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The Review of Care, Education and Child Development Indicators in Early Childhood

Commissioned by UNESCO within the framework
of the Holistic Early Childhood Development Index



Review of care, education and child development indicators in ECCE
Desk review prepared for UNESCO on existing indices and indicators

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Table of contents

Summary	3
Acronyms	4
1. Introduction to early childhood development.....	5
2. What are the essential characteristics of the HECDI?	13
3. What indicators and indices are commonly used worldwide to measure child development, developmental care and education?	18
4. Issues and challenges regarding child development, developmental care and education indicators	28
5. What recommendations can be made to further the design of the HECDI?.....	42
Bibliography	47
Appendices.....	56

Summary

This report will contribute elements for the design of a Holistic Early Childhood Development Index (HECDI) for use worldwide to monitor progress towards the achievement of Education for All (EFA) goal 1. The need for the HECDI was recently acknowledged at the World Conference on Early Childhood Care and Education, held in Moscow in September 2010.

This report, part of a series of desk reviews to prepare the development of the HECDI, will critically and analytically review existing early childhood indices and indicators in the areas of child development, developmental care and education from birth to the age of 8. This vast area includes access to quality formal early care and learning programmes and measures of cognitive and socio-emotional development, as defined and produced by the EFA convening agencies, critical lead organizations that support early childhood care and education (ECCE) and regional representations of Member States.

The purpose of this review is to answer the following questions: (1) Which characteristics are crucial to the HECDI? (2) What indices and indicators are commonly used worldwide to measure child development, developmental care and education? (3) What recommendations can be made for the inclusion of child development, developmental care and education measures in the HECDI? On the basis of the existing literature, we develop a framework within which we evaluate existing indices and indicators in this area. The reviewed composite indices were found to lack indicators of early cognitive and socio-emotional development, maternal health and well-being, quality of caregiver-child interaction, quality of early learning programmes, and screening for children's disabilities. Most of these gaps can be filled by existing measurements of child development also discussed in this report.

Acronyms

AEDI	Australian Early Development Index
AIDS	Acquired immune deficiency syndrome
ANER	Adjusted net enrolment ratio
ASQ-SE	The Ages and Stages Questionnaires – Social Emotional
CARICOM	Caribbean Community and Common Market
DNA	Deoxyribonucleic acid
ECCE	Early childhood care and education
ECD	Early childhood development
EDI	Early Developmental Instrument
EFA	Education for All
EGRA	Early Grade Reading Assessment
ELDS	Early Learning and Development Standards
FCI	Family Care Indicators
FDQ	Functional Development Growth Chart Questionnaire
FEAS	Functional Emotional Assessment Scale
GDP	Gross Domestic Product
GER	Gross enrolment ratio
GMCD	Guide for Monitoring Child Development
GNI	Gross National Income
GNP	Gross National Product
GPI	Gender parity index
HECDI	Holistic Early Childhood Development Index
HIPCs	Heavily Indebted Poor Countries
HIV	Human immunodeficiency virus
ISCED97	International Standard Classification of Education (1997)
ITN	Insecticide treated nets
LDCs	Least developed countries
LTP	Learning Through Play Program
MICS	Multiple Indicator Cluster Surveys (UNICEF)
NER	Net enrolment ratio
ODA	Official development assistance
OECD	Organisation for Economic Co-operation and Development
OECD-DAC	OECD's Development Assistance Committee
PRIDIS	Programa Regional de Indicadores de Desarrollo Infantil
SEGC	Social Emotional Growth Chart
TQ	Ten Questions screen for child disabilities
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCO-UIS	UNESCO Institute for Statistics
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
WHO	World Health Organization

1. Introduction to early childhood development

1.1 Early human development

The stage of life from conception to age 5 is conceptualized as a period of experience-based brain development and as a critical stage for the programming of neurobiological pathways that can affect health, learning and behaviour during the entire life cycle (Tinajero and Mustard, 2011). The early years of life are also seen as one of the world's most significant social determinants of health (WHO, 2008) and as a time when social environments and experiences get under the skin (Hertzman and Boyce, 2010).

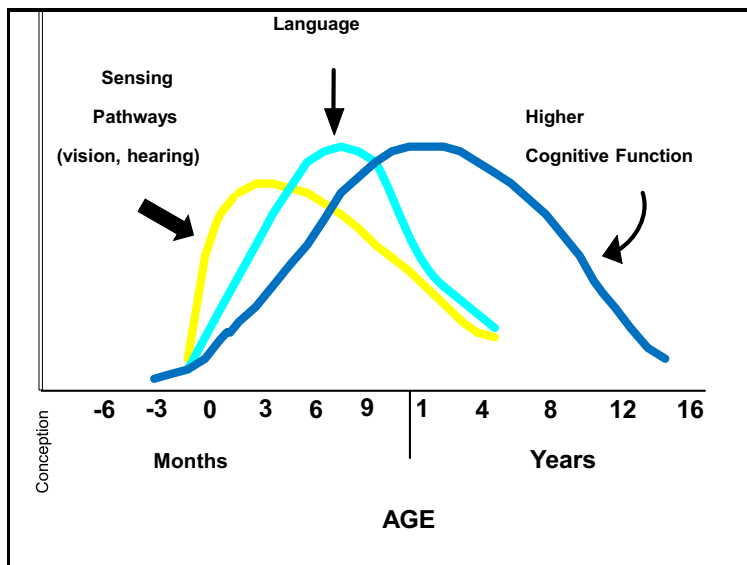
A life trajectory refers to the course that development can take as a result of the gene-environment interaction. In this interaction *epigenetic effects*¹ also come into play. Various studies have proven that adverse early experiences can have a long-lasting effect on an individual's health (coronary heart disease, non-insulin dependent diabetes, obesity, ageing, memory loss, mental health, substance abuse and premature death), learning (school achievement and school dropout) and behaviour (autism, attention deficit hyperactivity disorder and antisocial behaviour) throughout the life cycle (Early Years Study II, 2007).

Early experiences through the sensing pathways set how different parts of the brain develop and function. During the early years of life there is constant interplay between the developing sensing pathways, the L-HPA pathway (limbic system-hypothalamus-pituitary-adrenal gland axis), gene function and the immune system. The L-HPA pathway and the hormone cortisol play a central role in the programming of neurobiological pathways. All sensing pathways play a major role in brain development. The sense of touch – particularly in the early stages of life – seems to play a crucial role in the development of the brain and the biological pathways (Mustard, 2006).

Early experiences affect the formation of synapses among neurons. Children develop in sequential stages (development in earlier stages affects development in later stages). The sensing pathways develop before the language pathways, which develop before the higher cognitive function (Mustard, 2011). Figure 1 shows that the most sensitive period for the development of the sensing pathways is during the first few months of life and that the most sensitive period for the development of language pathways is around the third trimester of the first year and extends beyond the fourth year of life (Thompson and Nelson, 2001). This evidence supports the need to implement high-quality early child development programmes during the early stages of life.

¹ Activation or deactivation of gene function. Epigenetics is also referred to as the biological processes which modify the products produced from deoxyribonucleic acid (DNA) without modifying DNA (Mustard, 2011). Experiences such as nutrition, stimulation, stress and teratogens can activate epigenetic processes.

Figure 1: Phases of human brain development



Adapted from: Thompson and Nelson, 2001.

During the course of life, there is a potential development ceiling that can be heightened, depending on the quality of early experiences (Hertzman, 1999; Hertzman and Boyce, 2010). Early experiences also shape population gradients in health, learning and behaviour.

The development of the brain and the biological pathways can be influenced by biological risk factors (e.g. malnutrition, infectious diseases and, teratogens), social risk factors (e.g. caregiver sensitivity and responsiveness) and contextual risk factors (e.g. maternal depression) (Walker et al., 2007). It is estimated that around 200 million children under five years of age in developing countries are not reaching their developmental potential (Grantham McGregor et al., 2006). The most prevalent developmental risk factors worldwide include insufficient cognitive stimulation, linear growth retardation and iodine- and iron-deficiency anaemia, which affect approximately 20% to 25% of children in developing countries (Walker et al., 2007).

1.2 The mother as a protective factor

Caregivers play a crucial role in the development of a child, from before birth through infancy and beyond. Both parents and extended families can play an important role in providing the child with a healthy, safe and loving environment in which to grow. Research shows that a father's regular interactions with his child in the early years can help to improve child well-being, including cognitive, socio-emotional and physical development, school readiness and long-lasting general life skills.² The home environment and a child's relationships are critical factors in the development of early literacy acquisition and later academic achievement (Dickinson and McCabe, 2001).

Being a mother is not an easy task. A mother's ability to provide a quality, engaging and caring environment for her child can be affected by her own health status, stress, poverty, literacy level, perceived social support, parenting skills, the household burden and work responsibilities. It is estimated that the incidence of postnatal depression in developing countries ranges from 15% to 35% (Rahman et al., 2009).

² For an overview of this vast literature, see, for example, Rosenberg and Wilcox (2006) and international references in Lamb (ed.) (2010).

Poor quality parental care affects the baby's neural and endocrine systems (Parent et al., 2005). The existence of an attachment figure regulates cortisol, oxytocin and other positive biochemical influences (Palmer, 2006). During childhood, bonding with parents can buffer neuroendocrine responses to stress (Gunnar, 2003). Maternal depression has also been linked in numerous studies with early childhood low weight and stunting (Surkuran et al., 2011).

The caregiver's well-being and the social and emotional support that she receives from her close relatives and friends constitute crucial protective factors for the newborn. Some social risk factors associated with the child's well-being can be identified right from antenatal life (Hernandez-Martinez et al., 2008; Jutte et al., 2010; Kapoor et al., 2006; Van der Bergh, 2005). Antenatal social risk factors can become biologically embedded within the foetus or young children.

A mother's capacity to provide her child with high-quality experiences results from her own life experiences (including those of childhood) and the experiences transmitted by her own parents and grandparents. The life-long learning experience of becoming a mother starts when the mother-to-be is in her progenitor's womb, continues during childhood with the experience of being raised by her parents, continues with the occurrence of pregnancy and having a baby, and extends even further with the experience of raising a child. In this course of becoming a mother the knowledge and culture³ transmitted (across generations and social groups) combine with the mother's life experiences to shape the mother's physical and mental health and her capacity for raising a child (see Figure 2).

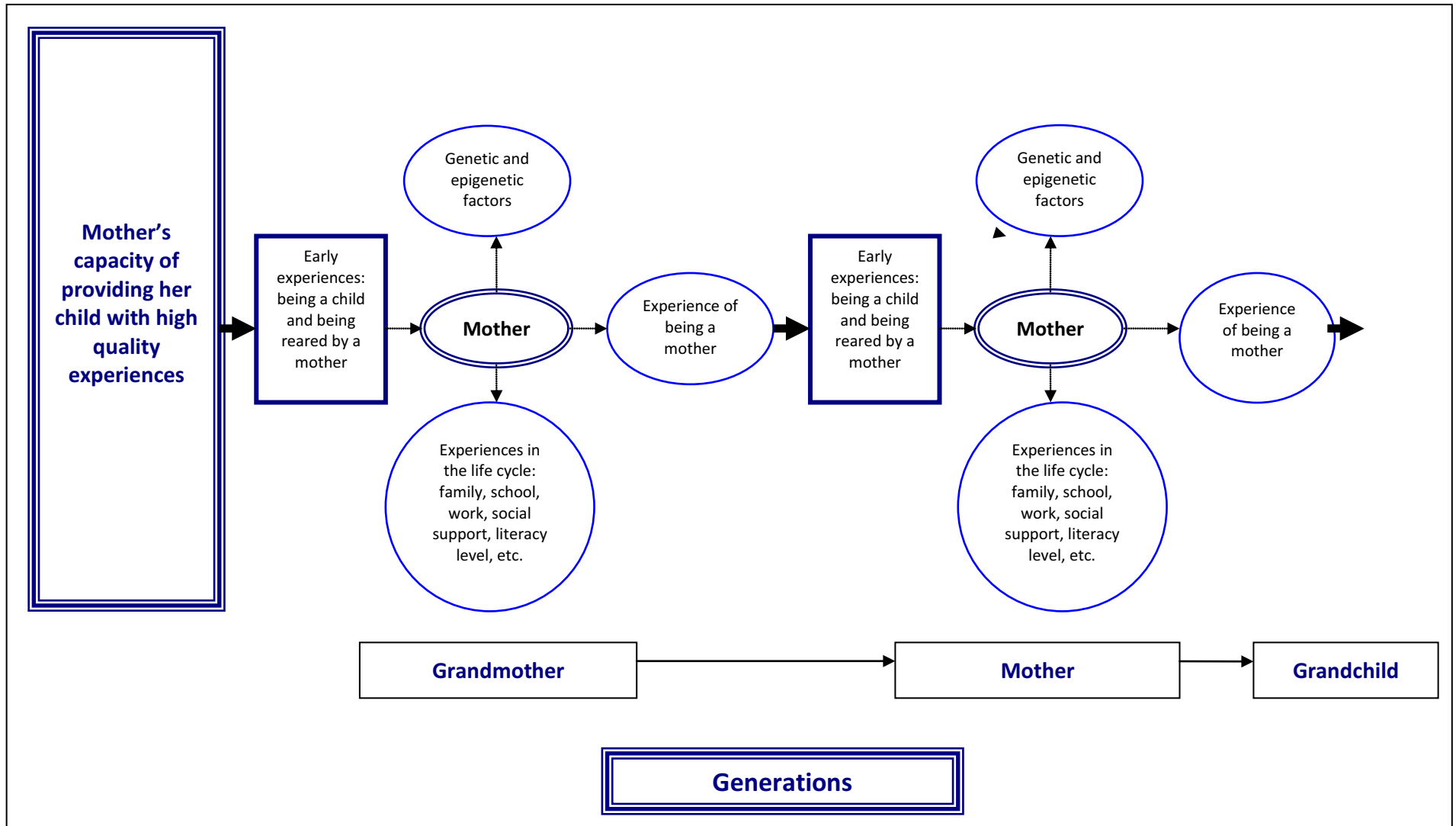
Socio-biologists such as Hrdy (2009) and Greenspan and Shanker (2004) see nurture as culturally, not biologically, transmitted from one generation to the next. Greenspan and Shanker (2004) state that emotional signals are not innate in the newborn; rather they are transmitted socially from generation to generation as part of our evolutionary history. The emotional signals between the mother and the newborn are crucial to the development of the brain and biological pathways.

Hrdy (2009) argues that in our evolutionary history alloparental assistance was a part of cooperative breeding. Mothers and others such as parents, grandparents, siblings, other relatives and close peers were always present to provide food, care and protection from all danger. Bonding was not confined to a mother-infant bond, but rather was formed between the child and multiple caregivers. Today, as in the time of our ancestors, mothers need others to care for their children, but in today's society mothers are becoming more isolated from "the others", and society is leaving them alone to care for their children (Hrdy, 2009; Mustard, 2006).

Work by Hrdy (2009) and Greenspan and Shanker (2006) suggest that healthy child development (including socio-emotional and cognitive development) is highly dependent on the mother's well-being and the social support she receives from her significant others and her community. Thus, the absence of significant others and a mother's inability to exchange emotional signals with the child are early risk factors that can affect the child's overall development.

³ And also genetic and epigenetic factors.

Figure 2: Intergenerational effects and transmission of developmental health across generations⁴



Source: Tinajero and Ordonez (2011).

⁴ See studies by Kaati et al. (2002) and Pembrey (2006) for examples of epigenetic effects in humans.

1.3 Cognitive development, socio-emotional development and school readiness

Child development can be referred to as the “ordered emergence of interdependent skills of sensori-motor, socio-emotional, language, and cognitive functioning” (Engle et al., 2007). Child development is seen as taking place in sequential stages, with sensitive periods of development being more prominent in the first years of life (see Figure 1).

School readiness is a measure of developmental health (Janus and Offord, 2007) and the developmental domains that appear to be most relevant to the child’s success at school are physical health and well-being, social and emotional competence, approaches to learning, cognitive and language competence, and communication skills (Janus, 2011). Poverty and socio-cultural factors also play a role in the development of the capacities that define school readiness.

Indicators of children’s cognitive-language and socio-emotional development are rarely agreed upon in different cultural contexts (Bartlett and Zimanyi, n/y). Child development studies conducted in different settings always face methodological questions: What is culture and what is culturally appropriate? What is socio-emotional well-being? What cognitive competencies should a child achieve in order to succeed later in life? This explains why to date there are no internationally comparable measurements of child development.

Whatever the disagreements, some authors argue that, owing to globalization, the developmental skills required by children in order to succeed at school are becoming similar across cultures (Fernald et al., 2009). A search of the literature shows that the following cognitive and socio-emotional domains are regarded as important for school readiness in children who are three to five years of age (Fernald et al., 2009; Janus, 2011; Otaala, B., n/y; Rim-Kaufman et al., 2000).

Cognitive-language development

Analytical skills and mental problem-solving, concentration and memory, early numerical abilities or knowledge of numbers, knowledge of letters, language and symbol recognition, basic literacy, interest in literacy and knowledge of key personal information (e.g. name and address).

