Development and Education in Zambia



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Abbreviations

CBO	<i>Community Based Organisation</i>
CSO	<i>Civil Society Organisation</i>
CSO-SUN	<i>Civil Society Organisations- Scaling Up Nutrition</i>
CGP	<i>Child Growth Promoters</i>
CSTZ	<i>Children Sentinel Trust Zambia</i>
DEBS	<i>District Education Board Secretary</i>
DMO	<i>District Medical Officer</i>
DSWO	<i>District Social Welfare Officer</i>
ECCDE	<i>Early Childhood Care, Development and Education</i>
ECCE	<i>Early Childhood Care and Education</i>
ECCD	<i>Early Childhood Care and Development</i>
ECD	<i>Early Childhood Development</i>
EFA	<i>Education For All</i>
ESB	<i>Education Statistical Bulletin</i>
FBO	<i>Faith Based Organisation</i>
GRZ	<i>Government of the Republic of Zambia</i>
HAZ	<i>height-for-Age Z-score</i>
HDI	<i>Human Development Index</i>
INCAP	<i>Institute of Nutrition of Central America and Panama</i>
LCMS	<i>Living Conditions Monitoring Survey</i>
MCDSW	<i>Ministry of Community Development and Social Welfare</i>
MCH	<i>Maternal Child Health</i>
MDG	<i>Millennium Development Goals</i>
MDGi	<i>Millennium Development Goal Initiative</i>
MOGE	<i>Ministry of General Education</i>
MOH	<i>Ministry of Health</i>
MUAC	<i>Mid-Upper Arm Circumference</i>
NGO	<i>Non-Governmental Organisation</i>
NICHD	<i>National Institute of Child Health and Human Development</i>
OVC	<i>Orphan and Vulnerable Children</i>
PIF	<i>Policy Implementation Framework</i>
SCI	<i>Save the Children International</i>
SD	<i>Standard Deviation</i>
SDG	<i>Sustainable Development Goals</i>
UDHR	<i>Universal Declaration of Human Rights</i>
UNESCO	<i>United Nations Education, Scientific Cooperation</i>
UNICEF	<i>United Nations Children's Fund</i>
UPE	<i>Universal Primary Education</i>
USA	<i>United States of America</i>
WHO	<i>World Health Organisation</i>
ZANEC	<i>Zambia National Education Coalition</i>
ZHDS	<i>Zambia Demographic Health Survey</i>

ACKNOWLEDGEMENT

Children Sentinel Trust Zambia acknowledges the insightful input into this study by the ZANEC secretariat staff (Grace Manyonga, Kaalu Mubita, and Ivy Mutwale) for the technical support to the study, the Research Reference Committee for ZANEC chaired by Mr Geoffrey Simfukwe for the much appreciated critic of the report. The Data collectors comprising Raphael Mayeya, Ernest Mambo, Amos Kasongo, Chim Mvula, and the respondents are being thanked.

The Research Team Leaders comprising Mr Hamilton Mambo and Mr Francis Simui are acknowledged for authoring the report.

**“The Stunting Child of Today Means a Stunted Economy
of Tomorrow”**

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Chapter One

Executive Summary

1.1 Introduction

Zambia National Education Coalition (ZANEC) has been advocating for the provision of a comprehensive Early Childhood Care, Development and Education (ECCDE) programme in Zambia as opposed to promoting Early Childhood Education (ECE) only. This obligation impelled the coalition to flag-off this study in October of 2016 to provide evidence on the resultant effects inherent within Nutrition, Health and Education on Child Development. Children Sentinel Trust Zambia (CSTZ) was tasked to undertake this assignment and the findings are the contents in this report. The conclusions and recommendations are meant to refine on-going platforms and develop strategies that ensure sustainable program impacts and results for ECCDE in Zambia.

1.2 Purposes

This study explores the interplay between Nutrition, Health and Education on Child Development. To understand the phenomenon, we used unobtrusive approach focused on various studies that have attempted to identify fundamental effects the highlighted triad namely Nutrition, Health and Education have on child development.

The study generates evidence for advocacy about the importance of Early Childhood Care, Development and Education (ECCDE) programs and data-driven decision making at various levels from community to National policy making. The findings of the study will also be used for informing and improving the ZANEC ECCDE program by designing and implementing appropriate interventions that will enhance the learning outcomes and development of young children in Zambia. The purpose of the Research study is twofold: (i) To generate evidence from a Zambian perspective to support the delivery of comprehensive ECCDE services as opposed to focusing on Early Childhood Education alone and (ii) to contribute to knowledge and interplay among Child Development, Health, Nutrition and Education.

1.3 Sources of Data

This study purposively drew on available and rich longitudinal studies conducted at international level on children in Guatemala, United States of America (USA) Costa Rica, Egypt, Kenya, Zanzibar and Zambia. These are internationally and nationally acclaimed studies on child development at infancy, early childhood and middle childhood. Each study generated data on a range of individual, family and primary care-giver characteristics as well child responses at different levels of development in respect to parenting, nutrition, health and education's impact on Child development through to adulthood. Zambia's local studies on Nutrition done by Civil Society Organisation- Scaling Up Nutrition (CSO-SUN) and health are also consulted. The ZDHS and other Central Statistics Office documents are quoted and referred to.

The cross-sectional data of each of the studies and age ranges was examined separately for the 0-36 months, 36-59 month olds, three year olds, and 11 to 15 year olds. This data allowed us to examine the factors associated with the uptake of nutrition, health and education's impact on child development as well examined the types of childcare supports, and the influences on children's physical, socio-emotional and cognitive outcomes at three distinct stages of childhood.

We also sourced primary data from purposively selected two districts; that is Lusaka and Chibombo from Chawama, Kanyama, Chaisa, George and Chipata communities and Mungule, Kayosha, Muwanjuni, and Shifwankula communities in Lusaka and Chibombo districts respectively; We garnered some evidence from children, parents and guardians, health practitioners, educationists, social workers and civil society workers and the general public. This data generated were triangulated using multiple data generation tools and approaches as well as sources to strengthen the Trustworthiness & Dependability

1.4 Limitation of the Study

The major limitation lies within the design of this study, Qualitative Approach entailing more time for in-depth data generation, processing, analysis and interpretation before conclusion is arrived at. However, due to challenges in required resources and distances to be covered, we could only limit ourselves to Lusaka and Chibombo districts. This limitation was lessened by the use of a triangulated approach in data generation, data generation tools and data sources.

1.5 Main findings

Overall, we find considerable local and international evidence that nutrition, health and education are strongly linked to child development and determinant the cognitive, social-emotional, physical, creative and behaviour of children. Other findings related to the main finding are:

- 1.3.1. Nutrition in early childhood has a lasting impact on health and well-being in adulthood. Children with deficient growth before age 2 are at an increased risk of chronic disease as adults if they gain weight rapidly in later stages of childhood. (Alderman et al. 2001b; Alderman, Hoddinott, and Kinsey 2006; Behrman 1996; Behrman, Cheng, and Todd 2004; Glewwe, Jacoby, and King 2000; Glewwe and King 2001; Grantham-McGregor et al. 1997; Grantham-McGregor et al. 1999a, 1999b; Johnston et al. 1987; Lasky et al. 1981).
- 1.3.2. Adequate nutrition is necessary for young children to achieve their potential level of cognitive functioning and overall well-being (Engle et al. 2007; Grantham-McGregor et al. 2007; Shonkoff and Phillips 2000).
- 1.3.3. Undernutrition is most common and severe during periods of greatest vulnerability the first 2–3 years of life (Martorell 1997; UNICEF 1998).

- 1.3.4. Early childhood health and nutrition interventions have the potential to make a major contribution to achieving Education for All.
- 1.3.5. Undernourished children score lower than do better-nourished children on tests of cognitive functioning, have poorer psychomotor development and fine motor skills, have lower activity levels, interact with others less frequently, fail to acquire skills at normal rates, have lower enrollment rates, and complete fewer grades of schooling (Alderman et al. 2001b; Alderman, Hoddinott, and Kinsey 2006; Behrman 1996; Behrman, Cheng, and Todd 2004; Glewwe, Jacoby, and King 2000; Glewwe and King 2001; Grantham-McGregor et al. 1997; Grantham-McGregor et al. 1999a, 1999b; Johnston et al. 1987; Lasky et al. 1981). It is believed that these effects reflect, in part, biological pathways by which under nutrition affects neurological development.
- 1.3.6. Zambia's malnutrition problem is significant, with 40% of children under five stunted (low height for age) and 15 % underweight (low weight-for-age)¹. The absolute number of children who are stunted has increased, from 685,000 in 1992 to 1.14 million in 2013². Children from the poorest quintile are 1.7 times as likely to be stunted as children from the wealthiest quintile³. Children in rural areas (42%) are more likely to be stunted than those in urban areas (36%). At the provincial level, Northern has the highest proportion of stunted children (49%), while Copperbelt, Lusaka, and Western have the lowest proportions (36%each).
- 1.3.7. In 2015 there were 1526 ECE centres annexed to primary schools serving 70, 000 children of which 52.4% were girls⁴. Access to early learning ECE services in Zambia is still very low. For instance, 84.5% of the children that enrolled in grade one in 2015 had no access to early learning ECE services in Zambia⁵.
- 1.3.8. In Zambia, around 60% (7.9 million) of the entire population lives in poverty and 40% (5.5 million) are extremely poor. In 2010, rural poverty was estimated at 77.9%, compared to urban poverty levels of 27.5%⁶. Similarly, more than half of the rural population (approximately 58%) was afflicted by extreme levels of poverty whereas, in urban areas, the extreme poor remained at approximately 13%⁷. The situation is particularly dire for children, with an estimated 65% (4.6 million) children and adolescents living in poverty. Child poverty is also predominantly rural: 85% (3.89 million) of poor children live in rural areas. However, there is

¹ Central Statistical Office (CSO) [Zambia]; Ministry of Health (MOH) [Zambia], and ICF International; 2014 *Zambia Demographic and Health Survey 2013-14*. Rockville, Maryland, USA: Central Statistical Office, Ministry of Health, and ICF International

² Zambia DHS 1992, 1996, 2002, 2007, 2013-14

³ *Malnutrition in Zambia: Harnessing social protection for the most vulnerable (2016) Report by Save the Children*

⁴ MoGE DODE report 2014

⁵ MoGE, *Education Statistical Bulletin*, 2015

⁶ *The World Bank- Mapping Sub-national poverty in Zambia pages 5 -9*

⁷ *Urban Child Poverty: A case for Copperbelt and Lusaka provinces 2015 by Economist Frank Kakungu funded by UNICEF through Save The Children Zambia Office*

growing urban poverty for those living in informal settlements and urban poor areas⁸.

- 1.3.9. According to FAO 2009, 60% of Zambian households cannot afford 3 meals a day. This translates in the higher levels of under five year olds malnutrition. The Zambian child nutrition profile shows that 60% of households cannot afford three meals per day⁹, which leads to inadequate nutrient intake and malnutrition. The same research shows that in the 2000–02 periods, the dietary energy supply was only 1,905kcal per capita/day (ibid.). This indicates that households' actual calorie intake is lower than the estimated necessary requirement of 2,056kcal per capita/day. Carbohydrates such as cereals and starchy roots are the main source of energy which account for 80% of the total energy intake (ibid.). This suggests that the intake of other essential nutrients as well as protein and lipids is generally insufficient
- 1.3.10. 42% of the respondents practice exclusive breastfeeding while 58% introduced other foods between 3 and 5 months. This is the common practice despite the understanding that Breast milk alone is the best possible food for the baby for about the first six months. In these early months, breast milk helps to protect against diarrhea and other common infections. Breast milk actually changes to cope with the changing nutritional needs of a growing baby.
- 1.3.11. 60% of respondents from peri-urban and rural areas indicated that early stimulation like singing to children, playing with children and watching children at play are important for cognitive and emotional development while all including those from urban areas indicated buying play things, reading stories to children were very important to the development of the children.
- 1.3.12. Our findings indicate that Zambia has the following policies that look at children. The National Child Policy of 2006 that is been reviewed, the National Child Health Policy regulates the provision of health services to children; the National Policy on Education currently being reviewed, Early Childhood Education Policy has been in draft since 2008 and is awaiting adoption, School Health and Nutrition Policy, the National Disability Policy of 2012, National Social Protection Policy that deals with the child protection and social welfare, and the National Nutrition Policy. These policies targeting children lie in different government Ministries.
- 1.3.13. There's low funding towards early childhood programmes in Zambia most of the programmes are donor supported. ECE received 0.5% of the total education budget in 2016; budget allocated to nutrition-specific and nutrition-sensitive programmes represents approximately 0.1% of the national budget 2014¹⁰.

⁸ *The World Bank report 2014*

⁹ (FAO 2009)

¹⁰ CSO-SUN 2014

1.6 Conclusion

With the findings in this study on the effect of nutrition, health and education on child development from parents, teachers, DEBS office, Line Ministries, Health practitioners, and many others it would be gratifying for the stakeholders to go back to the sketch boards and see how they can help the children to fully develop their full potential by providing comprehensive ECCDE programs and activities. There can be no question that quality in ECCDE provision is paramount, both for the well-being of young children and if investments are to result in significant returns in the form of the well-prepared and productive future citizens. There is extensive evidence that investments in the nutritional, cognitive, and socio-emotional development of young children have high payoffs.

There, we can with affirmation state that nutrition, health and early stimulation or education has a great effect on the process of child development. The onus to bring up responsible adults and citizens falls on the decisions policy makers and other stakeholders will and should make on child related programmes and interventions. ECCDE is a child rights issue and not a privilege for a few elite families.

1.7 Recommendations

With the above outlined evidence and the interpretations made thereof, the following emerge as recommendations:

- 1.7.1. ZANEC should ensure that Zambia muster the required level of political commitment to the upholding of and implementation of the ECCDE Policies. The executive arms and the legislature in all the tiers of Government should be sensitized to the importance of the policies so they can support it through increase in funding and appropriate legislation. Every Zambian Child should by Law receive and attend a standard ECCDE Centre activity from the age of 2 years before transiting to Nursery and Kindergarten, then Primary School.
- 1.7.2. Early Childhood Care Development and Education (ECCDE) are dynamic and NO single government ministry can handle it because of its multifaceted nature. It requires organised concerted efforts in order for experts in Child Development; Psychologists; Paediatrics Doctors; Nutritionists, Midwives, Child Counselors, Early Childhood Teachers, ECCDE experts and Private sector to collaborate effectively. Measures should be put in place to strengthen coordination mechanisms for the ECE Coordinating Committee in order for health education and services, nutrition education and supplementary feeding, clean water and sanitation, child protection, centre construction and provision of play materials and parenting skills development and other crosscutting issues which are a necessity to a comprehensive child development intervention are effected.
- 1.7.3. Efforts should be intensified to mobilise support for enrolment of children into ECCDE programmes both in urban and rural parts of the Country. This should be done without

prejudice to gender, religion, physical attributes, economic circumstances and other factors which normally lead to exclusion such as disability. Providing one good meal a day at school may help in such mobilization efforts. This will in addition bond the child/baby with being Zambian and lay the foundation for the development of patriotism.

- 1.7.4. Contextualized curriculum in ECCDE can be able to help develop children with the cultural and traditional value context that is important for identity and patriotism which we are lacking now as a nation. A value system that determines who we are is carried on through the mode and language of communication. Language carries culture and our being Zambian is determined by it. ECCDE curriculum cannot be centralized but can be guided and left to be implemented with each cultural connotation.

- 1.7.5. The Universities and other tertiary institutes should develop curriculum specialized in Child Healthcare and Support for increased specialization on early identification and support to children below 3 years or just sub-divide ECCDE teacher training to have those specialized for the 3-6 and others for the 0-3. It is an important factor that will require urgent action.

- 1.7.6. ZANEC should demonstrate a low cost model ECCDE centre that will show case the ideal and be able to indicate the costs and the advantages of such an arrangement. Almost everyone desires for an integrated approach to ECCDE that can be practically done for evidence based advocacy. ZANEC should therefore, develop a concept paper conceptualizing the integrated approach. This is meant to demonstrate how the gap between policy and policy implementation can be reduced.

Chapter Two

Introduction

2.1 Terminologies commonly used interchangeably

There are different terminologies used by different institutions addressing **Early Childhood**. For example, UNICEF, WHO and World Bank use Early Childhood Development (ECD) and the Consultative Group on Early Childhood Care and Development uses Early Childhood Care for Development (ECCD), Zambia National Education Coalition (ZANEC) uses Early Childhood Care, Development and Education (ECCDE), Ministry of General Education (MoGE) and Ministry of Health in Zambia use Early Childhood Education (ECE) and Early Childhood Development (ECD) respectively. But all of them recognize the importance of these integrated and holistic interventions in the early age of a child.

While tossing the concept of Early Childhood Care and Education (ECCE) by UNESCO, it has been believed that combination of ‘care’ and ‘education’ is needed for good quality provisions for the children. As defined by UNESCO, *‘Early Childhood Care and Education supports children’s survival growth, development and learning – including health, nutrition and hygiene, and cognitive, social, physical and emotional development – from birth to entry into primary school in formal, informal and non-formal settings...ECCE represents a continuum of interconnected arrangements involving diverse actors: family, friends, neighbours; family day care for a group of children in a provider’s home; centre-based programmes; classes/programmes in schools; and programmes for parents’¹¹.*

As defined by **Evans et.al. 2000: 2**, *‘Early Childhood Care for Development includes all the support necessary for every child to realize his/her right to survival, to protection, and to care that will ensure optimal development from birth to age eight’.*

But Early Childhood learning may also be formalized by government or private initiatives. ECE mostly refers to the ‘learning by playing’ kind of arrangements in which children learn the basics in a homely atmosphere. As mentioned by **Smith 2003: 1**, ‘Early Childhood Education (ECE) consists of organized supervised programs with social and educational goals for children (of up to school entry age) in the temporary absence of their parents’. These days, it is well understood that education can help to build a strong foundation for the children and thus emphasis has been given to ECE.

2.2 Historical Perspective of ECCDE in Zambia

Historically, Early Childhood Care Development and Education (ECCDE) has not been a major responsibility of government in Zambia. This has been the case for both pre- and post-independence governments. In colonial times, Sub 0 education was offered for one year and included learning to write letters of the alphabet, on the ground, for African children. This was the closest the system then came to offering ECCDE. Later, the colonial government came up

¹¹ UNESCO 2006a: 15

with Day Nursery Act of 1957 to benefit local children. After independence, the government established nurseries and pre-schools through the Ministry of Local Government and Housing. These were mainly located in welfare halls. The level of participation though remained low and by the middle 1980s this provision had fizzled off.

For a long time, the provision of ECCDE was not the responsibility of the Ministry of Education although the Education Reforms of 1977, Focus on Learning of 1992 and Educating our Future of 1996 policy documents all have recognised the critical role that ECCDE plays as a foundation for all later learning. Since the provision of ECCDE has never been fully supported by government, the operations of pre-schools are dependent on fees that the learners pay. Therefore, the majority of the children that access ECCDE are from higher income households. This has also influenced the distribution and location of ECCDE centres as most of them are located in urban areas.

In 2004, an EFA baseline survey showed that 32,460 learners (13,981 males and 18,479 females) were enrolled in a total of 2,668 ECE facilities countrywide, making an average enrolment of 12 learners per facility. Given a national population of children aged between 3 and 6 years totaling 1,477,785 (737,952 males and 739,833 females), the participation rates in Early Childhood Education are still modest standing at 2 per cent for boys, 3 per cent for girls. Disaggregated according to location, 34 per cent of boys, compared to 33 per cent of girls who attended some form of ECCDE services were in rural areas, while 66 per cent of boys and 67 per cent of children were in urban areas. In rural areas, 52 per cent of those who attended ECE were girls compared to 48 per cent for boys. In urban areas 53 percent of the children who attended ECE were girls as compared to 47 per cent for boys.

2.3 Early Childhood Care, Development and Education Initiatives

Due to several reasons like poverty, under nutrition, micronutrient deficiencies, and poor learning environments about 200 million children less than five years old in the developing world are unable to perform their potential for development or failing to expand critical thinking and learning skills. This constraint in early development contributes negatively to later performances (both cognitive and non-cognitive) and limits their success in future. For underprivileged children, this early deficit has a multiplying effect, e.g. children from low income families complete far less education than children from middle income families, due in part to their lowered ability to learn in school. Therefore, it is better to provide an equal start at the early age when children's brains are developing most rapidly, and the basis for their cognitive, social and emotional development is being formed. The loss of human potential can be triumph over by cost-effective investments on early childhood development by most governments, civil society and families and communities¹².

There might be different strategies for developing a holistic approach to ECCDE; such as building a communication strategy, keeping the focus on integrated child development including health & nutrition, cognitive development and protection and more. Building programmes based on local strengths and realities, making scientific knowledge about ECCDE accessible to all,

¹² UNESCO 2008

looking for opportunities to link services or add components to existing interventions for a more holistic approach may prove to be a successful intervention in child development. It might be difficult initially to develop and implement programmes for ECCDE and it may take time, but if adapted to local conditions, ECCDE is worth the investment. “There is no blueprint for a holistic approach to Early Childhood Care, Development and Education. The challenge for Zambia is to determine priorities for a given context and how they can be met, and where impact can be multiplied through collaboration, coordination, convergence or integration.”¹³ In terms of gains made in participation rates, the population of new entrants at Grade 1 with an ECCDE learning opportunity increased from about 9% in 2004 to 15.5% in 2015.

In Zambia, ECCDE is offered to children at three levels: Day Care, Nursery (kindergarten or baby class), middle class (Playgroup) and pre-school / reception. The provision of quality ECCDE is of vital importance as it gives children experiences that help them to develop their social, physical, mental and emotional capabilities as well as help them prepare to adapt to the formal learning atmosphere in primary school.¹⁴ Research indicates that ECCDE can be a powerful instrument for helping to break the cycle of poverty. ECCDE also is widely recognized as a significant pathway to inclusiveness and social equity in education, provided that the programmes are accessible to all sections of a society. In 2013, for the first time the MoGE recruited 1000 ECE teachers. This was a great step in the right direction. In 2014, the MoGE began annexing ECE centres to Primary schools. In 2015 there were 1526 ECE centres annexed to primary schools serving 70, 000 children of which 52.4% were girls¹⁵. Access to early learning ECE services in Zambia is still very low. For instance, 84.5% of the children that enrolled in grade one in 2015 had no access to early learning ECE services in Zambia¹⁶. In addition, most early learning centres are predominantly offering pre-schooling and not holistic early learning programmes.