Socio-emotional development

Social competence, responsibility, respect, readiness to explore new things, pro-social and helping behaviour, capacity to follow directions, capacity to participate in individual and group work, ability to function in groups and wait for a turn, behaviour management, self-regulatory abilities, capacity to inhibit an initial response, social perception (of thoughts and feelings) and capacity to play alone or with other children.

The debate on the definition of cognitive-language and socio-emotional development extends to other concepts such as socio-emotional well-being which is characterised by the child’s ability to:

- experience, manage and appropriately express emotions;
- regulate his/her behaviour;
- process resilience and coping skills;
- have confidence and persistence in learning;
- comprehend emotions of others;
- develop social skills and empathy;
- establish and maintain relations with others (Hamilton and Redmond, 2010).

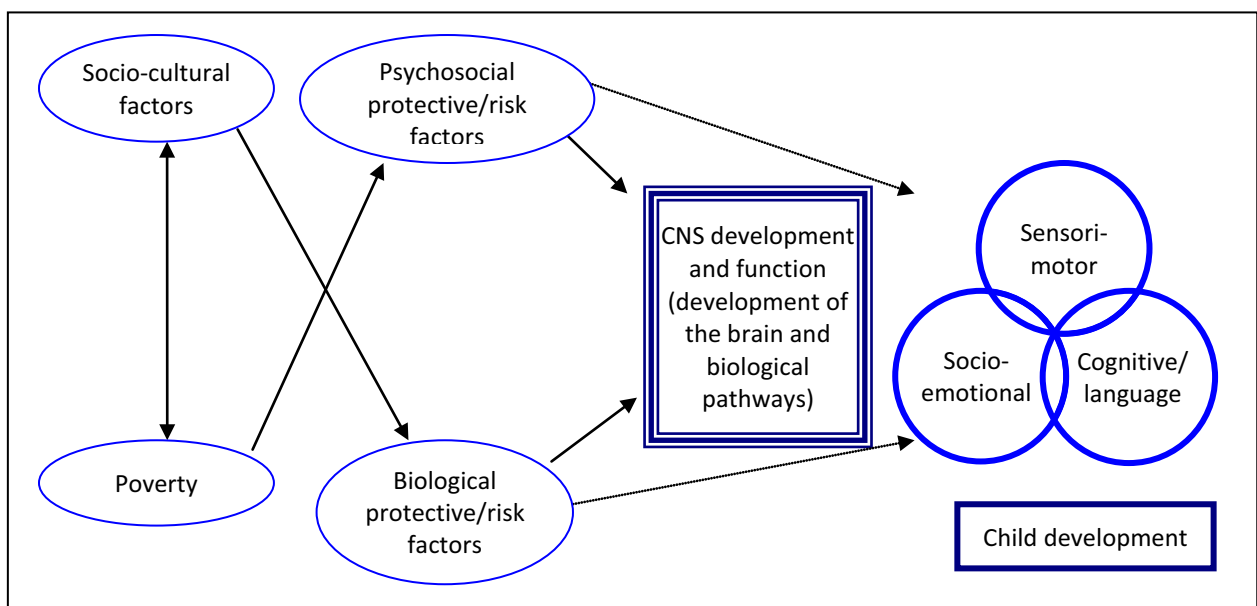
These characterisations of cognitive and socio-emotional development and socio-emotional well-being could be understood differently by different cultures. For this reason, indicators and indices designed to measure child development must be appropriately validated in local contexts.

Figure 3 shows how poverty and socio-cultural, psychological and biological risk factors can affect young children’s socio-emotional, cognitive and sensori-motor development (Walker et al., 2007). The authors give the following examples of risk factors:

- socio-cultural – gender inequity, low maternal education, reduced access to services, and public policies;
- biological risk factors – antenatal and postnatal growth, nutrient deficiencies, infectious diseases and environmental toxins;
- psychological risk factors – parenting factors, maternal depression and exposure to violence

Figure 3 provides a comprehensive relationship of factors to be considered in the HECDI. The concept and elements of this chart will be used later in this report as a framework to revise different indices and indicators.

Figure 3: Pathways from poverty to poor child development



Source: Adapted from Walker et al., 2007.

1.4 Early childhood care and education interventions

Children with poor cognitive or socio-emotional development or who are in poor physical health when entering primary school are more likely to have higher absenteeism rates, class repetition and eventually drop out of completing primary education. Most often, these children are already facing significant disadvantages in life, such as poverty and marginalization, but losing the capacity to succeed in education further limits their opportunities.

The early childhood period from birth to the age of admission to primary school provides a critical window of opportunity in which disadvantaged children and their families can be supported. Early childhood care and education (ECCE) can help to close the inequality gap – even in the poorest

countries – and to remedy the educational deficits of a new generation. Across countries, the variety of programmes available to young children differs substantially in form, content and duration. This report covers formal and non-formal ECCE programmes that encourage the healthy and safe child development through parenting education, nutrition, health and education. Monitoring and encouraging age-appropriate cognitive, socio-emotional and physical development are essential components of successful programmes.

The evidence in favour of quality early childhood programmes – those which focus on the multidimensional aspect of early development – has been discussed extensively (Nonoyama-Tarumi et al., 2009; Nores and Barnett, 2009; UNESCO, 2006). Children from the most disadvantaged backgrounds are not participating in education schemes, yet they stand to benefit the most from quality ECCE programmes. Well-designed and holistic programmes focusing on the care, health, cognitive and socio-emotional components of early childhood prepare children for lifelong learning and can help to mitigate the effects of deprivation, marginalization and intergenerational disadvantage. In many countries, there is a substantial need for a massive increase in the participation of young children in quality ECCE programmes.

By ignoring the inequality faced by some young children as they enter primary school, countries may damage their potential for long-term economic growth (Commission on Growth and Development, 2008). High-quality learning schemes for young children have a higher rate of return than other investments in human capital later in life (Heckman, 2000). Providing young children with a safe and healthy environment that fosters their motivation and stimulation to learn and engage socially are critical elements in laying foundations of lifelong learning. Yet, governments in many developing countries and donors continue to neglect ECCE investments at the expense of other education and social policies. With less than five years before 2015, however, the case for investing in ECCE is all the more urgent in those countries farthest behind in achieving the international education and development goals.

1.5 Education for All

Education for All (EFA) is the main international initiative that aims to meet the learning needs of all children, youth and adults. The Education for All initiative was launched in Jomtien (Thailand) in 1990 by a broad coalition of national governments, civil-society groups, development agencies and international organizations including UNESCO,⁵ UNDP, UNFPA, UNICEF and the World Bank. The initiative was reaffirmed in Dakar (Senegal) in April 2000, with the ratification of the Dakar Framework for Action identifying six key education goals to be achieved by the year 2015 (Appendix 1). In September 2010, the United Nations Millennium Summit adopted eight Millennium Development Goals (Appendix 2) incorporating two of the EFA goals set earlier in Dakar, namely the goals on universal primary education and gender equality.

Education for All goal 1 “Expanding and improving comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children” (UNESCO, 2011, p.29), targets the early years of life and the foundation of life-long trajectories in health, learning and behaviour. The strategies and framework for action set out to achieve this goal acknowledge that “all young children must be nurtured in safe and caring environments ... both in families and in more structured programmes... focusing on all of the child's needs and encompassing health, nutrition and hygiene as well as cognitive and psycho-social development.”^{6,7}

5 See UNESCO's website dedicated to its activities regarding international coordination of the EFA agenda: <http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-all/>.

6 http://www.unesco.org/education/efa/ed_for_all/dakfram_eng.shtml.

To measure progress towards the six EFA goals, UNESCO monitors changes across time in education, literacy and early childhood health indicators. In specific regard to EFA goal 1, the monitoring indicators include child health and nutrition (vaccinations, breastfeeding duration, moderate and severe stunting rates) and pre-primary education (access, participation and duration and gender parity). The indicators used are under-5 mortality rate, moderate and severe stunting, enrolment in pre-primary education and the Gender Parity Index. The Education Development Index, introduced in the *2003/4 EFA Global Monitoring Report*, provides a summary composite measure of countries' progress towards achieving the EFA goals, but does not include EFA goal 1 (UNESCO, 2003).⁸

One of UNESCO's central messages in the *2011 EFA Global Monitoring Report* is that despite advances in pre-primary education and primary school enrolment, transition rates from primary to secondary school and the reduction of gender disparities, EFA goals for the year 2015 will be missed by a large margin (UNESCO, 2011). Table 1 shows progress towards EFA goal 1 since Dakar. The prevalence of under-5 mortality and moderate and severe stunting remain high in the 2005-2010 period in low- and lower-middle-income countries. Although the world's total enrolment in pre-primary education increased by 31%, the gross enrolment ratio is below 50% in most of the world's regions, and less than 20% in the Arab States and sub-Saharan Africa.

7 Note that the strategies and framework for action are defined holistically.

8 The EFA Development Index measures four of the six goals (universal primary education, gender, literacy and quality). Goals 1 and 3 (learning and life skills) are not included because the data are not internationally standardized or readily available for a sufficient number of States. ECCE poses the problem of also needing a composite sub index, such as the one created for the gender equality goal (see 2011 EFA Global Monitoring Report, Annex, for more information).

Table 1: Key indicators in early childhood for EFA goal 1

	Care			Pre-primary education					
	Under-5 mortality rate		Moderate and severe stunting (children under 5)	Total enrolment		Gross enrolment ratio (GER)		Gender Parity Index of GER (F/M)	
	2005-2010 (‰)	Change since 2000-2005 (%)	2003-2008 (%)	2008 (000)	Change since 1999 (%)	2008 (%)	Change since 1999 (%)	2008	Change since 1999 (%)
World	71	-8	26	148,113	31	44	34	0.99	2
Low-income countries	122	-8	41	13,837	42	18	29	0.99	2
Lower-middle-income countries	70	-9	26	80,529	45	42	52	0.99	4
Upper-middle-income countries	27	-16	11	28,215	23	66	31	1.00	0.3
High-income countries	7	-7	...	25,667	4	77	7	1.00	1
Sub-Saharan Africa	149	-8	38	10,902	74	17	43	0.99	3
Arab States	50	-13	19	3,158	31	19	27	0.92	20
Central Asia	52	-9	19	1,494	11	29	42	1.02	6
East Asia and the Pacific	31	-11		39,147	7	48	27	1.01	0.4
South and West Asia	82	-10	42	42,353	98	42	96	1.00	7
Latin America and the Caribbean	28	-14	16	20,654	27	68	23	1.00	1
North America/Western Europe	6	-6	...	20,153	5	80	6	1.00	1
Central and Eastern Europe	19	-17	9	10,252	9	66	34	0.98	2

Note: Gender parity is considered achieved when the gender parity index (GPI) is between 0.97 and 1.03.

"..." means not available.

Source: Adapted from UNESCO (2011, p. 29).

2. What are the essential characteristics of the HECDI?

The development of a HECDI arises from the need for a tool to monitor "progress achieved and to identify where ECCE services lag behind" (Marope, 2010). Table 1 provides a broad world outlook of the recent growth of ECCE services provided in the early years of life. Such growth can, however, be enhanced by incorporating other indicators.

The question *What are the essential characteristics of the HECDI?* is a broad one and must be answered carefully, drawing on current scientific knowledge, lessons learnt from best practices, knowledge of cross-cultural contexts and local human development realities. The risk entailed in designing a child development index is one of setting the agenda on how development and service are perceived, which, if improperly formulated, can give misleading information with concrete policy advice (Böhringer and Jochem, 2007). Furthermore, an index has the potential risk of “hiding” information on some indicators (Ben-Arieh, 2008; Myers, 2008). For these reasons, it is crucial to understand required HECDI characteristics clearly.

The following questions are intended to enrich the discussion regarding the design of the HECDI. The idea is not necessarily to answer the questions immediately but to broaden view of the tasks required in designing the HECDI.

2.1 How can the measure be guaranteed to be free of cultural bias?

One challenge to be overcome is that of cultural appropriateness. There is long-standing and ongoing debate on the cultural appropriateness of child development measures especially in relation to cognitive and socio-emotional features. Basic guidelines must be followed in performing optimum tests on the HECDI in order to adapt it and prove it useful for the purpose of measuring and advancing early human development in all local contexts.

2.2 Do we want to capture the development of individuals or the development of populations?

Individual development measures seek to assess how a particular child is developing. By contrast, population-level measures are designed to assess how a group of children is developing in relation to other groups of children (for example, between regions in a country or between countries). Population-based measurements do not provide information about individual children. Results from population-based measurements can be shared with authorities (teachers, school principals, community leaders, policy makers and international development agencies) in order to design or redefine health and education programmes. The Early Developmental Instrument (EDI) is an example of a population-level measurement designed to assess the developmental health of children from 4 to 6 years of age (Janus and Offord, 2007). Section 4.1.3 provides more information about the EDI.

Hertzman and Wiens (1996) argue that the best approach to improving the developmental outcomes in a population lies in targeting universal policies that affect all children rather than exclusively targeting children at risk.

The answer to this question is that a population-based, rather than an individual-based, measure to monitor development seems to be a better fit for the HECDI.

2.3 Who are the key child development informants?

Mothers, teachers and health professionals can provide information about children’s development and the risk factors that can affect their development. The use of parents, teachers and health professionals as informants has some advantages and disadvantages, as explained in Table 2. Immunization schedules (for example, at 18 months of age), household surveys and preschool settings can be used as universal platforms to screen children.

Table 2: Advantages and disadvantages of using caregivers, preschool teachers and health professionals as informants on the developmental state of young children and about the presence of biological and environmental risk factors

	Advantages	Disadvantages													
Caregivers	Child development outcomes can be measured through household surveys (Greenspan, and Breinbauer, 2007). Caregivers are always available and can provide information about themselves, their children and environmental risk factors.	<p>In developing countries caregivers may have no appropriate reference on how children should typically develop (Drachler, 2001; Ertem et al., 2008) and tend to provide socially desirable answers instead of accurate answers that best define their children’s developmental status (Ertem et al., 2008).</p> <p>Caregivers may have no knowledge about what constitutes an environmental risk factor that can affect child development.</p>													
Pre-primary and primary school teachers	It is possible in preschool/school settings for teachers to know their pupils and provide information about their development (e.g. school readiness, learning achievement, socio-emotional and cognitive skills). The EDI ⁹ and the AEDI ¹⁰ are two standardized population-based tools completed by teachers to measure children’s developmental health before school entry.	<p>In some regions of the world the pupil/teacher ratio in preschool education can be very high. A high pupil/teacher ratio can prevent teachers from knowing their pupils. The same issue of pupil/teacher ratio applies to primary school settings.</p>													
		<table border="1"> <thead> <tr> <th></th> <th>Pupil/teacher ratio</th> </tr> </thead> <tbody> <tr> <td>Arab States</td> <td>22</td> </tr> <tr> <td>Latin America</td> <td>23</td> </tr> <tr> <td>South West Asia</td> <td>39</td> </tr> <tr> <td>Sub-Saharan Africa</td> <td>45</td> </tr> <tr> <td>North America/ Western Europe</td> <td>14</td> </tr> </tbody> </table>		Pupil/teacher ratio	Arab States	22	Latin America	23	South West Asia	39	Sub-Saharan Africa	45	North America/ Western Europe	14	
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Source: UNESCO (2011)															
Health professionals	In low- and middle-income countries, health services are usually the only professional services available to young children (Ertem et al., 2008).	<p>In developing countries, the density of health professionals (per 10,000 of the population) can be very low.</p>													
		<table border="1"> <thead> <tr> <th></th> <th>Doctors</th> <th>Nurses</th> </tr> </thead> <tbody> <tr> <td>African region</td> <td>2.3</td> <td>10.9</td> </tr> <tr> <td>Eastern Mediterranean</td> <td>11.0</td> <td>15.5</td> </tr> <tr> <td>European region</td> <td>33.3</td> <td>74.7</td> </tr> </tbody> </table>		Doctors	Nurses	African region	2.3	10.9	Eastern Mediterranean	11.0	15.5	European region	33.3	74.7	
			Doctors	Nurses											
African region	2.3	10.9													
Eastern Mediterranean	11.0	15.5													
European region	33.3	74.7													
Source: WHO (2011a)															
		<p>In addition, monitoring child development can be a new concept for health professionals (Ertem et al., 2008).</p>													

It can be concluded from Table 2 that there are advantages and disadvantages to using mothers, preschool teachers and health professionals as informants. In using them as informants it is important to consider that:

- in some regions of the world, parents are the only universal source of information during the child’s early years of life;

⁹ Early Development Instrument (Janus and Offord, 2007).

¹⁰ Australian Early Development Index (Sanson et al., 2010).

- in the preschool/school settings teachers can know their pupils and provide information about their development. It takes a teacher approximately 20 minutes to complete the EDI for each pupil;
- during health sessions family doctors and nurses have direct contact with children and caregivers and can collect information about the children's development.

In reply to the question above, mothers, health professionals and teachers (when children enter pre-primary education) can independently provide valuable information for monitoring child development and developmental risks. Local interviewers must be trained to interview mothers. Similarly, if preschool teachers or health professionals are to be informants, then these professionals, too, must be trained. The instruments to be used for the interviews must be properly translated and validated.

2.4 Will the data be collected by means of a standardized developmental tool (entailing direct assessment/observation of the child) or questionnaires/surveys/rating scales involving a variety of respondents?

There can be some drawbacks to using standardized developmental tools to assess the development of children directly: (i) they must be conducted by skilled personnel, not always available in developing countries; (ii) they require a complicated validation process for local contexts; and (iii) they are time consuming and expensive to use.

The other option is to use questionnaires/surveys/rating scales to interview caregivers, health professionals and teachers about the physical, cognitive and socio-emotional development of young children and about the risk factors that can affect their development. Mothers and pregnant women can also be interviewed about their developmental health. UNICEF's Multiple Indicator Cluster Surveys (MICS) (outlined in Section 3.3 below) is an example of a household survey tool developed to assist countries in filling data gaps for monitoring the situation of women and children.

In reply to the question above, questionnaires/surveys/rating scales seem to be a better fit for a HECDI than standardized developmental tools that directly assess/observe the child.¹¹

2.5 Should the index focus on protective/risk factors, on developmental milestones, or on both of these?

The idea behind measuring risk factors is to identify (anticipate) causes that can affect development. Children who experience multiple risks are significantly more likely to show lower levels of socio-emotional, cognitive-language and sensorimotor development (Walker et al., 2007). Early risk factors such as family violence, high levels of stress, lack of an appropriate diet and poor sanitary facilities are associated with poor physical and mental health. On the contrary, early protective factors such as attendance of a high-quality early childhood development (ECD) programme, verbal stimulation, good nutrition, appropriate health care and attending a stimulating school can improve the physical and mental health of the child.

Under the cumulative developmental-risk-factor approach, even medium-intensity risk factors can have a detrimental effect on the child's development. These risk factors can be life situations comprising a single factor (e.g. sustained medium levels of stress) or the summation of multiple factors (e.g. poverty, lack of stimulation and lack of a bonding figure) that affect development.

¹¹ Fernald et al. (2009) provide additional detail on the advantages and drawbacks of assessment types in Chapter 3, with particular emphasis on children under the age of five.

Cumulative disadvantage effects concern the duration and intensity of exposure to experiences that can alter the course of development (Hertzman, 1999).

The cumulative developmental-risk-factors approach offers some important monitoring advantages. Early protective/risk factors can be: (i) monitored at low cost; (ii) easily identified; (iii) monitored continuously as from antenatal life; and, (iv) once identified, brought to the notice of local authorities so that they may address the factors that affect development.

The other option for the index is to focus on developmental milestones. Developmental milestones can be monitored through questionnaires/surveys/rating scales and standardized developmental assessment tests. One optional module of the UNICEF MICS Round 3 (MICS-3) household questionnaire asks caregivers about the developmental state of their children (see Appendix 3, e.g. DA13. Compared with other children of the same age, does (name) appear in any way mentally backward, dull or slow?).

In reply to the question above, the HECDI could include both protective/risk factors and developmental milestone indicators. These two approaches together give a more comprehensive picture of child developmental health and the factors by which it is affected.

2.6 How holistic should be the index?

The goal of a holistic index is to incorporate as many indicators as possible from the entire spectrum of the developmental building blocks (child sensorimotor, socio-emotional, cognitive and linguistic development, child health and nutrition, child care and education, quality and equity in ECCE, child protection, ECCE financing and maternal developmental health and well-being) (Marope, 2010). A holistic index can incorporate measurement of child development milestones, protective/risk factors, and provision/quality of child development programmes (health, care and education). An index that measures many domains tends to be more accurate, valid and reliable than one that is limited to a few domains (Fernald et al., 2009).

2.7 How will the index focus on the most vulnerable?

Many OECD countries monitor child development by means of simple milestone checklists answered by the caregivers instead of using validated standardized tools (Cairney et al., 2011). This can be done by OECD countries whose population have adequate knowledge of child development and high literacy skills. Another particular approach in OECD countries is to take into account aspects of well-being, such as social connectedness, civil life skills, personal life skills, safety, physical status, and children's subculture, that incorporate the child's perspective (Ben-Arieh, 2008; Myers, 2008).

Risk factors and protective factors can differ from country to country. HECDI design entails the risk of uneven monitoring since the baseline is not uniform across countries (Marope, 2010). A universal HECDI must be sensitive enough to capture the local context and developmental status of young children. One option is to devise an index in which the adding indicators are weighted differentially on the basis of local vulnerabilities and interests (Marope, 2010).

2.8 What age range should the index cover?

There is abundant scientific evidence indicating that developmental trajectories can be established early in life. Therefore, an index should ideally monitor development right from the antenatal stage of life under a tracking system that continues until children are 8-year-old primary school pupils.

2.9 What is the general state of readiness to take the statistical steps of index formation (standardization, weighting, and aggregation)?

This process can take years. To standardize developmental tests, for example, instruments must, in addition, be translated and validated.

3. What indicators and indices are commonly used worldwide to measure child development, developmental care and education?

3.1 Framing the diversity of child development, developmental care and education indicators

The measurements that could be used to monitor progress in the achievement of EFA goal 1 include poverty indices, social-cultural, psychosocial and biological risk factors, and measurements of brain and biological development, which include school readiness (e.g. sensorimotor, socio-emotional and cognitive-language measures), school enrolment and learning achievement. The intensity and quality of developmental health care and education services that pregnant women, mothers and their young children receive during the child's first years of life could also be.

An attempt will be made in this Section to highlight the best indicators for tracking early child development during each developmental stage.¹² The relevant markers can be found among indices and indicators commonly used by governments and international development agencies, in standardized and non-standardized developmental tools, in school readiness tests, in school achievement measurements and in developmental tools devised for research purposes. These include sources produced by the EFA convening agencies, critical lead organizations that support ECCE and Member States' regional representative offices.

The diagram and equation relationship presented in Figure 4 propose a guiding framework for measuring child development, developmental care and education under the HECDI. By basing itself on an overview of relevant literature on the subject and as well as pathways such as those described in Figure 3, this framework attempts to interrelate the complex and interacting parts of early child development. The diagram has five external circles, which all relate to each other, and are factors in child development outcomes, as represented by the inner circle. These five areas are: the mother and the home environment; poverty; child protection; biological and environmental factors; and care and education services.

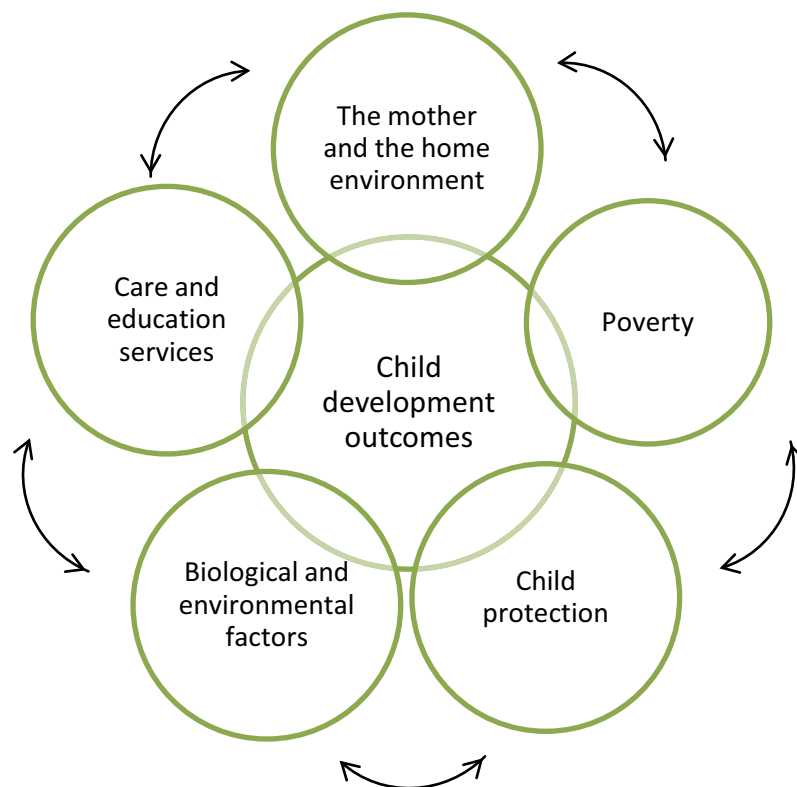
The diagram indicates the centrality of child development outcomes in the physical, socio-emotional, protective and economic environment in which a child grows up. It acknowledges the interdependence of the five outer circles that can be attributed to the inner circle representing child development outcomes (physical, socio-emotional and cognitive). The equation brings these six factors together into one HECDI component – child development, developmental care and education measures.¹³ This equation is intended to be theoretical and descriptive only and does not purport to be the arithmetic sum of the factors. Centred on child development outcomes (e.g. child knows his/her name), examples of indicators for the various factors are as follows: the mother and the

¹² Early childhood developmental stages are most often distinguished by age group, with varying numbers of age groups depending on the context. Health indicators – such as mortality rates – can be calculated by the first month after birth (neonatal), first year, and under age five. Child development indicators and education indicators are often grouped by 0-3, 3-6 and 6-8. These can be broken down into further subgroups depending on the specificity of developmental milestones.

¹³ This equation is composed of six factors and a seventh (genetic/epigenetic risk factors) could eventually be added to the equation. For the purposes of this report, genetic/epigenetic risk factors have been excluded from the analysis because this review centres on the socio-emotional protective/risk factors that can affect development.

home environment (e.g. breastfeeding, the mother’s physical health, reading materials available in the household); developmental care and education services (e.g. pre-primary education enrolment, pupil/teacher ratio in pre-primary education, antenatal health care); biological and environmental risk factors (e.g. maternal smoking during pregnancy); child protection (e.g. child trafficking and sexual exploitation); and poverty (e.g. percentage of families living under the poverty line).

Figure 4: Framework for measuring child development, developmental care and education



Equation HECDI – *Child development, developmental care and education*

HECDI = Child development, developmental care and education	The mother and the home environment	+ Care and education services	+ Child development outcomes	+ Biological and environmental risks	+ Child protection	+ Poverty
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Before presenting the results of our analysis of international indices, we review in Sections 3.2 and 3.3 a selected group of indices, namely including those indicators reported by UNESCO, UNICEF and WHO as well as the extensive household survey conducted by UNICEF (MICS).

3.2 Indicators used by UNESCO, UNICEF and WHO in their 2011 annual reports

A comparison of the early childhood indicators monitored by UNESCO, UNICEF and WHO in their annual 2011 global reports is given in Table 3. As can be seen, there are similarities and differences

in the use of indicators in the three reports. All indicators in Table 3 can be categorized as protective/risk factors (e.g. adult literacy rate, early childhood care and education, infectious diseases, nutrition, women-specific health service coverage and child protection). As an indicator, even mortality rate can be categorized as a protective/risk factor.¹⁴

Table 3: Selected indicators used by UNESCO, UNICEF and WHO in their 2011 reports on the developmental health of the world's population and services to promote human development

Selected indicators	UNESCO	UNICEF	WHO
Health			
Child survival and well-being. Child survival – infant mortality rate, under-5 mortality rate, low-birthweight infants, percentage of children under age 5 suffering from stunting (several categories). Neonatal mortality (UNICEF and WHO only). Stillbirth (WHO only). Percentage of underweight/overweight children under the age of 5 (WHO only). Percentage of 1-year-old children immunized against tuberculosis, diphtheria, pertussis, tetanus, polio, measles and hepatitis B.	✓	✓	✓
Mortality causes. Distribution of causes of death among children aged < 5 years – HIV/AIDS, diarrhoea, measles, malaria, pneumonia, prematurity, birth asphyxia, neonatal sepsis, congenital abnormalities and injuries.			✓
Selected infectious diseases. Cholera, diphtheria, H5N1 influenza, Japanese encephalitis, leprosy, malaria, measles, meningitis, mumps, pertussis, plague, poliomyelitis, congenital rubella syndrome, rubella, neonatal tetanus, total tetanus, tuberculosis, yellow fever.			✓
HIV/AIDS. Estimated adult HIV prevalence rate (aged 15–49), estimated number of women (aged 15+) living with HIV, estimated number of children (aged 0–14) living with HIV, AIDS orphans, orphans due to all causes, orphans attending school. Antiretroviral therapy coverage for pregnant HIV-infected women (WHO only).	✓	✓	✓
Nutrition. Early initiation of breastfeeding, exclusively breastfed (< 6 months), breastfeeding and complementary food (6-9 months), still breastfed (20-23 months), vitamin A supplementation, % of households consuming iodized salt.	✓	✓	✓
Women /health service coverage. Antenatal care coverage, delivery care coverage (skilled attendant, institutional delivery and C-section), maternal mortality rate. Number of doctors per 10,000 (WHO only).		✓	✓

¹⁴ The mortality rate measures both the number of children who die before their first birthday and is considered a proxy of access to quality health services.

Selected indicators	UNESCO	UNICEF	WHO
General health. Percentage of population using improved drinking water, % of population using improved sanitation facilities, newborns protected against tetanus. Percentage of under 5s: with suspected pneumonia taken to an appropriate health-care provider, with suspected pneumonia receiving antibiotics, with diarrhoea receiving oral rehydration and continued feeding, sleeping under insecticide treated nets (ITNs), with fever receiving anti-malarial drugs. Percentage of the population using solid fuels (WHO only).		✓	✓
Education			
Early Childhood Care and Education (education). Total enrolment in pre-primary education (public, private, % female), gross enrolment ratio in pre-primary education (total, male, female, GPI), new entries to the first grade of primary education with ECCE experience.	✓		
Teaching staff in pre-primary and primary education. Pupil/teacher ratio; % female teachers.	✓	✓	
Participation in primary education. Total enrolment in primary education, gross and adjusted net enrolment ratios in primary education (GER, ANER), GPI, out-of-school children.	✓	✓	
Internal efficiency in primary education. Repeaters all grades, drop-out rates (by grade, total), survival rate to grade 5 or last grade, primary cohort completion rate. Survival rate to grade 6 (UNICEF).	✓		
Other			
Adult literacy rate. Adult literacy rate (total, female and male), number of illiterate adults	✓	✓	✓
Child protection. Child labour, child marriage, birth registration, female genital mutilation, attitudes towards domestic violence and child discipline.		✓	✓
GNP and poverty. GNP per capita, population living on less than US \$1.25 per day, population living on less than US \$2 per day, GDP per capita and share of household income (UNICEF), Gross National Income per capita and population living on less than US \$1 per day (WHO).	✓	✓	

Notes: A checkmark indicates that at least one of the selected indicators in the corresponding category is available in the respective organization's global report. Some indicators and breakdowns by gender are found only in the online database or online version of the report.

Sources: UNESCO (2011), UNICEF (2011), WHO (2011b).

Table 4 contains the same information as Table 3, but the indicators grouped together to reflect the HECDI child development, developmental care and education framework and equation (Figure 4). Many indicators with an effect on young children's cognitive and socio-emotional development are used (e.g. breastfeeding, enrolment in pre-primary education, child labour, low-birthweight and percentage of households consuming iodized salt). These monitoring reports, however, lack many critical indicators relating to the mother's psychological well-being, caregiver-child interaction, social and cognitive stimulation of children, the child's cognitive and socio-emotional development and school readiness. Furthermore, they provide no information on the monitoring of non-formal

education programmes that could impart parenting skills and health/nutrition information and provide early learning and stimulation opportunities to children under the age of three.

Table 4: Indicators of protective/risk factors in young children’s developmental health, as used in the UNESCO, UNICEF and WHO 2011 global reports

The mother and the home environment

- Mother’s well-being – adult literacy rate, estimated adult HIV prevalence rate (aged 15–49), estimated number of women (aged 15+) living with HIV and maternal mortality rate.
- Parenting practices/ developmental care – early initiation of breastfeeding, exclusively breastfed (< 6 months), breastfeeding and complementary food (6-9 months), still breastfed (20-23 months), % of households consuming iodized salt.

Care and education services

- Early education – total enrolment in pre-primary education, gross enrolment ratio (GER) in pre-primary education (total, male, female, gender parity index), new entries to the first grade of primary education with ECCE experience, pupil/teacher ratio.
- Primary education: Enrolment in primary education, GER and adjusted net enrolment ratio (ANER) in primary education, out-of-school children, pupil/teacher ratio, repeaters all grades, drop-outs all grades, survival rate to grade 5, survival rate to last grade, primary cohort completion rate, survival rate to grade 6 and orphans attending school.
- Antenatal-perinatal-postnatal health care – antenatal care coverage, delivery care coverage (skilled attendant, institutional delivery and C-section), vitamin A supplementation.
- Health services – percentage of 1-year-old children immunized against tuberculosis, diphtheria, pertussis, tetanus, polio, measles, hepatitis B, newborns protected against tetanus. Percentage of under-fives with suspected pneumonia taken to an appropriate health-care provider, with suspected pneumonia receiving antibiotics, with diarrhoea receiving oral rehydration and continued feeding, with fever receiving anti-malarial drugs. Antiretroviral therapy coverage for pregnant HIV-infected women.

Child development outcomes

- Basic child survival and nutrition – infant mortality rate, under-5 mortality rate, neonatal mortality rate, stillbirth rate, low birthweight infants, percentage of stunted children under age 5 (several categories).
- Developmental health education – enrolment and completion rates in pre-primary and primary education.
- Developmental health – school readiness: no indicators.
- Developmental health – health: estimated number of children (aged 0–14) living with HIV, orphans by AIDS, orphans due to all causes, morbidity rates for cholera, diphtheria, H5N1 influenza, Japanese encephalitis, leprosy, malaria, measles, meningitis, mumps, pertussis, plague, poliomyelitis, congenital rubella syndrome, rubella, neonatal tetanus, total tetanus, tuberculosis and yellow fever.