2.4 Statement of the Problem

Whereas ECE predates Independence Day in Zambia and a multiplicity of stakeholders are engaged in the service delivery, it is not clear what policies and practices exist. Given the multiplicity of terminologies used in early childhood among stakeholders, it is also not clear which terminology should be adopted and advocated for optimal benefit of children and society.

2.5 Purpose of the Research

This is a situational analysis on ECE Provision in Zambia. The findings of this study are aimed at generating evidence from a Zambian perspective to support the delivery of comprehensive ECCDE services as opposed to focusing on Early Childhood Education alone. The findings of the study will also be used for informing and improving the ZANEC ECCDE program by designing and implementing appropriate interventions that will enhance the learning outcomes and development of young children in Zambia.

¹³ UNICEF 2006: 9

¹⁴ MoE; *Educating the Nation; Lusaka: Ministry of Education, 2005. p.22*

¹⁵ MoGE DODE report 2014

¹⁶ MoGE, *Education Statistical Bulletin, 2015*

2.6 Study Objectives

- i). To review literature on the interplay among Nutrition, Health and Education and its contributory effect on Child development.
- ii). To identify programmes, structures and resources for care and support that exist internationally and in the communities of Zambia
- iii). To identify roles of line ministries and other organizations involved in the provision of Early Childhood Care and Development, Education (ECCDE) in Zambia
- iv). To identify and analyze government policy, programmes and the institutional framework supporting Early Childhood Care and Development, Education.
- v). To establish the NGOs, CBOs, FBOs and communities' understanding and appreciation of Nutrition, Health and Education and its contributory effect on Child development.

2.7 Study Questions

The study is responding to the following questions;

- i). What does literature say regarding the interplay among Nutrition, Health and Education and its contributory effect on Child development?
- ii). What programmes, structures and resources for care and support exist in the communities of Zambia?
- iii). What government policies exist to guide the provision of Early Childhood Care and Development, Education in Zambia?
- iv). Which organizations are involved in the provision of Early Childhood Care and Development, Education in Zambia?
- v). What roles are played by line ministries and other organizations in the provision of Early Childhood Care and Development, Education (ECCDE) in Zambia?

2.8 Scope of the Study

The study was designed to cover the following areas:

- 2.8.1. Conduct a desk review on the different components that make up ECCDE and how they support child growth especially in line with impacting on future school performance;
- 2.8.2. Conduct interviews with relevant target groups on the key components of child development i.e., health, nutrition, development, education and any other component the consultant will deem relevant;
- 2.8.3. Identify parameters that define quality delivery of education services from Early Childhood Care and Development perspective;
- 2.8.4. Disseminate findings of the report to a stakeholder meeting organised in liaison with the ZANEC Secretariat;
- 2.8.5. Develop a four paged Policy Brief from the key findings and recommendations of the study.

2.9 ECCDE Models

There are a number of ECCDE models that have been implemented by different stakeholders. ECCDE includes working with parents to strengthen parenting skills, working with siblings and other family members to recognize the specific developmental needs of younger children, working to provide or strengthen day care options, developing pre-schools and others. All these models require supplementary feeding, health check-ups and stimulation from the environments and the adults that are with children.

There are a number of ECCDE programs but we choose to only discuss the following;

2.9.1. Centre Based ECE- Formal and informal Model within the Primary School

Formal

It is seen as a preparation class for primary school education but becomes part of the system; the process of learning is formalised especially for the 5+ to 6+ years. It is meant to make the children compare, sort, and match, recognise, distinguish, group objects by variety of criteria.

Informal

Children can be allowed to accompany older siblings to school just for play with other siblings. These can be added to the Playgroup or open air arrangements.¹⁷

Centre based Cluster Model¹⁸

This model entails establishing more than one ECE centres around the available primary school. If one centre accommodates 50 children then establishing 5 to 6 centres will mean catering for 250 to 300 children. The centres can be supervised by the primary school management but managed by community volunteers. There is need for technical support to be provided for the community caregivers who can be assigned to handle the other clustered centres. Incorporating parenting education and home visiting makes it even more exciting. It works in any community urban or rural. A lot of community mobilisation and meetings is needed.

2.10 Home Based / Neighborhood Programme ECCDE Model?¹⁹

This is where communities decide to establish an ECE programme within the neighborhood and agree to take turns caring and supporting children's learning. They can select to employ and support a caregiver to care for children. They don't need to build a centre because they agree to alternate the learning home from one place to the other within their neighborhood. It works so well in peri urban and rural areas. It can still be applied in urban areas.

2.10.1. Market Model²⁰

¹⁷ ECCD group 2000

¹⁸ Children Sentinel Trust Zambia 2008

¹⁹ CSTZ Cluster Model 2007

²⁰ MMCI 2003

Market Model- Created for women who sell goods in the market. Mothers agree to come with their children to the market but establish a place where their children can be taken care of as they do their business. Mothers contribute food for feeding programmes and take turns to prepare the food. A caregiver or ECE teacher is employed and paid by the marketeers. The MMCI Kapiri-Mposhi, Chingola, Chililabombwe and Mongu Market Models demonstrated to this effect.

2.10.2. Play Group or Open –air Model?²¹

ECE programs are sometimes, quite literally, offered in the open air. They take place under a tree, in a courtyard, under a make-shift shelter, etc. The major objective for this intervention is to create social interactions with, for and among children 3+ to 4+. Allowing the children to interact with different materials appropriate for age can support their growth and development. As children play with soil and nature their inquisitive scientific minds get the concepts of science, they acquire the literacy and language skills, the mathematical concepts and so on. They develop their holistic selves when they are carried away into their own world of research and fact finding through play. It's cheaper and accommodates more children because at this age children will only be guided and encouraged to be involved in different activities. PLAY is the KEY word.

2.10.3. Distance Learning or IRI Model?²²

The use of media—radio, videos, cassettes, and even radiophones—these are professionally packaged learning experiences that can be provided to ECE programmes of various types i.e. Market Model, Centre, Home based and even open air. Reaches a number of children with the same kind of output

2.10.4. Work/Place - Employer Sponsored Model?

At the workplace it is seen as benefit for employees without particular regard to family needs. This can be advocated for factory workers. Establish an ECE programme at the workplace.

2.10.5. Parenting Education Activities

Strengthening existing parenting skills or teaching new ones is a key objective of the parenting support interventions, generally in pursuit of more overarching aims that have to do with improving parent-child relationships, increasing parenting effectiveness, and reducing child behaviour problems.

²¹ Plan International ECCDE RESA models 2004

²² DODE MoGE

Chapter Three

Methodology

3.1 Research Design

In order to understand the ECCDE phenomenon in Zambia, we employed a Qualitative Approach within which an unobtrusive method with a focus on document review was adopted. The document review focused on longitudinal studies in Latin America, Europe and Asia as well as local. According to Rathje (1979) and Babbie (1989), an unobtrusive approach studies the actual rather than reported behaviour. This approach could be repeated and it is non-disruptive and non-reactive, easily accessible, inexpensive and a good source of longitudinal data. This approach helped to elicit critical findings within a very limited time and financial resources available for this task.

In addition, unobtrusive research methods offer a strong critique of positivism, the concept that truths can be determined about the social world by scientific measurement. They instead belong to the epistemological theory of interpretivism which is that the social sciences are fundamentally different from natural sciences; therefore, requiring researchers to reject empiricism and grasp subjective meaning of social action (Bryman, 2004).

3.2 Research tools

In this study, we deployed two main data generation tools and these are: Document Review and Interview Schedules.

3.3 Sampling procedures

For Primary data, two districts were purposively selected based on accessibility and presence of ECCDE practitioners. Within the two districts, target communities for the study were; Mungule, Kayosha, Muwanjuni and Shifwankula in Chibombo District and Chawama, Chaisa, Chipata, George and Kanyama communities in Lusaka District respectively. The criterion for selecting these communities attributed to purposive sampling. We interviewed 347 respondents including teachers, parents and children in both MoGE schools, private and CSO sponsored centres as well as health facilities.

Table 1: Selected Sample

Type of facility	Total Number of Centres	Number of Interviewees			Number of Teachers/ Health Personnel
		Male (% of Total)	Female (% of Total)	Total	
ECCDE/ Schools	12	50%	50%	120	30
Health Centres	6	50%	50%	180	15
GRZ Officials	10	50%	50%	10	10

Table 2: Actual Sampled

Type of facility	Total Number of Centres/ Org	Number of Interviewees			Number of Teachers/ Health Personnel
		Male (% of Total)	Female (% of Total)	Total	
ECCDE/ Schools	9	25%	75%	160	14
Health Centres	3	16.6%	83.3%	170	8
GRZ / NGO Officials	9	37.5%	62.5%	17	17

3.4 The Sample

The choice of the facilities and schools/ centres was driven mainly by the pragmatic concerns, thereby contributing to the relevant data required in the study.

The main target groups are:

- 3.4.1. The District Education Board Secretary's /District Medical Officer's office, other relevant Government ministries and departments.
- 3.4.2. Non- Governmental Organisations
- 3.4.3. Children and their parents/ guardians
- 3.4.4. Teachers and School Managers/ MCH Nurses and Clinical Officers
- 3.4.5. Community Based Organisations and Faith Based Organisations
- 3.4.6. Local leadership (Ward Committees)
- 3.4.7. Community members

Table 3: Key Informants

Area	Male	Female	Total	Dist. Officers	NGO	Children	Adults	Teachers/ Education	Social Workers	Health Workers
National	1	1	2	-	-	-	2	1		1
CSOs	2	2	4	-	4	-	-	-	-	-
Chaisa	-	-	-	-	-	-	-	-	-	-
Chawama	15	16	31			20	8	3		
Chipata	6	15	21			18	10	3		
George	10	26	36			12	20	4		
Kanyama	27	43	70			40	30			
Kayosha	24	41	65			42	18	2		3
Mungule	22	39	61			8	50	1		2
Muwanjuni	-	-		-	-	-	-	-	-	-
Shifvankula	6	33	39			6	33	-		2
Chibombo	2	2	8	4				-	2	2
Lusaka	2	3	10	5				2	2	1
Total	126	221	347	9	4	146	171	16	4	11

Total Adult Respondents are 171 leaving a total of 146 child respondents. Children catered for 42.1% compared to 57.9% adults.

3.5 Data Generation Instruments

This involved development of six (6) data generation instruments that were employed in the

activity targeting different categories of respondents as shown in sampling procedures. Different approaches for data generation were employed as discussed below:

3.5.1 Transect Walks

The team visited locations that were purposefully sampled to have a visual impression of the communities being discussed. General observations undertaken during the visits are part of this report.