Biological and environmental risks

- Percentage of population using improved drinking water, % of population using improved sanitation facilities and sleeping under ITNs and percentage of the population using solid fuels.

Child Protection

- Child labour, child marriage, birth registration, female genital mutilation, attitudes towards domestic violence and child discipline.

Poverty

- GNP per capita, population living on less than \$1/\$1.25/\$2 per day, GDP per capita, share of household income (UNICEF) and Gross National Income per capita.

Note: The HECDI child development, developmental care and education equation has been used to group the indicators.

3.3 UNICEF's Multiple Indicator Cluster Survey rounds 3 (MICS-3) and 4 (MICS-4)

"The MICS is a household survey programme developed by UNICEF to assist countries in filling data gaps for monitoring the situation of women and children" (UNICEF, 2009, p.1). The merits of this survey programme deserve to be described in some detail. UNICEF's MICS-4, the most recent completed round, constitutes a valuable experience for the development of a HECDI, with the following strong points:

- a wealth of indicators, many of them relating to children's cognitive and socio-emotional development;
- a set of household survey questionnaires to be answered by caregivers;
- a survey programme that yields data to support analysis, planning, assessment, and advocacy for children in a range of different areas;
- accumulated experience of questionnaire application and validation with the support of local counterparts.

The surveys entail face-to-face interviews conducted in selected nationally representative samples. The data collected provides information to support analysis, planning, assessment, and advocacy for children in a range of areas including education, health, nutrition, protection and children's rights.

There have been four MICS rounds, and UNICEF is currently preparing for the fifth round:

- MICS-1 (1995) was conducted in more than 60 countries;
- MICS-2 (2000) was conducted in 65 countries;
- MICS-3 (2005-2007) was conducted in more than 50 countries and provides data on 21 of the 48 Millennium Development Goals indicators (MDG 1, 2, 4, 5, 6 and 7);
- MICS-4 (2009-2011);
- MICS-5 (to be implemented in 2012-2013).

MICS-4 was based on three questionnaires (Household Questionnaire, Questionnaire for Individual Women, and Questionnaire for Children under Five). Table 5 contains a summary of the questionnaires which relate to early childhood more generally and Appendix 3 contains a list of

specific MICS-4 questions that relate to the learning, cognitive and socio-emotional development of young children.

Table 5: UNICEF Multiple Indicator Cluster Surveys Round 4 (MICS-4)

Summary of MICS questionnaires	
(a)	<p>Household questionnaire</p> <ul style="list-style-type: none"> • Education (7 questions about preschool – school attendance) • Water and sanitation (11 questions about the source, quality, treatment to make it safer, etc.) • Household characteristic (15 questions) • Insecticide-treated nets (13 questions) • Child labour (10 questions) • Child discipline (13 questions) • Child bathing (5 questions) • Salt iodization (1 question)
(b)	<p>Questionnaire for individual women</p> <ul style="list-style-type: none"> • Caregivers' level of education (4 questions) • Child mortality (13 questions) • Desire for last birth (3 questions) • Maternal and newborn health (27 questions) • Illness symptoms (1 question) • Contraception (3 questions) • Unmet child (13 questions) • Female genital mutilation (22 questions) • Attitudes towards domestic violence • Marriage/cohabitation (9 questions) • Sexual behaviour (15 questions)
(c)	<p>Questionnaire on children under the age of five (addressed to the mother or primary caretaker of the child)</p> <ul style="list-style-type: none"> • Birth registration (3 questions) • Early childhood development (17 questions, questions about home stimulation activities, child development, and the child attendance of an early childhood education programme) • Breastfeeding (18 questions) • Care during illness (15 questions) • Malaria (11 questions) • Immunization (19 questions) • Anthropometry (6 questions)

Source: UNICEF (2010b).

3.4 Main indices reviewed for the HECDI child development, developmental care and education component

In a recent review, Loizillon (2011) summarized the purposes, dimensions and descriptions of 26 international, regional, national, sub-national and sector-based early child development and well-being indices (see list of indices in Appendix 5). This review highlights the great diversity of focus

areas and purposes behind those measures and was the basis on which the indicators have been selected here.

For this report on the design of child development, developmental care and education indicators, we analyzed a selection of indices selected as listed in Table 6. Some indices contained in Loizillon's review have not been included here because they are not relevant to the topics of care, learning, cognitive or socio-emotional domains. A few indices, relating specifically to antenatal health care and maternal health and well-being, have been added as listed below.

Table 6: International, regional and national indices reviewed for the HECDI component on child development, developmental care and education measures

<p><u>Global indices on child well-being (7)</u></p> <ul style="list-style-type: none">• Child Development Index (Save the Children UK, 2008).• Child Well-Being Indicators (OECD, 2009).• A Framework of Early Childhood Indicators for General Comment 7 (Vaghri et al., 2010).• Inequality in Child Well-being in the World's Richest Countries – Innocenti Report Card 9 (UNICEF, 2010a).• Multiple Indicator Cluster Surveys [MICS Round 3 (UNICEF, 2008) and MICS4 (UNICEF, 2010b)].• A Report Card on Child Protection. Progress for Children (UNICEF, 2009b).• World Health Statistics (WHO, 2011b). <p><u>Regional or national indices on child well-being (13)</u></p> <ul style="list-style-type: none">• African Union Indicators for Monitoring the Plan of Action for Education in the Second Decade (Arnott et al., 2008).• Australia Early Development Index (Sanson et al., 2010).• The Child Development Index: The State of Brazil's Children 2006 (UNICEF, 2005).• Child Development Index in Peru (UNICEF/INEI, 2008; 2011).• Child Development Index - Ecuador (UNICEF/ODNA, 2006).• Child Well-Being Index - European Union, Norway, Iceland (Bradshaw and Richardson, 2009).• Child Well-Being in the Mediterranean - the Mediterranean Child Welfare Index (Van der Gaag and Dunkelberg, 2005).• Early Development Instrument - Canada (Janus and Offord, 2007).• Family Care Indicators (FCIs) (UNICEF-Bangladesh et al., 2010).• Indicadores de la Educación de la Primera Infancia en América Latina (Indicators for Early Childhood Education in Latin America) (UNESCO-ORLEAC, 2008).• Indicators for Early Childhood Development: Western Cape Province, South Africa (Dawes et al., 2006).• Los Niños y Niñas del Ecuador a Inicios del siglo XXI (ODNA, 2010).• United States National Indicators for Child Health (Seith and Isakson, 2011). <p><u>Global indices on care and education (4)</u></p> <ul style="list-style-type: none">• Early Childhood Care and Education: Basic indicators on young children (UNESCO, 1995).• Education for All Year 2000 Assessment – Statistical Document (UNESCO, 2000b).• Progress for Children - A Report Card on Child Protection. Number 8. (UNICEF, 2009b).• UNESCO EFA Global Monitoring Report – Indicators (UNESCO, 2011).
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Early Learning Developmental Standards (ELDS) (3)

- ELDS in East Asia and the Pacific (Miyahara and Meyers, 2008).
- ELDS for children from 0-6 years (Republic of Macedonia Ministry of Labour and Social Policy, 2009).
- Programa Regional de Indicadores de Desarrollo Infantil (PRIDIS). (Inter-American Development Bank, 2011).

Maternal well-being and mental health (3)

- The 2011 Mothers' Index (Save the Children, 2011).
- Girls' Investment Index (in *State of the World's Mothers 2001*) (Save the Children, 2001).
- Mothers' mental health, Self Reporting Questionnaire (WHO, 1994).

Our analytical review of these 30 indices is organized per the framework developed in Section 3.1, reflecting the complexity in reporting on child development, developmental care and education. The following steps were taken to extract and analyze the indicators in the light of this framework:

- a matrix comprising the six factors of the HECDI child development, developmental care and education equation as the main organizational categories was designed;
- reviewed indices were selected on the basis of their relevance to child development and their international or national validity was acknowledged by EFA convening agencies;
- all indices were broken down into their constituent indicators per the equation;
- relevant indicators were organized and entered into the matrix.

The final matrix is contained in Appendix 4 (owing to the large amount of information and size of the document, it is recommended that the spreadsheet be read directly on the screen rather than be printed). The names of the indices reviewed are listed in the first column of the matrix and the names of the factors (and sub-factors) used in the analysis are shown in the fourth and fifth rows. In all, the matrix summarizes 334 instances of early childhood development indicators used in international indices and categorizes them among the six factors.

Table 7 contains a categorical summary of these indicators reported and reflects the HECDI child development, developmental care and education equation. The summary covers all data contained in Appendix 4. In some cases, indicators were grouped together in order to facilitate the display of the information (for example, breastfeeding, which is under "The Mother and the Home Environment", is given as a single indicator when, in reality, it comprises many possible indicators (e.g. % of children breastfed, % of children exclusively breastfed, how long after birth did you put (name) to the breast?). As the emphasis of this report is on cognitive and socio-emotional issues, Table 7 contains only those *social indicators* that can affect young children's cognitive and socio-emotional development. Other indicators such as vaccination, nutritional supplements (vitamins and minerals), stunting and malnutrition, low birthweight, sanitation and biological and environmental risks (tobacco, alcohol and lead) are also important child development factors but have been excluded from the analysis as they are covered in the HECDI desk review on health and nutrition indices and indicators (Molina, 2011). Maternal health care and antenatal care are analyzed because of their impact on the mother's socio-emotional well-being, but also reflect on the child's physical health.

Table 7: Summary of indicator characteristics affecting young children’s cognitive and socio-emotional development (also see Appendix 4)

HECDI Child development, developmental care and education =					
Mother and home environment	Care and education services	Child development outcomes	Biological and environmental factors	Child protection	Poverty
Maternal literacy	Pre-natal health care (urine and blood sample analysis, weight, anti-tetanus vaccine, medicine to prevent malaria) Number of pre-natal health care visits Iron supplementation during pregnancy Professional care at delivery % of mothers receiving developmental/health education Maternal access to health services Well-child checked-up Enrolment ECD/primary school Gender parity index ECD/primary school Percentage of trained teachers ECD Pupil/teacher ratio ECD/primary school Repetition rate enrolment, school completion of last grade of primary school School achievement primary school	Mortality rates (under-1, under-5) and causes of child mortality	Water and sanitation	Child marriage	Children living in poverty
Teenage pregnancy		Low birthweight	Food deprivation	Female genital mutilation	Basic material needs
Breastfeeding		Stunting and malnutrition	Use of solid fuels	Child labour	
Healthy eating habits (mother); vitamin and mineral supplementation (child)		Overweight and obesity	Teratogens (alcohol consumption and smoking during pregnancy; lead)	Sexual exploitation and abuse	
Vigorous age-appropriate physical activity (child)		Measures of school readiness (e.g. EDI and AEDI dimensions)	Children in emergency and war zones	Violence against children	
Desire for last birth		Alertness and responsiveness		Attitudes towards domestic violence	
Child discipline (e.g. physical punishment)		Sensorial development		Birth registration/certificate	
Number of hours of sleep (child)		Physical health and well-being		Child trafficking	
Play (e.g. do you and others play with your child?) material		Motor development		Knowledge of rights	
Reading and reading materials at home (e.g. do you read stories to your child?)		Socio-emotional development			
Participation in household decision making		Learning			
Children “spend” time with parents		Language and cognitive development			
Family – peer relationships		Communication skills			
Children living in a single-parent family		General knowledge			
		Development limitations			
	Moral and spiritual				
	Approaches toward learning				
	School achievement primary school				
		Behavioral problems			

Several general observations can be extracted from this descriptive work:

- there is no consensus on the number of indicators that best estimate the level and quality of early childhood development;
- many indicators under the six factors seem to target a similar aspect, such as parental involvement in child-rearing or early child health, but none does so comprehensively;
- there is a wide variety of indicators to measure child development, developmental care and education for young children but few of the six factors have been combined across categories at the level of an international index.

4. Issues and challenges regarding child development, developmental care and education indicators

The purpose of this Section is to provide guidance on the components of the HECDI equation by means of a deeper analysis of specific child development, development care and education monitoring indicators and concerns. As noted in Section 3.4, the six factors of the HECDI child development equation are qualified by many indicators. Particular issues relating to the quality of the data and indicator applicability in developed and developing countries will be covered in this section. First, child outcome measures will be examined through several developmental assessments. Participation in early learning programmes and primary education, the quality of early learning programmes and the monitoring of parenting programmes will then be discussed. Lastly, special emphasis will be laid briefly on identifying children with disabilities.

4.1 Testing for potential developmental delays in socio-emotional and cognitive/language development

Child development is particularly sensitive to short periods of time during which specific developmental milestones should be reached by a majority of children. At each age stage – defined by months in the first three years, then by years up to age 8 – children who are developing in a standard healthy manner should reach certain expected outcomes. Outcomes can be modulated or additional ones added to meet cultural or local expectations. Identifying developmental delays requires indicators which are sensitive to the child’s age and also cover a broad range of identifiable outcomes.

Currently, a list of age-specific development outcomes has not yet reached an international consensus (unlike certain health and nutrition indicators). Yet, the number of socio-emotional and cognitive tests developed to assess child development may be limitless. Valid assessments are usually tailored to children’s different learning capacities and speeds, and are sensitive to the environmental factors in child development (i.e. family, community and environment characteristics). To narrow the examination of socio-emotional and cognitive measures for the purposes of the HECDI, we reviewed screening tests that (i) are based on maternal, teacher or health professional reports, (ii) can be used in developing countries and (iii) are intended for pregnant women, mothers and/or infants. Three examples of such assessment tests are presented in more detail in this section.¹⁵

¹⁵ Another assessment which merits attention is the Early Learning Development Standards (UNICEF) which identifies a range of child development outcomes, including socio-emotional, language/cognitive, motor development and communication skills (see Appendix 4 for extent of indicators).

4.1.1 Using maternal reports for early assessments

Maternal reports have been used formally and informally in many environments to identify a child's physical and health status relatively accurately (e.g. at health clinics, in schools, in community centres). To assess socio-emotional and cognitive development in a child, maternal reporting is also considered quite useful and relatively accurate, and has been used extensively, especially for very young children (under age 3). Maternal reports are especially reliable assessments when combined with other measures of data.

Fernald et al. (2009) extensively reviewed development factors affecting children under five years of age in developing countries as well as tests typically used to assess children in this age group. That review included guidelines for selecting and adapting tests to local contexts. The Ages and Stages Questionnaire and the Guide for Monitoring Child Development (GMCD) are two screening tests based on maternal reports that are recommended by the authors specifically for developing countries.¹⁶

The Ages and Stages Questionnaires – Social Emotional (ASQ-SE) (Squires et al., 2009) are a set of questionnaires designed to identify children from birth to 60 months of age who show potential developmental delays. The instruments comprise a set of yes/no questions to be answered by parents (e.g. Does your baby cry for long periods of time?). The ASQ-SE is a low-cost, easily administered, comprehensive checklist that can be completed by parents alone or administered by a trained assessor (Fernald et al., 2009).

The Guide for Monitoring Child Development (GMCD) is a short, open-ended, pre-coded interview, parent report assessment administered by doctors. Its aim is to monitor and support child development and the early detection and management of developmental difficulties of children from birth to three and a half years of age (Ertem et al., 2008). The GMCD provides a method for developmental monitoring and for the detection of developmental difficulties in low- and middle-income countries. The GMCD's Monitoring Development Component includes developmental issues and interview questions such as the following:

- Concerns: *Do you have any concerns about the development of your child?*
- Expressive language and communication: *Tell me about how he/she communicates.*
- Receptive language: *Give me an example of what he/she can understand when you talk to him/her.*
- Fine and gross motor: *What does he/she do with his/her hands and fingers and with his/her legs and body?*
- Relationship (socio-emotional): *Tell me about his/her relationships with people he/she knows. What about strangers, how does he/she relate to them?*
- Play (socio-emotional, cognitive): *I'd like to learn about how he/she plays. Can you give me examples?*
- Self-help skills: *What kinds of things can he/she do for himself/herself now, for example, eating or dressing?*

16 The conditions for recommendations include that assessments are "psychometrically adequate, valid and reliable; balanced in terms of number of items at the lower end to avoid children with low scores; enjoyable for children to take (e.g. interactive, colourful materials); relatively easy to adapt to various cultures; easy to use in low-resource settings, e.g. not requiring much material; not too difficult to obtain or too expensive; able to be used in a wide age range" (Fernald et al., 2009).

4.1.2 Child development questions in Latin America

The Inter-American Development Bank, around the year 2006, implemented a technical cooperation project to support the Governments of Honduras, Chile and Nicaragua in the design and validation of questions to measure the development of young children. Those questions on child development were attached to population health surveys in each country (Breinbauer, 2006).

Appendix 7 contains the actual questions of the ECD module that was added to the quality of life survey conducted in Chile in 2006 (5,300 households). Approximately 66% of the questions had been taken from the Greenspan Social Emotional Growth Chart (SEGC)¹⁷ and the Functional Development Growth Chart Questionnaire (FDQ). The remaining questions were added by Chile ECD experts or were taken from other evaluation tools (Cecilia Breinbauer, personal communication, August 2011).