3.5.2 Personal and in-depth Interviews

Twenty (20) personal in-depth interviews were held with key informants from district leadership and government officials that deal with child development issues i.e. 1 Official at Lusaka DEBS office, 2 officials at DMO (Chibombo and Lusaka) and 2 Officials at MCDSW (Chibombo and Lusaka) 4 NGO/ FBO/ CBO, 3 facility in-charge and 3 MCH nurses in Chibombo, 2 Community School Head Teachers and 3 Community ECE school Teachers were also interviewed in systematic random samples to determine their opinion about ECCDE programmes, Nutrition, Health and Education and as well their attitude to community work and team projects.

3.5.3 Focused Group Discussions

Eight (8) Focus Group Discussions were held with 138 adult community members and leadership, 146 children aged between 3 to 6 and 13 teachers. This was to assess their understanding of nutrition, health and education and how they relate it to child development. The discussions were also meant to also bring out community expectations and understanding of ECCDE. It determined how local groups were receptive to new programmes with the health and education ministries and to assess their willingness to be involved in the growth and development of their children. This was determined the ideal model for early childhood care and development programmes. These focused group discussions helped in identifying the community potential in supporting child development.

3.6 Data Analysis Procedures

Qualitative data analysis involved classification of field notes, grouping relevant information and similar issues together according to the questions. During the data analysis, the large interview statements were condensed to make the briefs more succinct and meaningful, without distorting the respondents' ideas. This is in line with the principles of Creswell (1994, pg. 153.)²³.

²³ Creswell (1994, pg. 153)

3.7 Limitations of the study

The major limitation lies within the design of this study, Qualitative Approach entailing more time for in-depth data generation, processing, analysis and interpretation before conclusion is arrived at. However, due to challenges in required resources and distances to be covered, we could only limit ourselves to Lusaka and Chibombo districts. This limitation was lessened by the use of a triangulated approach in data generation, data generation tools and data sources.

Chapter Four

Findings and Discussion

4.1 Introduction

This chapter presents the findings based on the primary and secondary data of the sampled health centres, ECCDE centres, NGOs, District offices in two districts of Chibombo and Lusaka with a total number of 347 respondents. Qualitative information has also been provided, based on some subjective sources and field experiences, to sustain the findings. Based on this data analysis, the study will first try to investigate the factors influencing nutritional, health and educational impact on child development. Second, the study will focus on whether socio-economic, environmental, parental factors contribute to the downplaying of child development in Zambia as well influence early childhood activities and any extra benefit to the children in their performance and social skill.

Table 4: Database for Early Childhood Education in Provinces

NATIONAL 2014 DATABASE FOR EARLY CHILDHOOD EDUCATION IN PROVINCES		
S/NO	Provinces	No. of ECE Centres
1	Eastern	167
2	Muchinga	77
3	Western	129
4	Central	222
5	Northern	151
6	Southern	441
7	Lusaka	66
8	Luapula	73
9	Copperbelt	147
10	North Western	53
	Grand Total	1526
	No. Of Learners	70,000

Source Dode Data Base 2014

The Ministry of Health (MOH) in Zambia has also come up with an ECD intervention with support from UNICEF and WHO under a project called MDGi that is currently running in 10 districts of Copperbelt and Lusaka provinces. The intervention aims at educating the masses on the importance of child feeding, stimulating and survival supports for children less than 3 years. The initial Master Training was conducted in Kitwe in the month of August. The initial Master Trainers workshop took place in Tanzania.

All these interventions are meant to support ECCDE in Zambia. Currently, there are four ways through which ECCDE services are delivered, i.e. Day Care Centres, Home-based, Pre-School Centre Based and Health Centres Based. An effort of public, private and NGO-managed centre based ECCDE programme is there evidently. A number of Civil Society Organisations (CSOs) in Zambia are providing ECCDE service interventions with different models and in various places.

4.2 Feeding Practices according to Parents/ Guardians and Children

The study attempted to develop an understanding of feeding practices among children, parents and community members. First, we asked what parents feed their babies for the first six months. Table 5 and 6 shows that close to half (42%) of the parents breast-fed their infants for the first six months. It should be noted that these parents might have given water or other fluids to their infants during this period since the study failed to define exclusivity in terms of avoiding water and fluids. Some of those who reported breast-feeding only for six months may indeed be giving some solid food. The evidence for this is in Table 6 in which (58%) claimed to have begun feeding sometime between 3 to 5 months. These are focused group discussion responses that include some inconsistencies in terms of responses that required consistence. However, even with these inconsistencies, the responses do establish a general pattern of practices among Zambian mothers. This practice implies that parents do understand the importance of breast-feeding as a result of health advocacy activities of the public health sector.

However, the concept of exclusive breast-feeding (i.e. excluding all forms of other fluids and food except breast milk for the first six months) is ill-understood and is not generally practiced by parents. This is so despite the fact that in Zambia, exclusive breastfeeding rates have increased significantly from 40% in 2002 to 61% in 2007²⁴. But this is still not enough. Without adequate vitamin A stores in the body, infants are at greater risk of developing vitamin A deficiency and dying during their first few years of life. Breast milk alone is the best possible food for the baby for about the first six months. In these early months, breast milk helps to protect against diarrhea and other common infections. Breast milk actually changes to cope with the changing nutritional needs of a growing baby.

On nutrition and malnutrition the respondents indicated that all parents are aware of the good food that they need to feed the children and also understand the implication of undernourishment on the development of the child but blamed the situation on money poverty and scarcity of availability of affordable foods. When asked why they should feed their children with good food they responded by saying that that's when children can grow and develop well.

²⁴ CSO (2009), MOH, TDRC, UNZA and Macro Inc.; *Zambia Demographic and Health Survey (ZDHS)-2007*, Calverton, Maryland, USA

“Bana ngati bakudya bwino nipamene bakula bwino ndi maganizo yabwino” parents at Shifwankula Health Post: “Na bana kabalya kabotu balakula chankusu akalango kambiko” parents at Kayosha Health Centre, meaning “if children are well fed that’s when they grow, reason and develop better”

In certain areas the respondents intimated the effects of environmental degradation on the production of grain foods and leaf foods as a contributing factor to the failure to provide nutritious foods. However, this writer interrogates this issue further and provides an assumption that the critical role nutrition plays to child development need to be addressed holistically through an integrated approach to childcare that brings players and stakeholders on child related concerns to put up concerted efforts towards child food security.

The Zambian child nutrition profile shows that 60% of households cannot afford three meals per day²⁵, which leads to inadequate nutrient intake and malnutrition. The same research shows that in the 2000–02 periods, the dietary energy supply was only 1,905kcal per capita/day (ibid.). This indicates that households’ actual calorie intake is lower than the estimated necessary requirement of 2,056kcal per capita/day. Carbohydrates such as cereals and starchy roots are the main source of energy which account for 80% of the total energy intake (ibid.). This suggests that the intake of other essential nutrients as well as protein and lipids is generally insufficient.²⁶

Table 5: Parents’ feeding practices in the first six months

	Total	%	Male	%	Female	%
Breastfeeding Only	58	42%	15	10.9%	43	31%
Breastfeeding only for three months	80	100%	27	33.3%	53	66.7
Other ways of feeding	-	-	-	-	-	-

Table 6: When parents begin feeding solid foods

	Total	%	Male	%	Female	%
Upon birth	0	0	0	0	0	0
After two months	0	0	0	0	0	0
After three months	80	58%	27	22.75%	53	35.25%
After six months	58	42%	15	10.9%	43	31%
Other	-	-	-	-	-	-

Table 7: Parents’ understanding of child nutrition

	Total	%	Male	%	Female	%
Balanced diet	138	100	42	30.5%	96	69.5%
Good food handling and preparation	138	100	42	30.5%	96	69.5%
Food Hygiene	138	100	42	30.5%	96	69.5%
Feeding	138	100	42	30.5%	96	69.5%

Table 8: Parents’ understanding of effects of malnutrition

	Total	%	Male	%	Female	%
Child looking skinny and sickly	138	100	42	30.5%	96	69.5%
Child not able to play with friends	138	100	42	30.5%	96	69.5%
Describe Marasmus	138	100	42	30.5%	96	69.5%
Describe Kwashiorkor	138	100	42	30.5%	96	69.5%

²⁵ (FAO 2009)

²⁶ Spirulina Zambia 2014

<i>Agree it affects child development</i>	138	100	42	30.5%	96	69.5%
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Table 9: Health and hygiene

	Total	%	Male	%	Female	%
<i>Boiling drinking water</i>	138	100	42	30.5%	96	69.5%
<i>Washing hands after using the toilet</i>	138	100	42	30.5%	96	69.5%
<i>Washing fruits before eating</i>	138	100	42	30.5%	96	69.5%
<i>Cleaning the surroundings</i>	138	100	42	30.5%	96	69.5%
<i>Using the toilet other than the bush</i>	138	100	42	30.5%	96	69.5%

4.3 Child Stimulation Practices according to Parents/ Guardians and Children

The concept of stimulating or developing the senses is not clearly understood. Most parents and caregivers do not know about simple things that they can do to stimulate the child's senses. Talking to and singing to children (language) stimulate their cognitive development. All of child respondents did list these as activities they want done to them to stimulate their senses. When asked if they would feel good to be provided with play materials and other areas of supports as in Table 10 all the children affirmed being happy.

When parents were asked how they stimulate the senses, the answers varied. The activity for stimulating senses listed by most was giving toys and other colorful objects and storytelling but this too was mentioned by all the children or all of the child respondents. The lack of common responses among parents demonstrates that stimulating or developing senses is not something that has received public attention as yet or is conceptually understood by the general public. The number of people who could not respond to the question also indicates that many had not previously thought about this issue. As the study demonstrates, stimulating the senses of children from infants and toddlers is extremely important to the growth of their emotional and cognitive potential. Most parents 60% especially from the peri-urban and rural set up listed very encouraging practices in this regard. These are, "telling stories or singing songs" and "playing with children". Such practices need to be encouraged. Taking care of children i.e. bathing them, feeding them, and by ensuring they get their immunisation was perceived important by all (100%) respondents who affirmed practicing it mainly because we met them at Health facilities.