The Inter-American Development Bank survey module on the child development initiative was used for a few years only. That initiative was unique in that it comprised the design of a developmental tool to measure specific functional capacities of development within age-appropriate categories (starting at the age of 3 months) and incorporated that tool in a child development household survey module.

4.1.3 The Early Development Instrument (EDI)

EDI (Janus and Offord, 2007) was developed in Canada to examine early child development at the time of pre-school entry. This tool provides information on five measures of development, namely physical health and well-being, social competence, emotional maturity, language and cognitive development, and communication skills and general knowledge.

EDI is a macro population measure of brain development and function and is a good predictor of learning achievement. The EDI assessment forms can be filled in by kindergarten teachers in approximately 20 minutes. The Australia Early Development Index (AEDI) is an adaptation of EDI.

In Canada EDI results are used variously to:

- monitor the state of ECD at the level of the population;
- appraise the resilience of communities in supporting children's development;
- evaluate change in ECD over time;
- understanding the state of ECD in special populations;
- establish the basis for international comparison;
- "anchor" developmental trajectories;
- inform community development and policy for ECD (Kershaw et al., 2005).

4.2 Monitoring access to and quality in early learning programmes

Many education-related indicators are collected internationally and many are included in the major international and national indices reviewed for this analysis (see Appendix 4). The monitoring of enrolment and participation in early childhood education programmes and primary school are among the most common indicators included in the reviewed indices. Yet, an understanding of the nature and quality of children's participation in supportive environments and early learning programmes requires much more than these indicators, in particular, monitoring quality and equity

17 The Social Emotional Growth Chart is derived from the Functional Emotional Assessment Scale (FEAS) (2001). See Greenspan et al. (2001).

in ECCE programmes. Participation and other education-related indicators that could be used to inform the HECDI are discussed in greater detail in this section.

4.2.1 Programme types in ECCE programmes

There is a great diversity of modalities targeting families and children under primary-school age. The environment for services and programmes can be centre-based, such as in community centres, attached to primary schools or stand alone, or home-based, such as for home visits providing advice and support to caregivers. The duration varies from a few hours a week to full-time coverage. Not all programmes involve the children directly; those targeting parents and caregivers, such as family literacy programmes or health initiatives, are classified as indirect service provision to children. The programme's status can be public, privately funded or partly subsidized. As such, mapping out national ECCE provision is not relatively straightforward owing to this diversity and the dispersion of such services. Programmes are often run by private providers; those which target children indirectly and those which operate in an ad-hoc fashion on a small scale are often excluded from data collection exercises.

4.2.2 Early childhood care and education programmes – participation

The monitoring of progress in the achievement of EFA goal 1 has been challenging partly because of the variety of formal and non-formal ECCE programmes available. While it is generally accepted that few early learning programmes are available in many developing countries, especially to the most vulnerable families, children's participation in any form of early learning and care programmes is regularly underestimated by the current international and national monitoring mechanisms. There are two main omissions leading to the underestimation, both of which stem from the current data collection mechanism: programmes targeting children under the age of three (and their families) and many non-formal programmes.

The UNESCO Institute for Statistics (UNESCO-UIS), the OECD and Eurostat are the main international bodies that collect data on formal education programmes for young children. The definition of the 1997 International Standard Classification of Education (ISCED97) level 0 is the basis on which data are collected for pre-primary and other ECCE education programmes. To be classified as such, a programme must offer a structured set of learning activities usually designed for children aged 3 and above in a formal institution (school or centre-based) for at least 2 hours a day.¹⁸ Teachers are required to have some teaching qualification. Owing to this narrow focus, programmes with less formal infrastructure or fewer trained staff could qualify for monitoring under these criteria. As ECCE has recently been extended to low- and middle-income countries, their structural characteristics might be weaker than the educational characteristics provided in the ECCE programmes (UNESCO-UIS, 2009a).

As a result of proposed changes to the ISCED97 classification, the measurement of children's participation in early learning programmes would be performed on a wider scale (UNESCO-UIS, 2011). The enhanced definition would include two ECCE programme categories – early childhood educational development programmes designed for children under the age of three and the earlier definition of pre-primary programmes for children from the age of three to primary school entrance age (see Appendix 6).¹⁹ The types of programmes defined in accordance with ISCED1997 and the

¹⁸ Learning activities are determined by examining the “educational properties” of the curriculum.

¹⁹ See paragraphs 105 and 106 specifically for definitions of early childhood educational development programmes and pre-primary education. The revised ISCED proposal was developed by a Technical Advisory Panel, led by the UNESCO Institute for Statistics (UNESCO-UIS) in cooperation with its data collection partners such as the OECD and Eurostat, and revised after regional expert meetings and a worldwide consultation process.

proposed ISCED2011 definitions will continue to exclude care-only programmes and, perhaps, most forms of parenting programmes (see Section 4.2.5 below).

Table 8 contains summary information on the main indicators currently used to estimate children's participation in pre-primary education on a cross-national level, as collected by UIS.

Table 8: Primary indicators of pre-primary participation in international indices

Indicator	Definition	Disaggregation	Data source
Total enrolment	Total number of children enrolled in pre-primary education programmes or other early childhood development programmes which offer a structured, organized and purposeful set of learning activities either in a formal institution (pre-primary) or as part of a non-formal childhood development programme. ²⁰	Type (public/private) ²¹ Age ²² Gender	School register, school survey or census for data on enrolment.
Gross enrolment ratio (GER)	Total number of children enrolled in early childhood care and education programmes, regardless of age, expressed as a percentage of the population in the relevant official age group. Divide the total number of children enrolled in ECCE programmes, regardless of age, by the population in the relevant official age group in a given school year, and multiply by 100.	Gender Region Urban/rural	School register, school survey or census for data on enrolment; population censuses or estimates for school-age population normally obtained from the central statistical office.
Percentage of children entering grade 1 with ECCE experience	Number of new entrants to primary grade 1 who have attended some form of organized ECCE programme for the equivalent of at least 200 hours, expressed as a percentage of total number of new entrants to primary grade 1.	Gender Region Urban/rural	School register, school survey or census for data on enrolment.

Source: UNESCO-UIS (2009b).

²⁰ The ISCED97 definition of pre-primary programme states: Programmes at the initial stage of organized instruction, primarily designed to introduce very young children, usually from age 3, to a school-type environment, and provide a bridge between the home and a school. Upon completion of these programmes, children continue their education at ISCED 1 (primary education).

²¹ Private education institutions are those not operated by a public authority, regardless of whether they receive financial support from such authorities.

²² Under 3 and by age until 7 and above 7.

The definitions used for calculating the GER and total enrolment are a significant limitation of this indicator. In an international context, it is difficult to ensure that programmes are consistent throughout this category and so must be checked by the persons collecting data. The distinction between included and excluded programmes is placed on the line between programmes which offer “little or no pedagogical component” and those offering a “structured and purposeful set of learning activities” (UNESCO-UIS, 2009b). The indicator measuring the share of children entering grade 1 with ECCE experience attempts to capture a country’s capacity to provide activities designed to enhance and support young children’s cognitive development in preparation for primary education. UNESCO-UIS notes that this indicator might create an overestimated bias in ECCE participation, as those children entering primary school are also more likely to have access to primary education.

The MICS questionnaires provide an alternative measurement of “early childhood education” through several questions. Specifically, the household questionnaire deals with preschool education for children aged 5 and above, and the under-5 questionnaire concerns attendance in “any organized learning or early childhood education programme, such as a private or government facility, including kindergarten or community child care” and the number of hours in the week preceding the interview (UNICEF, 2010). Participation rates can be analyzed by background characteristics, including household wealth, mother’s education level, housing location and the child’s gender.

Monitoring ECCE programmes, especially in the non-formal sector should include clear age groups, including the official/theoretical entrance age, the theoretical cumulative duration of the programme (number of years the programme is expected to last, without any repetition or drop-out) and identify whether a portion or all of the duration is included in compulsory education.

4.2.3 Monitoring participation in primary education

Children can enter primary education as early as age 5 or 6 in many countries, and in some cases enrolment is already compulsory at those ages (e.g. age 5 in Australia, Belize, Colombia, the Netherlands, Pakistan and Mauritius). Monitoring children participation in primary school by age of entry is important, because children entering under or above the required age are more likely to drop out or repeat later grades (UNESCO, 2009).²³ Age of entry is usually measured both by means of administrative UNESCO-UIS data and household data (e.g. MICS or Demographic and Health Surveys).

Emphasis is laid in international monitoring on participation in primary education owing to the quantitative EFA and MDG goals. Some of the measures are summarized in Table 9 and represent the diversity of international indicators available. Participation is usually measured in terms of intake and enrolment ratios, which are calculated from administrative records in so much as possible (UNESCO-UIS, 2009b).

²³ A recent study found that only 5% of children in Grade 1 in Liberia were of the official school age. About 29% were three to four years older, 24% were five to six years above that age and another 19% at least seven years older (Huebler, 2011).

Table 9: Main indicators of primary education participation in international indices

Indicator	Definition	Disaggregation	Data source
Gross/net intake rate in the first grade	Net intake rate (NIR) in the first grade of primary school measures those new entrants (i.e. non repeaters) who are of the official primary school-entrance age, expressed as a percentage of the population of the same age. Similarly, the gross intake rate measures all new entrants regardless of their age.	Gender Region Urban/rural	School register, school survey or census for data on new entrants by age. Population census or estimates for primary school-entrance age population.
Total enrolment	Total number of registered students in primary education for a given period.	Type (public/private) Age Grade Gender	School register, school survey or census for data on enrolment.
Gross/net enrolment rate	Gross enrolment rate (GER) is total enrolment in primary education, regardless of age, expressed as a percentage of the official primary school age population in a given school year. Similarly, net enrolment rate (NER) measures enrolled children of official primary school age as a percentage of the school age population.	Gender Region Urban/rural	School register, school survey or census for data on enrolment; population censuses or estimates for school-age population normally obtained from the central statistical office.
Adjusted net enrolment rate	Adjusted net enrolment rate (ANER) measures the total number of pupils of the official primary school age group who are enrolled at primary <u>or secondary</u> education levels, expressed as a percentage of the primary school age population.	Gender Region Urban/rural	School register, school survey or census for data on enrolment by age; population censuses or estimates for school-age population normally obtained from the central statistical office.

Source: UNESCO-UIS (2009b).

Additional measures in the HECDI are recommended to provide users with supplemental information on the quality and longevity of participation. For example, drop-out and/or repetition rates measured in the early grades (e.g. Grades 1 and 2) can be indicative of problems internal to the primary school system and highlight key areas for policy action. Measuring non-participation by exposure to school provides insight on the most vulnerable groups: children (i) who are never expected to register, (ii) who have enrolled but dropped out or (iii) who are expected to enter late all

require different policy responses (UNESCO, 2011).²⁴ The proportion of school-age children who have no official birth registration document – which is often required to enrol in primary school – is considered a solid proxy to estimate children in the first category of out-of-school children.

4.2.4 Measures of early childhood programme quality

Monitoring the level of quality in programmes targeting children ages 0 to 8 is a critical component of a holistic monitoring mechanism for early childhood. Participation measures provide only one level of understanding – access – while quality measures indicate whether additional policy improvements might be required to achieve sustainable benefits to children. Benefits of quality programmes have been reviewed extensively: participation in high-quality ECCE can provide long-lasting developmental benefits, especially for disadvantaged families, while poor quality programmes can be detrimental to development (for example, Barnett, 1995; Cunha et al. 2005; Engle et al., 2011; Nusche, 2009; Paxson and Schady, 2005).

Monitoring quality-related parameters in ECCE programmes is a complex endeavour for various reasons, especially among those indirect and non-formal programmes and providers with ad hoc reporting mechanisms. Selecting the aspects to monitor which would proxy the quality of early childhood services is also a matter of concern, as the literature is emerging in this field.²⁵ For example, cultural and programmatic relevance to specific populations to measure quality can be interpreted under various theoretical paradigms, but common agreement on relevant criteria can be found (Peralta, n/y). Nonetheless, from a holistic early childhood development perspective, it is critical to transcend child/staff ratios, the current standard in measuring education quality at an international level.

Various categories are usually associated with measuring programme quality and might be readily available within countries for incorporation in the child development component of the HECDI (depending on the country). The list below identifies these distinct dimensions examining essential components of quality as presented in current literature on early childhood development.²⁶ These categories are also applicable for measuring quality frameworks in private schools (including religious-based) and primary school settings. References for further study into specific the indicators are provided when available.

24 UNESCO-UIS produces these estimates for certain countries, although they are not regularly published.

25 See for example Slutsky and Pistorova (2010) for an application of current research on assessing the quality an early childhood programme.

26 For example, a report on pre-primary education in 10 countries found that predominately child-initiated activities, higher levels of teacher education, more educational materials and less time in whole group activities were associated with better developmental outcomes (Montie et al., 2006 in UNESCO, 2010a).

Table 10: Main dimensions of quality measures in early care and education programmes

Category	Sub-categories
Staff and teachers ²⁷	<ul style="list-style-type: none"> • Personnel types • Personnel competencies • Qualification(s) required • Child/staff (or teacher) ratios • Percentage of trained teachers/staff (or teacher) • Female share of teachers • Teacher wages
Infrastructure	<ul style="list-style-type: none"> • General conditions of buildings/site • Sanitary services (e.g. Latrines for staff and children) • Access to drinking water • Access to electricity
Administration processes, and family and community participation ²⁸	<ul style="list-style-type: none"> • Intensity of parental/community involvement (hours/duration) • Parental involvement in financial and administrative decision-making • Existence of parent councils and participatory mechanisms • Management assessment tools
Material, resources and curriculum content	<ul style="list-style-type: none"> • Availability of resources and educational material • Language of instruction (including multiple languages) • Language and cultural sensitivity (recognizing diverse home environments) • Child-centred learning curricula and different learning strategies (e.g. play-based, social learning, early literacy and numeracy, language acquisition) • Inclusive curricula • Sensitive and relevant educational frameworks (e.g. Active and constructive learning approach) • Indigenous education curricula
Affective and relational environment	<ul style="list-style-type: none"> • Child-centred approach to learning (e.g. child initiation, encouraging individuals) • Responsiveness of caregivers/teachers (emotional security)

Two recent examples in Latin America and the Caribbean provide specific indicators incorporating quality in evaluating early childhood education. In a proposed index of early childhood education in Latin America, evaluating the quality of the supply of ECCE was central: of the 55 indicators, 19

27 The European Commission has published a useful study of indicators focused on developing and measuring core competencies among educators and institutions for early childhood education and care (University of East London, Cass School of Education and University of Ghent, Department for Social Welfare Studies, 2011).

28 The Chilean Government included a management assessment tool in the development of the JUNJI daycare system throughout the country using externally-validated self-assessments. Questions, in six different areas, concerned: (1) leadership; (2) management of educational processes; (3) participation and commitment of families and communities; (4) protection and care, construction quality, safety, healthy lifestyle and promotion of a respectful environment; (5) management and administration of human and financial resources; (6) outcomes of the educational process (learning, and satisfaction of the school community) (UNESCO, 2010b).

focused on the quality of education services.²⁹ Table 10 presents a selection of indicators pilot-tested in Brazil, Chile and Peru. In 2008, the Caribbean island states developed an ECD Minimum Service Standard which was adopted by CARICOM’s Council on Human and Social Development in 2008. Appendix 8 contains a list of quality-related standards developed as essential to achieving desired child development and well-being outcomes for children 0 to 8 years of age (UNESCO, 2010b).

Table 11: Selected indicators for service quality in early education in Latin America

Category	Indicator	Definition	Possible data sources
Supply	Total spending (public and private) on early childhood education	Expresses a monetary investment in early childhood. Can be expressed in relative terms, for example by GDP per capita.	UNESCO-UIS, national education statistics, household surveys.
	Share of ECCE enrolment in physical spaces with access to electricity, drinking water and toilets	Estimates the quality of infrastructure.	National school census.
	Share of children in ECCE programmes who have the minimum standard of education materials	Is an indicator of quality of materials available for pedagogical purposes.	National records.
Administration processes	Duration of school and number of effective education activities	The first defines the length of access to education, and the second identifies hours spent in education activities.	UNESCO-UIS.
	Ratio of planning hours to hours spent in education activities	Gives an indication of time spent with child in education activities.	National records.
	Percentage of current education spending defined with parents’ participation	Measures level of parental participation in school management.	School records, need for specific questionnaire.
	Number of meetings or training hours for parents/guardians in the last semester	Measures level of parental participation in school activities.	School records, need for specific questionnaire.
Family and community participation	Level of parental satisfaction	Indicates parental perception of education quality.	Parental interview or household survey.

Source: UNESCO-ORLEAC (2008).

²⁹ The proposed list of 55 indicators also examines the general context (economic, cultural, demographic, policy), family environment, coverage and “effort” in the education system as proxied by government spending in early education.

Measuring the quality of education services provided in the first and second grades can inform policymakers on how to improve school efficiency and reduce drop-out and repetition. Early reading assessments are gaining widespread usage in developing countries, as they can identify children who are struggling with foundational skill acquisition and are strong proxies for the quality of service provision in early grades (Gove and Cvelich, 2010). These years are critical periods for children to acquire foundations for literacy and numeracy skills, and inefficient readers in first grade will continue to struggle throughout primary education. Developed by the Research Triangle Institute with support from the United States Agency for International Development and the World Bank, Early Grade Reading Assessments (EGRA) have been pilot-tested and used internationally in 41 countries and 74 languages (as of mid-2010) (Gove and Cvelich, 2010). This systematic tool assesses children individually using a non-written instrument, but can also be designed for sampling larger populations.

4.2.5 Measuring participation in family and parenting programmes

Parents' engagement in activities with their children is also important for stimulation of child development and is considered an indicator of parental concern for child well-being and development (Nonoyama-Tarumi and Ota, 2010). In a study in Ecuador, parenting activities, such as time spent reading to the child and parental responsiveness, increased cognitive outcomes among poor children aged 3 to 5 (Paxson and Schady, 2005). There are several literature reviews of parenting programmes in developed and developing countries (Cohen and Radford, 1999; Lansford and Bornstein, 2007; Tolani et al., 2006; Vargas-Baron, 2005), indicating that parenting programmes are delivered worldwide by means of a variety of methodologies, levels of intensity, duration, programme staff, curricula, and monitoring and evaluation systems. Family literacy programmes enhance early literacy development and are included within the range of family programmes which should be targeted and measured within the HECDI (Carpentieri et al., 2011).

UNICEF has reviewed parenting programmes delivered in 29 countries³⁰ (Lansford and Bornstein, 2007). Among the findings, this report suggests that the qualitative studies conducted to measure the programmes' outcomes usually lacked appropriate research methodologies and relied on anecdotal evidence and observations provided by parents and service providers.³¹

There are a few parenting programmes in the world that systematically process their qualitative outcome measures into meaningful quantitative indicators. The Learning through Play Program (LTP) originating in Toronto, Canada is one such programme.

LTP is a low-literacy and low-cost sustainable programme designed to provide parents with information on the healthy growth and development of their young children, from birth to the age of six. It teaches parents about the importance of play and play activities and to engage and participate with their child in simple activities that foster development and mental health. Most importantly, these activities enhance child development while simultaneously promoting attachment security through building parents' abilities to read and be sensitive to their child's cues and capacities and through active parental involvement in their children's development. The LTP

30 These were public programmes that received technical or financial support from UNICEF. The review was based on reports from Albania, Bosnia and Herzegovina, Belarus, Moldova, Kyrgyzstan, Montenegro, Romania, Ukraine, Mongolia, Philippines, Eritrea, Thailand, Vietnam, Iran, Lesotho, Maldives, South Africa, Jordan, Syria, Belize, Brazil, Chile, Haiti and Burkina Faso.

31 However, the lack of this scientific evidence must not be interpreted as a lack of methodological ingenuity and quality in the programmes. Tolani et al. (2006) state that it is important "to acknowledge and respect work done in developing countries as we can learn much about parenting education from them" (p.26).

resources and training materials have been culturally adapted for international contexts and have been translated into 25 different languages.

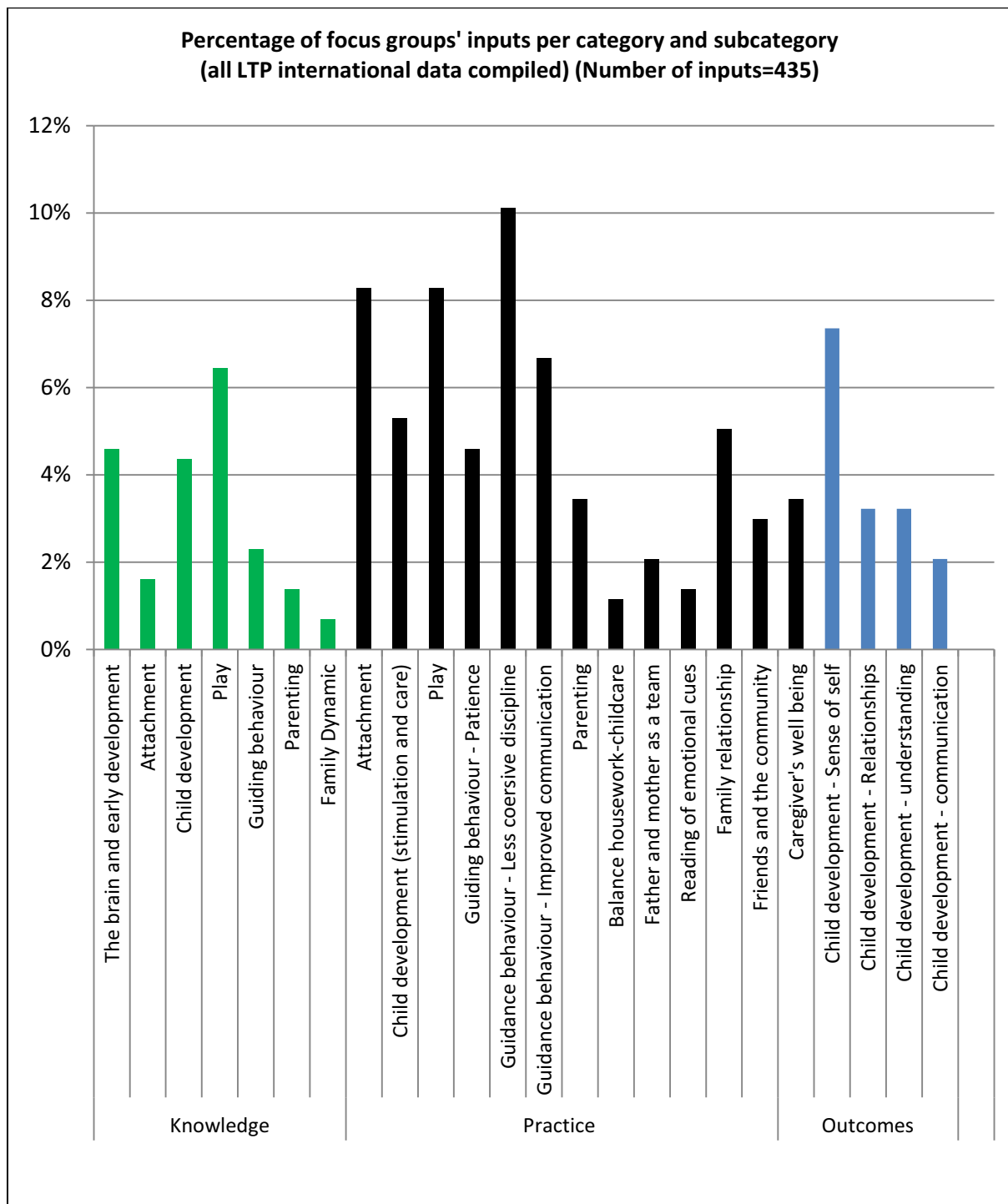
Results from focus groups conducted with LTP country partners and beneficiaries in Burkina Faso, Ethiopia, Haiti, India, Jamaica, Kenya, Nicaragua, Paraguay, Peru, Philippines, and Uganda in the past 13 years have provided valuable qualitative information about cross-cultural commonalities in the impact of the programme. The analysis of the focus groups' data helped to identify some emerging themes that highlight the importance of the caregivers' emotional well-being, the benefits of improved parental knowledge of child development, the consequences of physical punishment and the importance of play and of developing secure parent-child bonding and of child-rearing practices.

A *Matrix for the Analysis of Caregivers' Focus Groups Data* was developed on the basis of the international focus groups' inputs. The matrix comprises three categories (*Knowledge, Practice and Observed changes in caregivers and children*)³² and 18 subcategories. Answers provided by the focus groups are entered as literally as possible in the instrument. Once the data is entered, it can be easily analyzed, and within- and between-country lessons and practices can be learned (see Appendix 8 for a sample of caregivers' inputs).

Figure 4 shows the distribution of the focus groups replies by category and by subcategory. There were a total of 435 inputs (caregivers' statements). Of these, 21% were categorized as Knowledge, 59% as Practice and 19% as Observed changes.

³² Knowledge: What the caregiver has learned from the programme. Practice: caregiver's changes in parental practices, behaviours and attitudes towards the child. Observed changes in caregivers and children: Observed changes in caregiver's well-being and child development.

Figure 5: Replies by “Learning through Play” focus group caregivers



Source: Learning Through Play Program, the Hincks-Dellcrest Centre (Toronto, Canada).

The Knowledge and Practice categories are, in reality, protective/risk factors that can affect child development (for example, adequate parental knowledge of child development and secure mother-child bonding are protective factors). The majority of the answers fell under the various types of Guidance Behaviour, Play and Attachment (within the Practice category). These findings were most revealing because these three measures are rarely included in quantitative measures commonly used by EFA convening agencies.

A universal early parent-child programme would constitute a major protective factor for the developmental health of mothers, children and family members. Parent-child programmes permit stimulating developmental activities, while affording opportunities to monitor the children's development gradually.

4.2.6 Adopting a long-term educational perspective

As research has linked ECCE participation to later educational participation and achievements, a long-term view could be taken to the holistic monitoring of developmental care and education. This would require measurements such as:

- gender parity in primary education;
- primary school completion and survival rates;
- national and group-based education poverty (e.g. UNESCO Deprivation and Marginalization data);
- learning assessments (for early grade learning/reading assessments, see Section 4.2.4).

With the exception of learning assessments, most of these data are readily available in international databases and can be disaggregated by gender, region and urban/rural.

4.3 Children with disabilities

Disability is defined by the United Nations Convention on the Rights of Persons with Disabilities adopted in 2006 as “long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder [a person’s] full and effective participation in society on an equal basis with others” (United Nations, 2006).

Disability can be a factor of exclusion from society and access to basic services such as health and education. In Malawi and the United Republic of Tanzania, children with disabilities are twice as likely never to have attended school (UNESCO, 2010). Although it is increasingly accepted that institutional and attitudinal barriers limit the full inclusion of persons with disabilities, it is from a very young age that life-long exclusion begins. Many health and nutrition disadvantages from pregnancy and early childhood can lead to life-long debilitating impairments (Yeo and Moore, 2003). Yet, the full extent of discrimination against children is difficult to assess, as it is hardly monitored.

Monitoring the status of children with disabilities is difficult for many reasons, including caregivers’ under-reporting of disabilities, varying definitions of disabilities and difficulties in identifying some disabilities in very young children (e.g. learning disabilities and sensory impairments), especially as some are acquired at different stages of life. While the United Nations General Assembly has emphasized the need for better data collection and monitoring of children with disabilities, it has highlighted the UNICEF child disability optional module (used in MICS-3) as a standalone screening tool usable in many developing countries (United Nations, 2011).

UNICEF acknowledges the need to improve understanding of “the distribution of and risk factors for child disability worldwide and especially in developing countries. [...] Measuring child disability is challenging because disability is experienced differently depending on the norms of a particular society” (UNICEF and the University of Wisconsin, 2008).

The ten-question child disability screen (TQ) is one of the measurements most commonly used in developing countries to screen disabilities in children from 2 to 9 years of age (Belmont, 1986). The TQ is relatively low-cost, administered to parents by community or health workers, and parents are required to answer questions that screen for child impairment or inability in speech, learning,

hearing, vision, motor/physical, intellectual impairment and seizure disorders. A child is considered to have screened positive to the TQ for a disability if the parents report impairments on one or more of the ten questions (UNICEF and the University of Wisconsin, 2008). Table 8 contains the TQ questionnaire, which was included in the MICS-3 questionnaire (not in MICS-4).³³

Table 12: The Ten Questions screen for childhood disability

<ol style="list-style-type: none"> 1. Compared with other children, did (name) have any serious delay in sitting, standing, or walking? (Developmental milestones) 2. Compared with other children does (name) have difficulty seeing, either in the daytime or at night? (Vision) 3. Does (name) appear to have difficulty hearing? (Hearing) 4. When you tell (name) to do something, does he/she seem to understand what you are saying? (Comprehension) 5. Does (name) have difficulty in walking or moving his/her arms or does he/she have weakness and/or stiffness in the arms or legs? (Movement) 6. Does (name) sometimes have fits, become rigid, or lose consciousness? (Seizure) 7. Does (name) learn to do things like other children of his/her age? (Learning) 8. Does (name) speak at all (can he/she make himself/herself understood in words; can he/she say any recognizable words)? (Speech) 9. (a) Ages 3-9 years: Is (name)'s speech in any way different from normal? (b) Age 2 years: Can he/she name at least one object (animal, toy, cup, spoon)? (Speech and communication) 10. Compared with other children of his/her age, does (name) appear in any way mentally backward, dull, or slow? (Intellectual impairment)

Source: Gottlieb et al. (2009).

Reporting on disadvantaged groups' access to health and education services is also relevant to the construction of the HECDI. National legislation on protecting the rights of persons with disabilities can lead to better monitoring efforts. In the United States of America, infants and toddlers are protected under the Individuals with Disabilities Education Act, and access to early intervention services (with parental approval) and demonstration of improved cognitive and behavioural skills are monitored and reported in state statistical reports (NECTAC, 2010).

5. What recommendations can be made to further the design of the HECDI?

5.1 General findings

This report is intended to contribute to the design of the Holistic Early Childhood Development Index (HECDI) by reviewing child development, developmental care and education issues. Three questions were initially raised as guidance in the discussion: (1) Which characteristics are crucial to the HECDI? (2) What indices and indicators are commonly used worldwide to measure child development,

³³ The Bhutan Multiple Indicator Survey, which uses the MICS-4, included a TQ disability assessment. The percentage of children aged two to nine years with a disability as reported by their mother/caretaker is broken down by region, mother's education and socioeconomic status.

developmental care and education? (3) What recommendations can be made for the inclusion of child development, developmental care and education measures in the HECDI?

The scientific framework presented in Section 1 highlights the need to measure early childhood development (and the risks thereto) right from the early stages of life (antenatal life) and especially during sensitive development periods (at least until the age of five or six). The mother's developmental health must also be regarded as an important factor of child development.

Section 1 also intends to define cognitive development, socio-emotional development and socio-emotional well-being. It is important that the multicultural definition of these terms be agreed for the design of a culturally-sensitive HECDI.

In an attempt to answer the question "*Which characteristics are crucial to the HECDI?*" the following characteristics could be deemed crucial:

- A population-wide measurement (rather than individually), in which the development of a group of children in relation to other groups of children can be assessed, as can protective/risk factors that affect development;
- An index that is as holistic as possible, since it is unrealistic to expect an index to cover the entire spectrum of early development building blocks;
- Simultaneous assessment of protective/risk factors and developmental milestones, the goal being perforce to ascertain the development of a group of children and to identify the protective/risk factors that can affect development;
- A measure that uses mothers/caregivers, preschool/school teachers and health professionals to be key informants about young children's development;
- A measure that uses questionnaires, surveys and rating scales to collect information from antenatal life until preschool entry (during this stage of development the mother is the primary source of information);
- A measure that uses preschool teachers and primary school teachers to be key informants about their pupils' level of school readiness and learning achievement;
- A measure that covers the entire age range from antenatal life to eight years of age and is capable of assessing children during critical development periods.

An important question raised in Section 2 was "*How can the measure be guaranteed to be free of cultural bias?*" The issue of cultural appropriateness is inevitable in the HECDI design phase and can be overcome only through rigorous validation and a piloting phase.

The answer to the second question "*What indices and indicators are commonly used worldwide to measure child development, developmental care and education?*" required an extensive documentary review. Section 3 began with the definition of a HECDI child development, developmental care and education framework and relationship equation. The six constituent factors of these relationships were used to group and process the information derived from the 30 indices analyzed for this report. The goal was to extract those indicators that had an impact on physical, cognitive and socio-emotional development.

The conclusions that can be drawn from the analysis of the indices and indicators reviewed are set out below (see Table 7 and Appendix 4 for detailed indicators).

The mother and the home environment

- There is a lack of indices on mothers' developmental health. None of the indices include indicators of post-partum depression and mothers' perception of social support in raising

their children. Only one index (Indicators for Early Childhood Development in Western Cape, South Africa) contains indicators of the mothers' physical health.

- Parenting practices/developmental care – none of the indices includes indicators relating to child-rearing practices (e.g. toilet training and number of hours of sleep). UNICEF's MICS-3 and MICS-4 are the only indices that include questions about guidance behaviour/discipline.³⁴
- Home environment is measured in few indices, including in the OECD's Child Well-Being index, Ecuador, UNICEF's MICS-3 and MICS-4 and the Family Care Indicators in Bangladesh. They most often measure who takes care of the child, family structure and play, but less often the quality of early stimulation and the home environment.