Table 10: How children want to be stimulated

	Total	%	Male	%	Female	%
<i>Providing toys and colorful objects for them to develop senses</i>	146	100%	45	33.5	101	66.5
<i>Telling them stories/ singing songs</i>	146	100%	45	33.5	101	66.5
<i>Teaching them to speak by talking to them</i>	146	100%	45	33.5	101	66.5
<i>Feeding them good food</i>	146	100%	45	33.5	101	66.5
<i>Helping them in what they do/or let them observe you while working</i>	146	100%	45	33.5	101	66.5
<i>Thanked and praised after accomplishing a task</i>	146	100%	45	33.5	101	66.5

Table 11: Parents' practices in the first year of the child

	Total	%	Male	%	Female	%
<i>Immunization</i>	138	100	42	30.5%	96	69.5%

<i>Provide healthy food and clean boiled water</i>	138	100	42	30.5%	96	69.5%
<i>Visit the doctor when the child is sick</i>	138	100	42	30.5%	96	69.5%
<i>Breast-feed</i>	138	100	42	30.5%	96	69.5%
<i>Bathing regularly/ keeping the baby clean</i>	138	100	42	30.5%	96	69.5%
<i>Feeding regularly</i>	138	100	42	30.5%	96	69.5%
<i>Weighing regularly</i>	138	100	42	30.5%	96	69.5%
<i>Looking after with care</i>	138	100	42	30.5%	96	69.5%
<i>Keeping the child's belongings clean</i>	138	100	42	30.5%	96	69.5%
<i>Keeping the environment clean</i>	138	100	42	30.5%	96	69.5%

Table 12: Parents' practices for the three to six-year-old

	Total	%	Male	%	Female	%
<i>Take the child to the medical facility</i>	138	100	42	30.5%	96	69.5%
<i>Provide Oral Rehydration Salts (ORS)</i>	138	100	42	30.5%	96	69.5%
<i>Give plenty liquids including lemonade</i>	138	100	42	30.5%	96	69.5%
<i>Bath and keep the child clean</i>	138	100	42	30.5%	96	69.5%
<i>Feed with good healthy foods</i>	138	100	42	30.5%	96	69.5%
<i>Treat with traditional medicines</i>	138	100	42	30.5%	96	69.5%

Activities that parents and other caregivers carry out routinely with children less than six provide insight to the quality of the childcare practice. Therefore, the study asked what parents do for their children as part of the daily routine. The responses received are tabulated in Table 13 and 14. "Regular feeding of good food" and "keeping the child clean" are understandably the two most popular responses. Regular feeding of good food, keeping the child clean, and teaching them were ranked the top by the respondents in Female 69.5% with 30.5% support from the male counterparts. Playing with children, putting them to bed, taking them to school and spending time with the child came second at 73% female and 3.6% males. You will realise that most routine activities with children are undertaken by the female. This therefore calls for more efforts to ensure the men are involved in issues of childcare.

When all the responses are considered, both from Males and the Females, it is clear that the routine activities listed by caregivers relate to (1) providing basic needs (food and cleaning), and (2) teaching or providing education (teaching through play is not what's meant here), However, it is noted that 73% of females and 3.6% of males did mention playing with the child as a routine activity. The gender difference in this response shows that few fathers and other male caregivers spend time playing with their children.

Table 13: Routine things done for and with children under three

	Total	%	Male	%	Female	%
<i>Feeding healthy food regularly</i>	138	100%	42	30.5%	96	69.5%
<i>Bathing and keeping them clean</i>	138	100%	42	30.5%	96	69.5%
<i>Putting them to bed</i>	101	76.6%	5	3.6%	96	73%
<i>Providing things they need</i>	96	73%	0	0%	96	73%
<i>Playing with the child</i>	101	76.6%	5	3.6%	96	73%
<i>Spending time with the child</i>	101	76.6%	5	3.6%	96	73%
<i>Breast-feeding them</i>	96	73%	0	0%	96	73%
<i>Taking them to school</i>	101	76.6%	5	3.6%	96	73%
<i>Teaching them</i>	138	100%	42	30.5%	96	69.5%

Table 14: Routine things done for and with children three to six

	Total	%	Male	%	Female	%
<i>Feeding healthy food regularly</i>	138	100%	42	30.5%	96	69.5%
<i>Bathing and keeping them clean</i>	138	100%	42	30.5%	96	69.5%
<i>Putting them to bed</i>	101	76.6%	5	3.6%	96	73%
<i>Providing things they need</i>	96	73%	0	0%	96	73%
<i>Playing with the child</i>	101	76.6%	5	3.6%	96	73%
<i>Spending time with the child</i>	101	76.6%	5	3.6%	96	73%
<i>Breast-feeding them</i>	96	73%	0	0%	96	73%
<i>Taking them to school</i>	101	76.6%	5	3.6%	96	73%
<i>Teaching them</i>	138	100%	42	30.5%	96	69.5%

4.4 Common Childhood illnesses and Care for sick children

The study asked from caregivers about what the most common childhood illnesses were and how they care for babies and toddlers who get sick. Table 15, 16 and 17 ranks the responses received to this question. The answers given reflect the communities' understanding of the different childhood illnesses and the importance of giving children care and support when they are sick. Among the supports outlined are plenty of liquids, temperature control, plenty rest, supplementary feeding, stimulation and seeking medical attention when a child is suffering from diarrhoea, malaria, coughs and many others. The responses also clearly demonstrate the effectiveness of government's effort to increase public awareness about the importance of using Oral Rehydration Salts (ORS) packets, boiled water, hygiene and health care support and common temperature control methods. No significant differences exist in the responses between Male' and the Females and between parents and caregivers.

Malaria, diarrhoea and chicken pox were severally mentioned scored the highest health threat at 100%. The impact of Malaria and diarrhoea on the developing child is that it causes iron deficiency and anaemia that affect brain development and the easy circulation of oxygen in the body. More so Malaria and diarrhoea reduces appetite in children that lead to dehydration and malnutrition. Despite the efforts health practitioners are putting in to sensitise the public on Malaria and diarrhoea control, the illnesses are still ravaging the fibre of child health. Diarrhoea is attributed to be caused by poor water sources and negligence on the part of the parents and guardians. It is a waterborne disease that can be controlled by adhering to hygiene principles. The respondents did indicate that water sources especially during the hot season are not very safe because of the scarcity of the water. See table 17.

Table 15: common childhood sicknesses

	Total	%	Male	%	Female	%
<i>Malaria</i>	138	100	42	30.5%	96	69.5%
<i>Diarrhoea</i>	138	100	42	30.5%	96	69.5%
<i>Chicken Pox</i>	138	100	42	30.5%	96	69.5%
<i>Coughs</i>	<i>Coughs were mentioned in the side-lines of flu</i>					
<i>Flu Fever</i>	138	100	42	30.5%	96	69.5%

Table 16: How parents care for children who are sick

	Total	%	Male	%	Female	%
<i>Take the child to the medical facility</i>	138	100	42	30.5%	96	69.5%

<i>Provide Oral Rehydration Salts (ORS)</i>	138	100	42	30.5%	96	69.5%
<i>Give plenty liquids including lemonade</i>	138	100	42	30.5%	96	69.5%
<i>Bath and keep the child clean</i>	138	100	42	30.5%	96	69.5%
<i>Feed with good healthy foods</i>	138	100	42	30.5%	96	69.5%
<i>Treat with traditional medicines</i>	65	47.1%	15	10.9%	50	36.2%

Table 17: Sources of water

	Total	%	Male	%	Female	%
<i>Tap water</i>	50	36.2%	12	8.7%	38	27.5%
<i>Hand pump</i>	67	48.6%	20	14.6%	47	34%
<i>Well</i>	21	15.2%	10	7.2%	11	8%

From the three tables indicated above, it can be inferred that poverty is a dynamic process, with some families cycling in and out of it in a relatively short time, resulting in recurrent rather than persistent poverty. Most of those who are presently poor were not born poor; they have fallen into poverty within their lifetimes, and their descents offset the success stories of those that have managed to climb out of poverty. Poverty puts children in a condition that makes them very vulnerable to numerous health difficulties. The situation in which they live, the quality of care received, and a lack of important resources are all aspects of a child's life in poverty that ultimately can be detrimental to their health. A definition provided by UNICEF of childhood poverty reads,

*"Children living in poverty are those who experience deprivation of the material, spiritual, and emotional resources needed to survive, develop and thrive, leaving them unable to enjoy their rights, achieve their full potential or participate as full and equal members of society"*²⁷.

This definition provides a wide-ranging viewpoint of how poverty daunts children's quality of life and puts them at a great difficulty as they move through critical stages of development. Living a life in poverty threateningly impedes a child's ability to reach their full potential, and is something that is likely to harmfully affect a child for the rest of their life. Often the biggest obstacle that these children face is the many physical and mental health deficiencies to which they are vulnerable.

Zambia has failed to meaningfully lessen poverty and attain tangible progresses in the social living conditions of majority of its citizens. According to the Living Conditions Monitoring Survey (LCMS) undertaken in 2010, over sixty percent of Zambia's population live below the poverty datum line, with rural poverty levels at 77.9% while life-threatening poverty stood at 42% of the total population. Income distribution remained highly unequal, resulting in worsening human deprivation as demonstrated by the decline in the country's Human Development Index (HDI). This has translated into very low record of life expectancy at birth. In Zambia, it is evident that poverty by and large continues to carry a female face. For example, extreme poverty is higher in female headed households (60.4 %) compared to male headed households (57.1 %).

²⁷ Donabue, 2009

4.5 Availability and ECCDE services

Early childhood services should be available for children close to their homes. Whilst the respondents were discussing formal settings it was clear also from observations that a lot of non-formal ECCDE arrangements existed in the communities. Where you could not see a formal ECE centre you still could observe children at play using all sorts of self-developed play materials. Tapping into this rich child resource definitely would enrich the childhood experiences.

The study wanted to establish the presence of formal facilities that support ECCDE in these communities. It was agreed by 100% respondents that there was one government health care facility in each of these communities under study. The facilities were confirmed by 100% respondents to provide immunisation, child growth monitoring, antenatal care for expectant mothers and neonatal and postnatal care for delivering mothers. The ECE centres were available in all the areas but the researcher could not establish the actual numbers. Child protection entities were mostly non available within the communities thereby affecting the child right approaches to service provision. With the high level of poverty and disease burden the need for community Social Workers cannot be over-emphasised. The tables below demonstrate the availability and services provided in these facilities. With the time available 50 ECE centres that are Govt., private, CSO and faith based run were visited. We couldn't talk to anyone at the government ECE centres because mostly it was exam time and the children were not available in schools.

Table 18: Availability of ECCDE services

	Total	%	Govt.	%	Private	%
<i>ECE centres</i>	50	100%	2	4%	48	96%
<i>Health and nutrition Centres</i>	9	100%	9	100%	0	0
<i>Child Protection service centres</i>	0	0	0	0	0	0
<i>Adult Education Centres</i>	0	0	0	0	0	0

Table 19: Services children receive at ECCDE centres

	Total	%	Male	%	Female	%
<i>Play and interaction</i>	70	50.7%	25	18.1%	45	32.6%
<i>Reading and writing</i>	138	100%	42	30.5%	96	69.5%
<i>Supplementary feeding</i>	28	20.3%	11	8%	17	12.3%
<i>Immunisation</i>	138	100%	42	30.5%	96	69.5%
<i>Child health monitoring</i>	138	100%	42	30.5%	96	69.5%
<i>Antenatal services</i>	138	100%	42	30.5%	96	69.5%
<i>Neonatal and postnatal care</i>	138	100%	42	30.5%	96	69.5%

4.6 ECCDE Services according to Teachers and Health Workers

Service providers play an important role in the growth and development of children. Health workers monitor the children's health whilst teachers stimulate learning and experiences for children. The study wanted to establish the support services these workers need as well their thoughts on the best approach to childcare.

Through interactions we related to basic learning and teaching materials availability, teacher presence and innovativeness, pedagogy and interaction styles and community involvement. However, other factors that have influenced our findings is "whether children actually learn" or

“access health services” -- from personal characteristics (of the children, parents, health workers and teachers), home and school environments, to issues of ECE access and equity – that are an important part of the picture. These factors were measured through a variety of interactions that included focus group discussions and one on one interview including transact walks.

Teachers in early childhood centres did indicate that they hold a partnership with the children’s parents in ensuring that the best is made out the children. Teachers surveyed agreed that developing senses is crucial to child development. When asked about how caregivers assist in stimulating the senses of infants and toddlers, 66.7% of the teachers said that it is done by providing toys and colorful objects for children to play and 16.65% said that it is by teaching names of things. The other group 16.65% also said that helping children to identify different objects, people, places and sounds is also important in this respect. As discussed earlier on, parents too placed providing toys at the top but also considered telling stories and singing songs as important activities in developing senses.

The findings elaborated below serves two purposes. First, these findings help to triangulate the observations made in Part A, the section on parents. What teachers had to say, in most cases, are similar to what parents said and, therefore, validate the findings of this study. The second purpose these findings serve is that they help to uncover the quality of pre-school teaching. No doubt, reflection on the findings included here will lead the reader to assume that pre-school teachers need further knowledge about early childhood care and development issues.

On the part of the Health workers this section will try and triangulate the observations made by parents especially on the common illnesses in childhood recorded at the health facilities. What the health practitioners had to say was in most cases similar to what the parents said. You will realise that among the health practitioners none mentioned Malaria because of the understanding of the level of control that has been in place. But for a common person any fever that makes the temperature to rise is referred to as Malaria. 100 % health practioners mentioned Diarrhoea and Respiratory tract Infection while 33.3% mentioned Pneumonia and fever.

100% teachers and health workers assumed that the integrated approach to ECCDE will bring out the best result and provide the best care for the children. By integrated they meant having health, nutrition and education services and activities placed in one place for easy access by children and parents. The same number spoke to collaborative arrangements where health and nutrition can be delivered to ECCDE centres by health practitioners from both public and private including CSO providers.

100% attributed the inadequate provision of requisites like teaching and learning materials, outdoor and indoor materials, safe and secure infrastructure like buildings and provision of clean water and sanitation weakens the quality of the ECCDE service delivery. They also indicated that inadequate specialised health workers in childcare as well ECE teachers are a threat to the perceived development of ECCDE in Zambia. There is need therefore, for policy makers and administrators to react with positivity to the situation at hand. From the scores it appears to us like all areas are being treated as priority and so we just reported as expressed.

Table 20: How best the service to children should be done

	Total	%	Male	%	Female	%
<i>Integrated services</i>	33	100%	11	33.3	22	66.7
<i>Collaborated services</i>	33	100%	11	33.3	22	66.7
<i>Individual service</i>	0	0	0	0	0	0

Table 21: Infrastructure ECE centres should have

	Total	%	Male	%	Female	%
<i>Indoor play materials</i>	33	100%	11	33.3	22	66.7
<i>Outdoor play materials</i>	33	100%	11	33.3	22	66.7
<i>Secure and safe buildings</i>	33	100%	11	33.3	22	66.7
<i>Garden for nutritional support</i>	33	100%	11	33.3	22	66.7

Table 22: Staff development

	Total	%	Male	%	Female	%
<i>Continuous Professional Development</i>	33	100%	11	33.3	22	66.7
<i>Regular refresher courses</i>	33	100%	11	33.3	22	66.7
<i>Specialised child health nurses training</i>	33	100%	11	33.3	22	66.7
<i>Nutritionists</i>	33	100%	11	33.3	22	66.7

Table 23: Challenges in the provision of ECCDE

	Total	%	Male	%	Female	%
<i>Inadequate learning and teaching materials</i>	33	100%	11	33.3	22	66.7
<i>Unqualified teachers</i>	33	100%	11	33.3	22	66.7
<i>Inadequate play materials and space</i>	33	100%	11	33.3	22	66.7
<i>Few child specialised medical nurses</i>	33	100%	11	33.3	22	66.7
<i>Few facilities for children with disabilities</i>	33	100%	11	33.3	22	66.7
<i>Inadequate nutritional supplement stocks</i>	33	100%	11	33.3	22	66.7

Table 24: Common childhood illnesses

	Total	%	Male	%	Female	%
<i>Diarrhoea</i>	6	100%	1	16.6%	5	83.4%
<i>Respiratory Tract Infections</i>	6	100%	1	16.6%	5	83.4%
<i>Pneumonia</i>	2	33.3%	1	16.65%	1	16.65%
<i>Fever</i>	2	33.3%	0	0%	2	33.3%

4.7 Policy and monitoring of ECCDE according to Administrators

The purpose of engaging the administrators at District and National level is meant to triangulate the information garnered from the service providers at facility level and the parents, children and other community members. In terms of quality at the level of implementation they observed inadequacies in required materials for the provision of quality ECCDE services. Monitoring accentuates flexibility, openness and the chance to correct weaknesses--to learn from one's mistakes -- at every step, thus giving monitoring the true meaning it deserves. The administrators did indicate that they do monitor ECE/ ECD centres understand the situation existing on the ground that is attributed to inadequate funding for ECE/ ECD. Whilst there is an understanding of the importance of ECCDE services there is a gap in funding towards achieving the set targets.

The Ministry of General Education committed to roll-out a preparatory three year school readiness programme through both school and community-based networks. 1526 primary schools across Zambia have already launched a pre-primary programme. Most teachers engaged with this have been trained and supervise large groups of children (average 1: 50) in unsuitable classrooms with insufficient materials. Water, sanitation and hygiene facilities have not been adapted to suit small children's needs and there is no provision for outdoor play activities in most instances.

The policy environment for ECE is briefly covered in the Educate our Future 1996 Policy. The ECE policy with its Implementation Framework is still in draft awaiting adoption by cabinet. *"The consequence is that some of the key issues that are dependent on such policy guidance such as limited access to ECCDE,poor infrastructure for ECCDE, multiplicity of line Ministries playing a role in the provision of ECCDE services remain largely unresolved. The current Government's intention to decentralise governance and therefore the impending devolution of ECCDE provision from the Ministry of Education to Local Councils requires guidance and coordination."* ZANEC Strategic Plan 2011-2015 p.14

Ministry of Health has two child Policies that regulate health service provision and nutrition provision. The Ministry of Community Development and Social Welfare has the social protection policy and draw their legal mandate from the Juveniles Act. These ministries are just but part of the ministries that all care for the safety, development, education and other needs of the child. Social welfare has the powers to close down a childcare institution that doesn't meet the standards set for children to be safe, Ministry of education provides the stimulation through learning activities, ministry of health provides health and health services to children including nutrition, ministry of local government provides the spaces for child programmes. When you look at this you understand the amount of duplicity of responsibility. All the respondents confirmed having policy on children. They all 100% however, lamented the low and sporadic funding towards child issues that mostly supported by donor funds.

50% respondents indicated that they do child assessment in ECE centres using the assessment tool that the MoGE developed recently. The tool doesn't encourage teachers to give children end of term tests as an assessment but to record on daily basis the progress each child is making towards the set age appropriate milestones. Health facilities are monitored and reports are submitted monthly by the facilities. This was confirmed by all staff we spoke to from the health facilities. 100% health staff confirmed that child growth monitoring was done very well in health facilities. They were also quick to note that community members stop bringing children for continuous growth monitoring the moment they complete their inoculations.

All the respondents when asked how they think workers can be upgraded responded that Continuous Professional Development is the best tool that can be employed to ensure children receive quality services. 50% spoke about short intensive courses while 35.7% intimated on workshops and seminars.

This scenario entails that there is need to explore the matter of staff shortfall if children are to receive quality services. There is already a big shortfall of nutritionists in the country that are an important component to child development.

Table 25: Quality assurance

	Total	%	Male	%	Female	%
<i>Monitor ECE centres</i>	6	100%	2	33.3%	4	66.7%
<i>Monitor Health facilities</i>	8	100%	3	37.5%	5	62.5%
<i>Assess child development</i>	4	50%	1	12.5%	3	37.5%
<i>Child Growth Monitoring</i>	8	100%	3	37.5%	5	62.5%

Table 26: Standards and quality

	Total	%	Male	%	Female	%
<i>Up to date with the current trends and practices</i>	0	0	0	0	0	0
<i>Collaborated efforts on childcare</i>	6	42.9%	1	7.2%	5	35.7
<i>Assessment of Childcare facilities</i>	14	100%	4	28.6%	10	71.4%
<i>Use of Early Learning Standards</i>	0	0	0	0	0	0

Table 27: Policy

	Total	%	Male	%	Female	%
<i>Availability of Child Policy Guideline</i>	14	100%	4	28.6%	10	71.4%
<i>Good funding levels</i>	0	0%	0	0%	0	0%
<i>Low funding levels</i>	14	100%	4	28.6%	10	71.4%

Table 28: Professional Development

	Total	%	Male	%	Female	%
<i>Continuous Professional Development</i>	14	100%	4	28.6%	10	71.4%
<i>Intensive Short Courses</i>	4	50%	1	12.5%	3	37.5%
<i>Workshops and Seminars</i>	5	35.7%	2	14.3%	3	21.4%

4.8 ECCDE knowledge and practice among civil Society Organizations

The study wanted to establish how CSOs define and understand ECCDE. We shared questionnaires with 16 ECCDE CSOs and only 4 responded. We are calculating 100% from the 16 organisations thereby making the 4 CSO to be calculated at 25%. In response the 4 organisations gave powerful feedback some of which we quote in this narration. The first ECCDE definition stated or read as follows;

“It is a package of all preparatory programmes, approaches, activities and support given to a child from birth to the time the child enrolls into the first grade of school. ECCDE therefore encompasses the necessary care, development and early education activities that prepare a child for life. ECCDE learning is mainly through play, exploration or discovery with both the social and natural environments. It forms the basis for later development and education, which on average begins at age 7 up to adulthood covering primary, secondary, tertiary and/ or skills development”;

While the other definition that we are quoting for triangulation as said by the respondent states that;

“Early Childhood entails the period that begins prenatally (0 year) up to the time when the child turns 8 years of age. Care means the basic needs that the child needs in order to grow, develop and survive such as food, clothes/warmth, immunizations, shelter and also love, protection from abuse and stimulation to activate the five senses while Development and Education is about how the child changes over times holistically in various domains of child development which include: physical, socio-emotional, cognitive and language development from simple to

complex way of doing things as the child grows. In other words ECCDE entails programs and policies that support the growth, development, protection and survival of a child from conception up to 8 years of age”.

Going by these definitions and interactions 25% indicated a high level of knowledge in ECCDE. We further uphold the understanding and adage that says “the older the wine the better it tastes” just to indicate that the said establishments have been in the ECCDE circles for some time now in Zambia. The organisations 18.72% also demonstrated that they provided community based ECCDE centre services for the 3-6 year olds, home-based ECCDE care and support for the 0-3 year olds and Parenting Education run with and in collaboration with local community members. These approaches integrate health education and services, nutrition education and supplementary feeding, clean water and sanitation, child protection, centre construction and provision of play materials and parenting skills development and other crosscutting issues which are a necessity to a comprehensive child development intervention. 6.24% indicated that they are more into ensuring the provision of Child protection as they promote child rights. This organisation does not provide direct ECCDE services in terms of Centre based but do provide checks and balances in budget tracking and advocacy for increase in the budgetary allocation to ECCDE including policy development and implementation.