Developmental care and education services

- Antenatal-perinatal-neonatal health care: From the indices and indicators analyzed, only UNICEF's MICS-4 asks questions about antenatal health care (e.g. was the pregnant mother weighed?).
- Use of health services – there is a lack of indicators for well-child check-ups, as only the United States National Indicators for Child Health includes such indicators (Seith and Isakson, 2011). Measuring the provision and quality of health services is limited usually to prenatal health care and immunization.
- Early education – Information on early education is restricted to pre-primary education (enrolment mostly, but also ration of trained teachers and gender parity in a few cases. There are no indicators that account for non-formal child development programmes with a strong parental component (for example, mother-child parenting programmes, family literacy programmes) or for non-formal programmes targeting children under the age of three.
- Quality of ECCE and primary education – there is a general dearth of indicators of the quality of ECCE programmes (e.g. infrastructure safety, personnel training, family participation, curriculum relevance).
- Long-term perspective of child development – only 4 indices include measures of internal efficiency in primary education (e.g. drop-out and repetition) and 3 include primary completion rates (or enrolment in secondary school). Such indicators are critical for understanding the educational impact of early child development.
- School readiness of a child – the EDI and the AEDI are standardized tools that can be used to measure developmental health (school readiness) and must be extensively validated if they are to be used worldwide.

Child development outcomes

- Physical health and measures of basic survival and nutrition are most commonly used, but measures of socio-emotional and cognitive/language development are less frequently encountered.
- Only UNICEF's MICS-3 measured early sensory development (no such question was included in MICS-4), and only MICS-4 measured socio-emotional development before pre-school entry.
- MICS-3 and MICS-4 included some questions to monitor child disabilities, but the questions did not address the whole spectrum of disabilities and lacked indicators on severe disabilities.

³⁴ UNICEF's MICS-4 was also the only index that included healthy diet indicators (e.g. juice, soup) and vitamin and mineral supplementation.

Biological and environmental risks

- The Report Card on Child Protection is the only index that includes an indicator of children living in war zones.³⁵
- The availability of and access to safe drinking water and basic sanitation are rarely included in international indices, despite being included in the MDG 7 on environmental sustainability) and thus measurable within Target 7C.

Child protection

- UNICEF's MICS-4 and UNICEF's Report Card on Child Protection are the only major international surveys comprising child protection indicators.

Poverty

- Poverty indicators are measured by 12 of the 30 indices.

In summary, the indices reviewed did not include several critical child development measurements such as:

- mother-child social interaction and emotional exchanges (especially in the early years of life) – indicators could include mother-child eye contact, mother's ability to mimic the child's gestures and the child ability to respond to the mother, or the child's social responsiveness;
- participation in parenting programmes;
- quality of ECCE programmes apart from personnel-related measurements (e.g. child/staff ratios and percentage of trained teachers).

5.2 Recommendations for the inclusion of child development, developmental care and education in the HECDI

- 5.2.1 Take the MICS-4 experience as a reference point (in terms of the accumulated experience in designing questionnaires, conducting surveys and validating instruments for local contexts).
- 5.2.2 Include mothers' developmental health, for example measures of perceived social support, antenatal health care, psychological well-being, life satisfaction, physical and reproductive health, rest, leisure and teenage pregnancy, in the HECDI.
- 5.2.3 Include in the HECDI measures of the early child development and the risk factors that can affect development (from antenatal life to the age of eight) – e.g. measurements of sensory development, developmental delays, early socio-emotional and cognitive development, quality of stimulation of the home environment, presence of significant others that provide high-quality developmental care, mother-child interaction, bonding, play and presence of significant others that provide the child with high-quality stimulating experiences.
- 5.2.4 Include in the HECDI measurements of children's development and protective/risk factors that can affect development (from antenatal life to the age of eight) – measurements of sensory development, developmental delays, socio-emotional and

³⁵ There is also a lack of indicators on developmental risks caused by teratogens (alcohol, tobacco use during pregnancy, use of solid fuels for cooking and lead exposure).

cognitive development, school readiness, learning achievement, school attendance and completion, play, affection, quality of the home environment and quality of the school environment. This analysis suggests that the indices and indicators used by EFA convening agencies and other leading ECCE organizations should be enriched by including indicators relating to early socio-emotional development and potential risk factors. Such measurements (or indicators thereof) can be sought in the Ages and Stages Questionnaires – Social Emotional (Squires et al., 2009), the Guide for Monitoring Child Development (Ertem et al., 2008), the Greenspan Social Emotional Growth Chart (SEGC) and the Functional Development Growth Chart Questionnaire (FDQ).

- 5.2.5 Include in the HECDI measures of the quality of the mother-child interaction (especially during the very first stages of life) – e.g. mother-child socio-emotional exchange, child’s cognitive and socio-emotional responsiveness, mother-child language exchange, mother-child eye contact, mother and child imitation of each other’s facial gestures, mother-child play and presence of significant others that are a source of high-quality stimulating experiences.
- 5.2.6 Include in the HECDI measurements of non-formal and other ECCE programmes with a holistic component – e.g. participation of families with young children in parenting, family literacy or home-based programmes.
- 5.2.7 Holistically include in the HECDI measurements of quality comprising aspects relating to the learning environment, learning tools and age-appropriateness of the curricula, inclusive education and relevance to cultural/linguistic needs.
- 5.2.8 Include in the HECDI measurements of child disabilities – e.g. developmental milestones, vision, hearing, and intellectual impairment; the indicators must be able to detect disabilities, and most important, the associated risk factors.

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Appendices

Appendix 1: Education for All (EFA) Goals

Goal 1

Expanding and improving comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children

Goal 2

Ensuring that by 2015 all children, particularly girls, children in difficult circumstances and those belonging to ethnic minorities, have access to, and complete, free and compulsory primary education of good quality.

Goal 3

Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate learning and life-skills programmes

Goal 4

Achieving a 50 per cent improvement in levels of adult literacy by 2015, especially for women, and equitable access to basic and continuing education for all adults.

Goal 5

Eliminating gender disparities in primary and secondary education by 2005, and achieving gender equality in education by 2015, with a focus on ensuring girls' full and equal access to and achievement in basic education of good quality.

Goal 6

Improving all aspects of the quality of education and ensuring excellence of all so that recognized and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills.

Source: UNESCO (2000a).

Appendix 2: Millennium Development Goals (MDGs)

All indicators should be disaggregated by sex and urban/rural as far as possible.

Goal 1: Eradicate extreme poverty and hunger

- Target 1A: Halve the proportion of people living on less than \$1 a day
 - *Proportion of population below \$1 per day (PPP values)*
 - *Poverty gap ratio [incidence x depth of poverty]*
 - *Share of poorest quintile in national consumption*
- Target 1B: Achieve Decent Employment for Women, Men, and Young People
 - *GDP Growth per Employed Person*
 - *Employment Rate*
 - *Proportion of employed population below \$1 per day (PPP values)*
 - *Proportion of family-based workers in employed population*
- Target 1C: Halve the proportion of people who suffer from hunger
 - *Prevalence of underweight children under five years of age*
 - *Proportion of population below minimum level of dietary energy consumption*

Goal 2: Achieve universal primary education

- Target 2A: By 2015, all children can complete a full course of primary schooling, girls and boys
 - *Enrolment in primary education*
 - *Completion of primary education*
 - *Literacy of 15-24 year olds, female and male*

Goal 3: Promote gender equality and empower women

- Target 3A: Eliminate gender disparity in primary and secondary education preferably by 2005, and at all levels by 2015
 - *Ratios of girls to boys in primary, secondary and tertiary education*
 - *Share of women in wage employment in the non-agricultural sector*
 - *Proportion of seats held by women in national parliament*

Goal 4: Reduce child mortality rates

- Target 4A: Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate
 - *Under-five mortality rate*
 - *Infant (under 1) mortality rate*
 - *Proportion of 1-year-old children immunized against measles*

Goal 5: Improve maternal health

- Target 5A: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio
 - *Maternal mortality ratio*
 - *Proportion of births attended by skilled health personnel*
- Target 5B: Achieve, by 2015, universal access to reproductive health
 - *Contraceptive prevalence rate*
 - *Adolescent birth rate*
 - *Antenatal care coverage*
 - *Unmet need for family planning*

Goal 6: Combat HIV/AIDS, malaria, and other diseases

- Target 6A: Have halted by 2015 and begun to reverse the spread of HIV/AIDS
 - *HIV prevalence among population aged 15–24 years*
 - *Condom use at last high-risk sex*
 - *Proportion of population aged 15–24 years with comprehensive correct knowledge of HIV/AIDS*
- Target 6B: Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it
 - *Proportion of population with advanced HIV infection with access to antiretroviral drugs*
- Target 6C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases
 - *Prevalence and death rates associated with malaria*
 - *Proportion of children under 5 sleeping under insecticide-treated bed nets*
 - *Proportion of children under 5 with fever who are treated with appropriate anti-malarial drugs*
 - *Prevalence and death rates associated with tuberculosis*
 - *Proportion of tuberculosis cases detected and cured under DOTS (Directly Observed Treatment Short Course)*

Goal 7: Ensure environmental sustainability

- Target 7A: Integrate the principles of sustainable development into country policies and programs; reverse loss of environmental resources
- Target 7B: Reduce biodiversity, achieving, by 2010, a significant reduction in the rate of loss
 - *Proportion of land area covered by forest*
 - *CO2 emissions, total, per capita and per \$1 GDP (PPP)*
 - *Consumption of ozone-depleting substances*
 - *Proportion of fish stocks within safe biological limits*
 - *Proportion of total water resources used*
 - *Proportion of terrestrial and marine areas protected*
 - *Proportion of species threatened with extinction*
- Target 7C: Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation (for more information see the entry on water supply)
 - *Proportion of population with sustainable access to an improved water source, urban and rural*
 - *Proportion of urban population with access to improved sanitation*
- Target 7D: By 2020, to have achieved a significant improvement in the lives of at least 100 million slum-dwellers
 - *Proportion of urban population living in slums*

Goal 8: Develop a global partnership for development

- Target 8A: Develop further an open, rule-based, predictable, non-discriminatory trading and financial system
 - *Includes a commitment to good governance, development, and poverty reduction – both nationally and internationally*
- Target 8B: Address the Special Needs of the Least Developed Countries (LDC)
 - *Includes: tariff and quota free access for LDC exports; enhanced programme of debt relief for HIPC and cancellation of official bilateral debt; and more generous ODA (Overseas Development Assistance) for countries committed to poverty reduction*

- Target 8C: Address the special needs of landlocked developing countries and small island developing States
 - *Through the Programme of Action for the Sustainable Development of Small Island Developing States and the outcome of the twenty-second special session of the General Assembly*
- Target 8D: Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term

Some of the indicators listed below are monitored separately for LDCs, Africa, landlocked developing countries and Small Island developing States.

- Official development assistance (ODA):
 - *Net ODA, total and to LDCs, as percentage of OECD-DAC donors' GNI*
 - *Proportion of total sector-allocable ODA of OECD-DAC donors to basic social services (basic education, primary health care, nutrition, safe water and sanitation)*
 - *Proportion of bilateral ODA of OECD-DAC donors that is untied*
 - *ODA received in landlocked countries as proportion of their GNIs*
 - *ODA received in small island developing States as proportion of their GNIs*
- Market access:
 - *Proportion of total developed country imports (by value and excluding arms) from developing countries and from LDCs, admitted free of duty*
 - *Average tariffs imposed by developed countries on agricultural products and textiles and clothing from developing countries*
 - *Agricultural support estimate for OECD countries as percentage of their GDP*
 - *Proportion of ODA provided to help build trade capacity*
- Debt sustainability:
 - *Total number of countries that have reached their HIPC decision points and number that have reached their HIPC completion points (cumulative)*
 - *Debt relief committed under HIPC initiative, US\$*
 - *Debt service as a percentage of exports of goods and services*
- Target 8E: In co-operation with pharmaceutical companies, provide access to affordable, essential drugs in developing countries
 - *Proportion of population with access to affordable essential drugs on a sustainable basis*
- Target 8F: In co-operation with the private sector, make available the benefits of new technologies, especially information and communications
 - *Telephone lines and cellular subscribers per 100 population*
 - *Personal computers in use per 100 population*
 - *Internet users per 100 Population*

Source: United Nations Statistics Division (2008).

Appendix 3: UNICEF's Multiple Indicator Cluster Surveys Round 4 (MICS-4)

The following summary of indicators presents questions from UNICEF's latest MICS-4 questionnaires on children's cognitive and social-emotional development, but excludes questions related directly to health and nutrition. Indicators from the MICS-3 optional module on disability are included as well, as they are not present in the MICS-4.³⁶ Other questions such as on child mortality, maternal and newborn health, children illnesses and caring for them, malaria and mosquito treatment, early childhood immunization and anthropometry, HIV/AIDS, water and sanitation are included in the questionnaires, but not reported here.

(a) Household questionnaire

Education module – for household members age 5 and above

ED3. Has (name) ever attended school or preschool?

ED4. What is the highest level of school (name) attended? What is the highest grade (name) completed at this level? (Preschool, primary, secondary, higher, non-standard curriculum, DK)

Education module – for household members 5-24 years

ED5. During last year school year, did (name) attend school or preschool at any time?

ED6. During this/that school year, which level and grade is/was attending? (Preschool, primary, secondary, higher, non-standard curriculum, DK)

ED7. During the previous school year, did (name) attend school or preschool at any time?

ED8. During that previous school year, which level and grade did (name) attend?

Child labour module – for children in the household ages 5-14 years

CL3. During the past week, did (name) do any kind of work for someone who is not a member of this household?

CL4. Since last (day of the week) about how many hours did he/she do this work for someone who is not a member of this household?

CL5. During the past week, did (name) fetch water or collect firewood for household use?

CL6. Since last (day of the week) about how many hours did he/she fetch water or collect firewood for household use?

CL7. During the past week, did (name) do any paid or unpaid work on a family farm or in a family business or selling goods in the street?

CL8. Since last (day of the week) about how many hours did he/she do this work for his/her family or his/herself?

CL9. During the past week, did (name) help with household chores such as shopping, cleaning, washing clothes, cooking; or caring for children, old or sick people?

CL10. Since last (day of the week) about how many hours did he/she spend doing these chores?

Child discipline – for children aged 2-14 years (random selection of 1 child per household)

CD10. All adults use certain ways to teach children the right behaviour or to address a behaviour problem. I will read various methods that are used and I want you to tell me if you or anyone else in your household has used this method with (name) in the past month.

³⁶ Several optional modules of the MICS3 were subsequently integrated into the standard questionnaires of the MICS4, e.g., child development and child discipline.

- CD11. Took away privileges, forbade something (name) liked or did not allow him/her to leave house.
- CD12. Explained why (name's) behaviour was wrong.
- CD13. Shook him/her.
- CD14. Shouted, yelled at or screamed at him/her.
- CD15. Gave him/her something else to do.
- CD16. Spanked, hit or slapped him/her on the bottom with bare hand.
- CD17. Hit him/her on the bottom or elsewhere on the body with something like a belt, hairbrush, stick or other hard object.
- CD18. Called him/her dumb, lazy, or another name like that.
- CD19. Hit or slapped him/her on the face, head or ears.
- CD20. Hit or slapped him/her on the hand, arm, or leg.
- CD21. Beat him/her up, that is hit over and over as hard as one could.
- CD22. Do you believe that in order to bring up, raise, or educate a child properly, the child needs to be physically punished?

(b) Questionnaire for women age 15-49 years

Woman's background

- WB3. Have you ever attended school or preschool?
- WB4. What is the highest level of school you attended: Preschool, primary, secondary, higher?
- WB5. What is the highest grade you completed at that level?
- WB7: Now I would like you to read this sentence to me. Can you read part of the sentence to me?

Maternal and newborn health module

- MN1. Did you see anyone for antenatal care during your pregnancy with (name)?
- MN4. As part of your antenatal care during this pregnancy, were any of the following done at least once:
- MN4a. Was your blood pressure measured?
 - MN4b. Did you give a urine sample?
 - MN4c. Did you give a blood sample?

(c) Questionnaire for children under the age of 5 (addressed to the mother or caretaker of the child)

Birth registration

- BR1. Does (name) have a birth certificate?
- BR2. Has (name) been registered with the civil authorities?
- BR3. Do you know how to register your child's birth?

Early childhood development module (for all children under 5)

- EC1. How many children's books or picture books do you have for (name)?
- EC2. I am interested in learning about the things that (name) play with when he/she is at home. Does he/she play with:
- EC2a. homemade toys (such as dolls, cars, or other toys made at home)?
 - EC2b. toys from a shop or manufactured toys?
 - EC2c. household objects (such as bowls or pots) or objects found outside (such as sticks, rocks, animal shells or leaves)?
- EC3. Sometime adults taking care of children have to leave the house to go shopping, wash clothes, or other reasons and have to leave young children. On how many days in the past week was (name)
- EC3a. left alone for more than an hour?
 - EC3b. left in the care of another child that is, someone less than 10 years old, for more than an hour?

Early childhood development module continued (only for children ages 3 and 4)

EC5. Does (name) attend any organized learning or early childhood education programme, such as a private or government facility, including kindergarten or community child care?

EC6. Within the last seven days, about how many hours did (name) attend?

EC7. In the past 3 days, did you or any household member over 15 years of age engage in any of the following activities with (name):

- EC7a. Read books to or look at picture books with (name)?
- EC7b. Told stories to (name)?
- EC7c. Sang songs to (name) or with (name), including lullabies?
- EC7d. Took (name) outside the home, compound, yard or enclosure?
- EC7e. Play with (name)?
- EC7f. Named, counted or drew things to or with (name)?

EC8. I would like to ask you some questions about the health and development of your child. Children do not all develop and learn at the same rate. For example, some walk earlier than others. These questions are related to several aspects of your child's development. Can (name) identify or name at least ten letters of the alphabet?