The study also wanted to establish how CSOs feel and think about Caregiver Motivation, ECCDE coordination, ECCDE approaches and the Policy environment. When requested to respond the provided the responses summarised below and others will be quoted as given. In terms of programming 25% preferred the integrated approach that outlines activities according to age/ developmental stages and provision at each age of the necessary support, care, activities and guidance that would ensure full development of the child’s potential for growth, learning and development. Consideration of the knowledge of child psychology, health and nutrition should be made in designing and delivering ECCDE programs. The feeding programs should also have nutrition training and demonstrations for caregivers. To be included are a supply of a variety of affordable but highly nutrition locally available food stuffs for the centres. Food safety and hygiene be provided in the nutrition lessons for teachers, caregivers and the community at large. The organisations indicated that children cannot learn and participate actively when hungry or sick.

25% indicated been aware of the policies that deal with children in Zambia as listed here. National Child Policy (currently under review), National Child Health Policy, National Education Policy 1996 (currently under review), Early Childhood Education Policy (awaiting adoption), National Disability Policy, National Social Protection Policy and National Nutrition Policy. All these policy falls in different Government Ministries but all targeting the child. It will just be prudent to have matters to do with children dealt with in one stop shop arrangement. At the moment we deal with the child in a disintegrated manner. In the words of **Margaret Alva** a child rights and ECD advocate:

“...a child is born without barriers. Its needs are integrated and it is we who choose to compartmentalize them into health, nutrition or education. Yet the child itself cannot isolate its hunger for food, from its hunger for affection or its hunger for knowledge. This same unity extends to the child’s perception of the world. The child’s mind is free of class, religion, color or nationality barriers, unless we wish it otherwise. It is in this intrinsic strength in the unity of the child, that we need to exploit, for building a better world and a more integrated development process”.

We need to put theory to practice if we are to achieve more in ECCDE in Zambia.

Table 29: Knowledge of ECCDE

	Total	%	Male	%	Female	%
<i>High level</i>	4	25%	2	12.5%	2	12.5%
<i>Medium level</i>	-	-	-	-	-	-
<i>Low level</i>	-	-	-	-	-	-
<i>Other</i>	-	-	-	-	-	-

Table 30: Type of ECCDE Programme

	Total	%	Male	%	Female	%
<i>Centre based 3-6</i>	3	18.72%	1	6.24%	2	12.48%
<i>Home based 0-3</i>	3	18.72%	1	6.24%	2	12.48%
<i>Parenting Education</i>	3	18.72%	1	6.24%	2	12.48%
<i>Open Air/ Play group</i>	-	-	-	-	-	-
<i>Market Place</i>	-	-	-	-	-	-
<i>Special Community Rehab</i>	-	-	-	-	-	-
<i>Advocacy on ECCDE</i>	1	6.24%	1	6.24%	-	-

Table 31: ECCDE Programming Approach

	Total	%	Male	%	Female	%
<i>Integrated Approach</i>	4	25%	2	12.5%	2	12.5%
<i>Collaborated approach</i>	3	18.72%	2	12.48%	1	6.24%
<i>Individual Approach (Organisation)</i>	0	0	0	0	0	0
<i>Others</i>	-	-	-	-	-	-

Table 32: Caregiver Motivation

	Total	%	Male	%	Female	%
<i>Govt. support through CPD</i>	3	18.72%	1	6.24%	2	12.48%
<i>Caregiver Stipend</i>	4	25%	2	12.5%	2	12.5%
<i>Teaching and learning materials</i>	2	12.5%	1	6.25%	1	6.25%

Table 33: ECCDE Coordination

	Total	%	Male	%	Female	%
<i>National Child Council</i>	4	25%	2	12.5%	2	12.5%
<i>Inter-ministerial Committee</i>	0	0	0	0	0	0
<i>National Coordinating Committee</i>	2	12.5%	1	6.25%	1	6.25%

Ministry of Health has two child Policies that regulate health service provision and nutrition provision. They provide immunisation, child growth monitoring, antenatal, neonatal and postnatal care for mothers. They provide health education to mothers on how to care for the pregnancy and the born child. They generally promote child health. They also generally provide health and health services to children including nutrition.

The Ministry of Community Development and Social Welfare has the social protection policy and draw their legal mandate from the Juveniles Act. They protect children from abuse and support them with legal redress if they are found on the other side of the law. The ministry also has women clubs and child protection committees at community level.

Ministry of education provides the stimulation through learning activities and also under the School Health and Nutrition Policy educate children on hygiene and provide supplemental feeding with support from the donor communities. The ministry of local government provides the spaces for child programmes.

These ministries are just but part of the ministries that all care for the safety, development, education and other needs of the child. Social welfare has the powers to close down a childcare institution that doesn't meet the standards set for children to be safe. When you look at this you understand the amount of duplicity of responsibility.

The CSO, FBO, CBOs provide community based ECCDE centre services for the 3-6 year olds, home-based ECCDE care and support for the 0-3 year olds and Parenting Education run with and in collaboration with local community members. These approaches integrate health education and services, nutrition education and supplementary feeding, clean water and sanitation, child protection, centre construction and provision of play materials and parenting skills development and other crosscutting issues which are a necessity to a comprehensive child development intervention. They provide Child protection as they promote child rights and also provide checks and balances in budget tracking and advocacy for increase in the budgetary allocation to ECCDE including policy development and implementation

4.9 Classic Studies on ECCDE

There is clear established evidence from a study done by Lozoff et al., in Costa Rica. The evidence is that iron deficiency anaemia affects social and emotional development. In Costa Rica Lozoff et al., 1987, infants with iron-deficiency anaemia were found to maintain closer contact with caregivers; to show less pleasure and delight; to be more wary, hesitant, and easily tired; to make fewer attempts at test items; to be less attentive to instructions and demonstrations; and to be less playful. When these infant were followed up at age 11-12 years²⁸, the formerly anaemic group was more likely to have a number of behavioral problems. They were more anxious and depressed, had more attention problems, social problems and behavioral problems overall. They were also more likely to repeat grades at school and to be referred for special service.

Iron supplementation is found to have a substantial impact on the motor development of infants and also a significant effect on older preschool children. One study in Indonesia gave iron supplementation (iron sulphate) or placebo to iron deficient children aged 12-18 months and scores on the Psychomotor Development Index of the Bayley Scales of Infant Development rose by 23.5 points (1.6 SD). Most studies find cognitive or motor impacts of around 0.2-0.4 SD but this study in Indonesia shows that iron supplementation can have truly substantial effects on development.

A study with older (6-59 months) preschool children in Zanzibar²⁹ found that 12 months of iron supplementation and deworming treatment improved pre-schoolers' motor outcomes by 0.18 SD respectively. Such effects found with children of enrollment age persist into the school-age years.

²⁸ Lozoff et al., 2000

²⁹ Stoltzfus et al., 2001

In Costa Rica, formerly anaemic infants performed poorly on motor tests at 5 years of age³⁰ and again aged 11-12 years³¹. Anaemic infants in Chile³² were also later found to perform poorly on a range of tests of motor function.

It is believed that these effects reflect, in part, biological pathways by which under nutrition affects neurological development. Controlled experiments with animals suggest that undernutrition results in irreversible damage to brain development such as that associated with the insulation of neural fibres³³. The adverse effect of undernutrition on fine motor control suggests that physical tasks associated with attending school, such as learning to hold a pencil, are more difficult for the undernourished child. Nutrition in early childhood has a lasting impact on health and well-being in adulthood. Children with deficient growth before age 2 are at an increased risk of chronic disease as adults if they gain weight rapidly in later stages of childhood.³⁴

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In the study conducted in Guatemala from 1969–77 by the Institute of Nutrition of Central America and Panama (INCAP), on the sample of 2392 children aged 0-36 months born between 1962 and 1977, to investigate the long-term impact of a randomized, community- level nutritional intervention in rural Guatemala was meant to provide new evidence of the effect of an early childhood nutritional intervention on adult outcomes using data and methods well suited to address the concerns under discussion in this research. The study links information collected in the 1970s on individuals (and their families) exposed to the intervention when they were 0–15 years of age, with new data on these same individuals collected in 2002–04³⁵.

The principal underlying the intervention was that ***improved early childhood nutrition would accelerate mental development***. An examination of the effects on physical growth also was included to verify that the nutritional intervention had biological potency, which was demonstrated³⁶. The results provide the first evidence of its kind from a prospective survey of the important role played by early childhood nutrition in subsequent educational attainments and thus underscore the value of a lifecycle approach to education that includes the early childhood period. The study suggests that programs that include nutritional supplements to very young children, or in other ways improve their nutritional intakes, may have substantial, long-term educational consequences.

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A study research was conducted in Chongwe district of Lusaka Province Zambia by Kazuya Masuda, Yuta Inoue, Ryo Inoue, Akiko Nakamura, Maureen Chitundu, Junko Murakami, Yumiko Ota and Junichiro Matsugami on the effectiveness of a food supplement called Spirulina (a food supplement produced from the USA). The following is an extract from their report.

³⁰ Lozoff et al., 1991

³¹ Lozoff et al., 2000

³² de Andraca Oyarzun et al., 1991

³³ Yaquib 2002

³⁴ Victora, Cesar G., et al., 'Maternal and Child Undernutrition: Consequences for adult health and human capital', *The Lancet*, vol. 371, no. 9609, 26 January 2008, pp. 340–357.

³⁵ Habicht and Martorell 1992; Martorell, Habicht, and Rivera 1995; Read and Habicht 1992

³⁶ (Martorell et al. 1995)

“A total of 60 malnourished children under five years old, and aged 18–36 months, were selected from a sample of 295 children who were screened at Kanakantapa Rural Health Centre, in Chongwe District using the weight-for-age, height-for-age and mid-upper arm circumference (MUAC) indicators. The selected malnourished children comprised:

A Treatment group, 30 children provided with spirulina; and a Control group, 30 children without spirulina.

Porridge blends, a mix of 5kg of roller meal with 300g of spirulina, 0.8kg sugar and 0.1kg salt, was distributed monthly to the target group. Porridge ingredients were pre-mixed with spirulina so that participants could not just eat roller meal. Spirulina was procured from the USA through our partner, DIC Corporation, the largest spirulina producer in the world. The control group was provided with the same porridge blends but without spirulina. Mothers or caregivers of each child in both the control and target groups were told to feed porridge twice a day, in the morning and afternoon. The porridge blends were provided monthly from June 2012 to February 2013. Physical measurements of weight, height and MUAC were recorded for both groups every month by trained Child Growth Promoters (CGPs) at each health post. CGPs are community health workers who are trained by the Zambian government to evaluate child growth.

Participating children whose mothers or caregivers did not attend growth-monitoring sessions were followed up by CGPs unless they had left the village due to economic factors or family issues.

In case of missing values, the child was omitted from the analysis. However, children who could not continue participating in the project for various reasons in the first two months were replaced. Thereafter, no replacement occurred.

*The results indicated that there was a significant difference in the change in height-for-age z-score (HAZ) during the study period between the children in the treatment and control group at the 5 per cent significance level. If this difference was attributable to spirulina intake, it implies that this fortification helped the treatment group children to grow 0.29 points more than the control group on average. The statistical difference in HAZ implies that spirulina consumption can be an effective food intervention particularly in Zambia, where severe stunting is widespread”.*³⁷

4.10 Summary of Findings

- 4.10.1 According to FAO 2009, 60% of Zambian households cannot afford 3 meals a day. This translates in the higher levels of under five year olds malnutrition. The Zambian child nutrition profile shows that 60% of households cannot afford three meals per day³⁸, which leads to inadequate nutrient intake and malnutrition. The same research shows that in the 2000–02 periods, the dietary energy supply was only 1,905kcal per capita/day (ibid.). This indicates that households’ actual calorie intake is lower than the estimated necessary requirement of 2,056kcal per capita/day. Carbohydrates such as cereals and starchy roots are the main source of energy which account for 80% of the total energy

³⁷ <http://www.cmamforum.org/Pool/Resources/Spirulina-Zambia-2014.pdf>

³⁸ (FAO 2009)

intake (ibid.). This suggests that the intake of other essential nutrients as well as protein and lipids is generally insufficient

- 4.10.2 42% of the respondents practice exclusive breastfeeding while 58% introduced other foods between 3 and 5 months. This is the common practice despite the understanding that Breast milk alone is the best possible food for the baby for about the first six months. In these early months, breast milk helps to protect against diarrhea and other common infections. Breast milk actually changes to cope with the changing nutritional needs of a growing baby.
- 4.10.3 60% of respondents from peri-urban and rural areas indicated that early stimulation like singing to children, playing with children and watching children at play while all including those from urban areas indicated buying play things, reading stories to children were very important to the development of the children.
- 4.10.4 The respondents 100% demonstrated a level of understanding on diet, nutrition and child feeding but attributed their failure to comply practically with lack of resources both material and financial especially for the female headed homes. The 2008 National Nutrition Surveillance Survey found that on average, only 4 out of 13 food groups were consumed in a day by households. Commonly consumed food groups included cereals and cereal products (98.9%), dark leafy vegetables (80.0%), oil and fats (60.6%), sugary foods (48.8%) and legumes, nuts and oil seeds (40.7%). Only 1% of the dietary energy supply (DES) is provided by fruit and vegetables. The low supply (5%) of foods of animal origin (meat and offal, milk and eggs, and fish) contribute to iron and protein deficiency. Study results show that 27% to 65% of the population cannot afford a minimum cost of a nutritionally adequate diet.
- 4.10.5 All parents were aware of how to take care of sick children but attributed their failure to comply practically with lack of resources both material and financial especially for the female headed homes. According to the Living Conditions Monitoring Survey (LCMS) undertaken in 2010, over sixty percent of Zambia's populations live below the poverty datum line, with rural poverty levels at 77.9% while life-threatening poverty stood at 42% of the total population. Income distribution remained highly unequal, resulting in worsening human deprivation as demonstrated by the decline in the country's Human Development Index (HDI). This has translated into very low record of life expectancy at birth. In Zambia, it is evident that poverty by and large continues to carry a female face. For example, extreme poverty is higher in female headed households (60.4 %) compared to male headed households (57.1 %).
- 4.10.6 100% parent respondents did indicate that Malaria, Diarrhea and Coughs were the most common illnesses in the communities. However, none of the health practitioners mentioned Malaria as a common illness and this therefore can be attributed to the notion held by most community members that any high temperature illness is Malaria. 100 % health practitioners mentioned Diarrhoea and Respiratory tract Infection while 33.3% mentioned Pneumonia and fever.
- 4.10.7 Currently Zambia has the following policies on children. The National Child Policy of 2006 that is been reviewed, the National Child Health Policy regulates the provision of

health services to children; the National Policy on Education currently being reviewed, Early Childhood Education Policy has been in draft since 2008 and is awaiting adoption, the National Disability Policy of 2012, National Social Protection Policy that deals with the child protection and social welfare, and the National Nutrition Policy. These policies lie in different government Ministries.

4.10.8 Health, Nutrition and Education affects child development

Chapter Five

Conclusions and Recommendations

5.1 Conclusion

With the findings in this study on the effects of nutrition, health and education on child development from parents, teachers, DEBS office, Line Ministries, Health practitioners, and many others it would be gratifying for the stakeholders to go back to the sketch boards and see how they can help the children to fully develop their full potential by providing comprehensive ECCDE programs and activities. There can be no question that quality in ECCDE provision is paramount, both for the well-being of young children and if investments are to result in significant returns in the form of the well-prepared and productive future citizens. There is extensive evidence that investments in the nutritional, cognitive, and socio-emotional development of young children have high payoffs.

Approaches to Early Childhood Care, Development and Education (ECCDE) increasingly recognise that young children's survival, health, care and learning are impacted upon by multiple, interconnected factors from before the infant is born through to their early school years. The Lancet series on Early Childhood Development estimated that "200 million children under 5 years fail to reach their potential in cognitive development because of poverty, poor health and nutrition, and deficient care."³⁹ The factors and processes contributing to this loss of developmental potential and the evidence for effective prevention and intervention are reviewed in the Lancet series⁴⁰.

Neuroscience research is beginning to reveal the physical expressions of these processes in the growing and changing structure and function of the brain⁴¹. Toxic stress from early childhood adversity can lead to changes in learning, behavior and physiology. Physiological disruptions increase the chance of stress - related chronic disease which can further widen health disparities⁴².

It is now generally accepted that it is the dynamic interaction of nature and nurture that brings about changes in children's brain growth, function and capacities. That is, children's environments and experiences mediate (either enhancing or diminishing) the potential with which children are born. In the past, it was commonly thought that intelligence was 80% genetic and 20% environmental. Current thinking reverses the balance, that is, it is now thought to be 20% genetic and 80% environmental⁴³, with genes and experience being interdependent.

5.2 Recommendations

With the afore outlined evidence and the interpretations made thereof, the following emerge as recommendations:

³⁹ (Grantham McGregor et al., 2007, p. 60)

⁴⁰ (Grantham McGregor et al., 2007; Engle et al., 2007; 2011; Walker et al., 2011)

⁴¹ (Oates et al., 2012; Shonkoff and Phillips, 2000; Center on the Developing Child, 2011)

⁴² (Shonkoff et al., 2012)

⁴³ (Westwell, 2009)

- 5.2.1. ZANEC should ensure that Zambia muster the required level of political commitment to the upholding of and implementation of the ECCDE Policies. The executive arms and the legislature in all the tiers of Government should be sensitized to the importance of the policies so they can support it through increase in funding and appropriate legislation. Every Zambian Child should by Law receive and attend a standard ECCDE Centre activity from the age of 2 years before transiting to Nursery and Kindergarten, then Primary School.
- 5.2.2. Early Childhood Care Development and Education (ECCDE) are dynamic and NO single government ministry can handle it because of its multifaceted nature. It requires organised concerted efforts in order for experts in Child Development; Psychologists; Paediatrics Doctors; Nutritionists, Midwives, Child Counselors, Early Childhood Teachers, ECCDE experts and Private sector to collaborate effectively. Measures should be put in place to strengthen coordination mechanisms for the ECE Coordinating Committee in order for health education and services, nutrition education and supplementary feeding, clean water and sanitation, child protection, centre construction and provision of play materials and parenting skills development and other crosscutting issues which are a necessity to a comprehensive child development intervention are effected.
- 5.2.3. Efforts should be intensified to mobilise support for enrolment of children into ECCDE programmes both in urban and rural parts of the Country. This should be done without prejudice to gender, religion, physical attributes, economic circumstances and other factors which normally lead to exclusion such as disability. Providing one good meal a day at school may help in such mobilization efforts. This will in addition bond the child/baby with being Zambian and lay the foundation for the development of patriotism.
- 5.2.4. Contextualized curriculum in ECCDE can be able to help develop children with the cultural and traditional value context that is important for identity and patriotism which we are lacking now as a nation. A value system that determines who we are is carried on through the mode and language of communication. Language carries culture and our being Zambian is determined by it. ECCDE curriculum cannot be centralized but can be guided and left to be implemented with each cultural connotation.
- 5.2.5. The Universities and other tertiary institutes should develop curriculum specialized in Child Healthcare and Support for increased specialization on early identification and support to children below 3 years or just sub-divide ECCDE teacher training to have those specialized for the 3-6 and others for the 0-3. It is an important factor that will require urgent action.
- 5.2.6. ZANEC should demonstrate a low cost model ECCDE centre that will show case the ideal and be able to indicate the costs and the advantages of such an arrangement. Almost everyone desires for an integrated approach to ECCDE that can be practically done for evidence based advocacy. ZANEC should therefore, develop a concept paper conceptualizing the integrated approach. This is meant to demonstrate how the gap between policy and policy implementation can be reduced.

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Appendices

7.1. Minors Consent Form

**Note: Parents, legal guardians, or a legally authorized official MUST sign consent forms permitting minors to participate in this research project. Depending on the age of the minor, you may wish to have the minor sign an informed consent document. The form signed by the minor is more for informational purposes and to make the minor feel more involved in the study. It CANNOT substitute for the adult authorization form, but merely supplement it.*

GUARDIAN AUTHORIZATION:

Your child/ children is/are invited to participate in a research study conducted by the Zambia National education Coalition (ZANEC), from the Lusaka Zambia. Your child/ children was/ were selected as a possible participant in this study because of their age and participation in Early Childhood programmes.

If you decide to allow your child/ children to participate, it will only take 20 to 40 minutes of their time and it will be done at their centre. In a few occasions they may be audio or videotaped. However, I cannot guarantee that your child/ children personally will receive any benefits from this research but their contribution and participation may bring about accrued benefits to service delivery.

Any information that is obtained in connection with this study and that can be identified with your child/ children will remain confidential and will be disclosed only with your permission or as required by law. Subject identities will be kept confidential by applying information in codes rather than names of children.

Your child's participation is voluntary. Your decision whether or not to allow your child/ children to participate will not affect your or your child's relationship with ZANEC. If you decide to allow your child/ children to participate, you and/or your child are free to withdraw your consent and discontinue participation at any time without penalty.

If you have any questions about the study, please feel free to contact.....Your signature indicates that you have read and understand the information provided above, that you willingly agree to allow your child/ children to participate, that you and/or your child may withdraw your consent at any time and dis continue participation without penalty and that you are not waiving any legal claims.

Signature of Parent/ Guardian/ School Manager.....

Date:

Adult Consent Form



“Promoting Quality Education for All”

October....., 2016

The DEBS/ DMO/ DSWO

P. O. Box.....

.....

Dear Sir/ Madam,

Re: Consent to participate in a survey interview

You are invited to participate in a study on the Link between Child Development – Health, Nutrition, Development and Education. I hope to learn more on your implementation contributions as an institution towards this study. You were selected as a possible participant in this study because of your responsibility at the District.

If you decide to participate, please complete the enclosed survey. Your return of this survey is implied consent. The survey is designed to generate credible evidence from a Zambian perspective to support the delivery of comprehensive ECCDE services as opposed to focusing on Early Childhood Education alone. It will take about 20 to 30 minutes. No benefits accrue to you for answering the survey, but your responses will be used for stakeholders to appreciate their roles and responsibilities in holistically delivering a well-developed child who would ultimately produce the desirable learner outcomes. Any discomfort or inconvenience to you derives only from the amount of time taken to complete the survey.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will not be disclosed. Your decision whether or not to participate will not prejudice your future relationships with Zambia National Education Coalition (ZANEC). If you decide to participate, you are free to discontinue participation at any time without prejudice. If you have any questions, please ask. If you have additional questions later, contact

Thank you for your time.

Sincerely,

Zambia National education Coalition (ZANEC)