EC9. Can (name) read at least four simple, popular words?

EC10. Does (name) know the name and recognize the symbol of all numbers from 1 to 10?

EC11. Can (name) pick up a small object with two fingers, like a stick or a rock from the ground?

EC12. Is (name) sometimes too sick to play?

EC13. Does (name) follow simple directions on how to do something correctly?

EC14. When given something to do, is (name) able to do it independently?

EC15. Does (name) get along well with other children?

EC16. Does (name) kick, bite, or hit other children or adults?

EC17. Does (name) get distracted easily?

Breastfeeding module

BF1. Has (name) ever been breastfed?

BF2. Is he/she still being breastfed?

(d) Optional module in MICS-3 on disability

Disability (address to mother or caretakers of all children 2 through 9 years old living in the household)

DA3. Compared with other children, does or did (name) have any serious delay in sitting, standing or walking?

DA4. Compared with other children, does (name) have difficulty seeing, either in the daytime or at night?

DA5. Does (name) appear to have difficulty hearing?

DA6. When you tell (name) to do something, does he/she seem to understand what you are saying?

DA7. Does (name) has difficulty in walking or moving his/her arm or does he/she have weakness and/or stiffness in the arms or legs?

DA8. Does (name) sometimes have fits, become rigid, or lose consciousness?

DA9. Does (name) learn to do things like other children his/her age?

DA10. Does (name) speak at all (can he/she make him or herself understood in words; can say any recognizable words)?

DA11. (For ages 3-9 years) is (name)'s speech in any way different from normal (not clear enough to be understood by people other than the immediate family)?

DA12. (For ages 2 years) Can (name) name at least one object (for example, an animal, a toy, a cup, a spoon)?

DA13. Compared with other children of the same age, does (name) appear any way mentally backward, dull or slow?

Sources: UNICEF (2009c); UNICEF (2010b).

Appendix 4: Matrix of reviewed indices

See Excel spreadsheet.

**Appendix 4 - Matrix of reviewed indices
Alfredo Tinajero and Anaïs Loizillon**

		Total (instances)	334										
		Total instances per factor	87										
		Total instances per subfactor	34										
		Total instances per measure	1	0	2	1	3	4	2	1	4	1	0
		Factor											
		Subfactor	1.1 Mother's well-being										
Indices	Characteristics	Maternal health status	Nutritional status (mothers)	Lifetime risk of maternal death	Female life expectancy (at birth)	Fertility rate/Number of children the mother has	Use of modern contraception	Desire for last birth	Has the mother's menstrual period returned since the birth of (name)?	Teenage pregnancy	Mother's psychological well-being	% of mothers suffering from post- partum depression	
Global Indices on Child Well-Being													
1	Child Development Index (Save the Children UK, 2008).	Monitors how countries are performing in basic ECD indicators											
2	OECD Child Well-Being Indicators (OECD, 2009).	Monitors level of child well-being inequality in OECD countries.								x			
3	A Framework of Early Childhood Indicators for General Comment 7 (Vaghri et al., 2010)	Recommends indicators toward the achievement of MDG7											
4	Inequality in child well-being in the world's richest countries - UNICEF Innocenti Report Card 9 (UNICEF, 2010a).	Monitors level of child well-being inequality in OECD countries.								x			
5	Multiple Indicator Cluster Surveys (MICS Round 3) UNICEF (2009)	Household survey program developed by UNICEF to assist countries in filling data gaps for monitoring the situation of women and children				x							

		18												
		0	13	1	1	6	1	3	1	3	3	1		
		1. The mother and the home environment												
		1.2 Parenting practices /developmental care												
Indices		Perceived social support raising child	Mother's literacy level	Estimate ratio of female to male earned income	Maternal employment	Breastfeeding	Infant formula	Healthy eating	Vitamin or mineral supplements	Vigorous physical activity	Child discipline	Young people who brush their teeth		
Global Indices on Child Well-Being														
1	Child Development Index (Save the Children UK, 2008).													
2	OECD Child Well-Being Indicators (OECD, 2009).					x								
3	A Framework of Early Childhood Indicators for General Comment 7 (Vaghri et al., 2010)					x Breastfeeding and complementary breast feeding								
4	Inequality in child well-being in the world's richest countries - UNICEF Innocenti Report Card 9 (UNICEF, 2010a).							x (%of children who eat breakfast and fruit - daily)		x				
5	Multiple Indicator Cluster Surveys (MICS Round 3) UNICEF (2009)		x (Also the caregiver is asked to read a short sentence)			x How long after birth did you first put (name) to the breast?					x (A set of questions asking caregivers about discipline strategies)			

1.3 Home environment

Indices	Family and peer relationship	% of children living in single parent families	% of children living in stepfamilies	% of children who live in households where the caregiver is over 60, disabled, incapacitated	Number of members in the household	Who takes care of the child when parents are absent?	% of children who report that parents spend time "just talking to them"	Play	Play material (variety)	Sources of play materials	Participation in household decision making (child)
Global Indices on Child Well-Being											
1	Child Development Index (Save the Children UK, 2008).										
2	OECD Child Well-Being Indicators (OECD, 2009).										
3	A Framework of Early Childhood Indicators for General Comment 7 (Vaghri et al., 2010)							x Play, leisure and rest opportunities			x
4	Inequality in child well-being in the world's richest countries - UNICEF Innocenti Report Card 9 (UNICEF, 2010a).	x	x	x			x				
5	Multiple Indicator Cluster Surveys (MICS Round 3) UNICEF (2009)					x (item asks who takes care of the child when parents are absent)		x	x		

				95						55			
		3	3	15	2	2	2	3	2	1	3	2	
2.1 Enrolment and quality pre-primary and primary education													
Indices	Early stimulation practices	Household books/newspapers	Enrolment ECD	Enrolment ECD for vulnerable - excluded	Gender parity index - ECD	Quality pre-primary education	% of trained teachers in pre-primary education	% of female teachers in pre-primary education	Health and nutritional services within ECD programs	Pupil/teacher ratio pre-primary	New entrants to primary education with ECCE experience		
Global Indices on Child Well-Being													
1	Child Development Index (Save the Children UK, 2008).												
2	OECD Child Well-Being Indicators (OECD, 2009).												
3	A Framework of Early Childhood Indicators for General Comment 7 (Vaghri et al., 2010)		x	x									
4	Inequality in child well-being in the world's richest countries - UNICEF Innocenti Report Card 9 (UNICEF, 2010a).												
5	Multiple Indicator Cluster Surveys (MICS Round 3) UNICEF (2009)	x Read book to child, tell stories, sing songs, play with child, named, counted...	x (e.g., how many children's books are there in the house?)	x									

1 8 4 3 4 3 6 2 2 1 1

2. Care and education services

2.2 Provision and quality of health services

Indices	Primary education intake rates	Enrolment primary school	Internal efficiency: repetition and drop-out	Primary school completion	Academic achievement in primary / secondary school	School achievement primary school	Prenatal health care	Antenatal care - vaccines	Antenatal care - malaria	% mothers receiving iron supplementation during pregnancy	Vitamin A supplementation
Global Indices on Child Well-Being											
1	Child Development Index (Save the Children UK, 2008).	x (% not enrolled in primary education)									
2	OECD Child Well-Being Indicators (OECD, 2009).										
3	A Framework of Early Childhood Indicators for General Comment 7 (Vaghri et al., 2010)										
4	Inequality in child well-being in the world's richest countries - UNICEF Innocenti Report Card 9 (UNICEF, 2010a).				x						
5	Multiple Indicator Cluster Surveys (MICS Round 3) UNICEF (2009)						x weighed during pregnancy; blood pressure measures; urine sample analysed				

								106								
38							2		48							
7		4		1	4		9	1	2		10		2	12		1
								2.3 Parenting				3.1 Basic survival and nutrition				
Indices		Professional care at delivery	Access and use of health services	Age appropriate health education	% mothers receiving preventive information HIV/AIDS	% children immunized against...	Well-child check-up in past 12 months	Caregiver's participation in parenting programs	Under-1 (infant) mortality	Female infant and under 5 mortality rate	Under-5 Mortality	Distribution of causes of death among children				
Global Indices on Child Well-Being																
1	Child Development Index (Save the Children UK, 2008).								x		x					
2	OECD Child Well-Being Indicators (OECD, 2009).					x (pertussis, measles)			x							
3	A Framework of Early Childhood Indicators for General Comment 7 (Vaghri et al., 2010)		x	x					x		x					
4	Inequality in child well-being in the world's richest countries - UNICEF Innocenti Report Card 9 (UNICEF, 2010a).					x (measles, DPT, Polio)			x							
5	Multiple Indicator Cluster Surveys (MICS Round 3) UNICEF (2009)	x	x		x	x		x	x		x					

3. Child development outcomes

3.2 Developmental health (health, learning and behaviour) and school readiness

Indices	Low birth weight	Stunting / malnutrition	Overweight and obesity	School readiness	Alertness and responsiveness	Sensorial development	Physical health and well being	Motor development	Socio-emotional development	Learning	Language and cognitive development
Global Indices on Child Well-Being											
1	Child Development Index (Save the Children UK, 2008).	x									
2	OECD Child Well-Being Indicators (OECD, 2009).	x									
3	A Framework of Early Childhood Indicators for General Comment 7 (Vaghri et al., 2010)						x				
4	Inequality in child well-being in the world's richest countries - UNICEF Innocenti Report Card 9 (UNICEF, 2010a).	x		x			x Self-report health (8 items); % of children reporting liking school; % of children rating liking themselves above the mid-point of a life satisfaction scale.				
5	Multiple Indicator Cluster Surveys (MICS Round 3) UNICEF (2009)		x				x (e.g., difficulty seeing, hearing...?)	x (e.g., any serious delay in sitting, walking...?)		x (e.g., does he/she learn to do things like other children his/her age?)	x (e.g., he/she seems to understand what you are saying...?)

							10										
							10										
							5	4	4	1	3	1	5	0	1	0	2
							4. Biological and environmental risks										
Indices		Communication skills	General knowledge	Develop. limitations	Moral and spiritual	Approaches toward learning	Behavioural problems	Water and sanitation home	Food deprivation	Maternal smoking	Alcohol consumption during pregnancy	Percentage of the population using solid fuels					
Global Indices on Child Well-Being																	
1	Child Development Index (Save the Children UK, 2008).																
2	OECD Child Well-Being Indicators (OECD, 2009).																
3	A Framework of Early Childhood Indicators for General Comment 7 (Vaghri et al., 2010)																
4	Inequality in child well-being in the world's richest countries - UNICEF Innocenti Report Card 9 (UNICEF, 2010a).																
5	Multiple Indicator Cluster Surveys (MICS Round 3) UNICEF (2009)	x	x (e.g., name) name at least one object)	x		x (e.g., compared with other children of the same age, does (name) appear any way mentally backward, dull or slow?)		x									

		24										12		
		24										12		
		1	1	1	3	3	1	4	2	7	2	1	11	1
		5. Child Protection										6. Poverty		
Indices	Teratogens (lead)	Children in emergency and war zones	Child marriage	Female genital mutilation	Child labour	Sexual exploitation and abuse	Violence against children	Attitudes toward domestic violence	Birth registration / certificate	Child trafficking	Knowledge of rights	Poverty	Basic material needs	
Global Indices on Child Well-Being														
1	Child Development Index (Save the Children UK, 2008).													
2	OECD Child Well-Being Indicators (OECD, 2009).											x		
3	A Framework of Early Childhood Indicators for General Comment 7 (Vaghri et al., 2010)						x		x		x		x	
4	Inequality in child well-being in the world's richest countries - UNICEF Innocenti Report Card 9 (UNICEF, 2010a).											x		
5	Multiple Indicator Cluster Surveys (MICS Round 3) UNICEF (2009)				x	x	x		x			x		

Factor		1.1 Mother's well-being											
Subfactor													
Indices	Characteristics	Maternal health status	Nutritional status (mothers)	Lifetime risk of maternal death	Female life expectancy (at birth)	Fertility rate/Number of children the mother has	Use of modern contraception	Desire for last birth	Has the mother's menstrual period returned since the birth of (name)?	Teenage pregnancy	Mother's psychological well-being	% of mothers suffering from post- partum depression	
6	Multiple Indicator Cluster Surveys (MICS Round 4) UNICEF (2011)	Household survey program developed by UNICEF to assist countries in filling data gaps for monitoring the situation of women and children					x	x What are you doing to delay or avoid pregnancy?	x When you got pregnant with (name), did you want to get pregnant at that time?	x			
7	World Health Statistics (WHO, 2011b).	Global and national statistics on health						x	x				
Regional or National Indices on Child Well-Being													
8	African Union Indicators for Monitoring the Plan of Action for the Education in the Second Decade (Arnott et al., 2008).	Measures, monitors and tracks education delivery in African countries											
9	Australia Early Development Index (Sansom et al., 2010).	Population measure of developmental health (and school readiness) before school entry											
10	Child Development Index - Ecuador (UNICEF/ODNA, 2006).	To monitor how children are developing in basic ECD indicators											
11	Child Development Index in Peru (UNICEF/INEI, 2008; 2011).	To monitor how children are developing in basic ECD indicators											
12	The Child Development Index: The State of Brazil's Children 2006 (UNICEF, 2005).	To monitor how children are developing in basic ECD indicators											

		1. The mother and the home environment										
		1.2 Parenting practices /developmental care										
Indices	Perceived social support raising child	Mother's literacy level	Estimate ratio of female to male earned income	Maternal employment	Breastfeeding	Infant formula	Healthy eating	Vitamin or mineral supplements	Vigorous physical activity	Child discipline	Young people who brush their teeth	
6	Multiple Indicator Cluster Surveys (MICS Round 4) UNICEF (2011)		x (Also the caregiver is asked to read a short sentence)			x How long after birth did you first put (name) to the breast?	x Does (name) drink infant formula?	x (e.g., milk, juice, soup, yogurt, thin porridge, solid or semi-solid food?)	x Did (name) drink vitamin or mineral supplement?		x (A set of questions asking caregivers about discipline strategies)	
7	World Health Statistics (WHO, 2011b).		x			x % of children exclusively breastfed for the first 6 months						
Regional or National Indices on Child Well-												
8	African Union Indicators for Monitoring the Plan of Action for the Education in the Second Decade (Arnott et al., 2008).											
9	Australia Early Development Index (Sanson et al., 2010).											
10	Child Development Index - Ecuador (UNICEF/ODNA, 2006).		x women above each 15									
11	Child Development Index in Peru (UNICEF/INEI, 2008; 2011).		x did not complete primary education									
12	The Child Development Index: The State of Brazil's Children 2006 (UNICEF, 2005).		x (the mother)									

1.3 Home environment

	Indices	Family and peer relationship	% of children living in single parent families	% of children living in stepfamilies	% of children who live in households where the caregiver is over 60, disabled, incapacitated	Number of members in the household	Who takes care of the child when parents are absent?	% of children who report that parents spend time "just talking to them"	Play	Play material (variety)	Sources of play materials	Participation in household decision making (child)
6	Multiple Indicator Cluster Surveys (MICS Round 4) UNICEF (2011)						x (item asks who takes care of the child when parents are absent)		x	x (homemade, manufactured, household objects?)		
7	World Health Statistics (WHO, 2011b).											
Regional or National Indices on Child Well-												
8	African Union Indicators for Monitoring the Plan of Action for the Education in the Second Decade (Arnott et al., 2008).											
9	Australia Early Development Index (Sanson et al., 2010).											
10	Child Development Index - Ecuador (UNICEF/ODNA, 2006).							% of children not sharing recreational activities with parents				
11	Child Development Index in Peru (UNICEF/INEI, 2008; 2011).											
12	The Child Development Index: The State of Brazil's Children 2006 (UNICEF, 2005).											

		2.1 Enrolment and quality pre-primary and primary education										
Indices	Early stimulation practices	Household books/newspapers	Enrolment ECD	Enrolment ECD for vulnerable - excluded	Gender parity index - ECD	Quality pre-primary education	% of trained teachers in pre-primary education	% of female teachers in pre-primary education	Health and nutritional services within ECD programs	Pupil/teacher ratio pre-primary	New entrants to primary education with ECCE experience	
6	Multiple Indicator Cluster Surveys (MICS Round 4) UNICEF (2011)	x Read book to child, tell stories, sing songs, play with child, named, counted...	x (e.g., how many children's books are there in the house?)	x (Attend any organized learning or education program?)								
7	World Health Statistics (WHO, 2011b).											
Regional or National Indices on Child Well-												
8	African Union Indicators for Monitoring the Plan of Action for the Education in the Second Decade (Arnott et al., 2008).			x		x		x		x		
9	Australia Early Development Index (Sanson et al., 2010).											
10	Child Development Index - Ecuador (UNICEF/ODNA, 2006).			x								
11	Child Development Index in Peru (UNICEF/INEI, 2008; 2011).			x ages 3-5								
12	The Child Development Index: The State of Brazil's Children 2006 (UNICEF, 2005).			x (ages 4-6)								

		2. Care and education services										
								2.2 Provision and quality of health services				
Indices		Primary education intake rates	Enrolment primary school	Internal efficiency: repetition and drop-out	Primary school completion	Academic achievement in primary / secondary school	School achievement primary school	Prenatal health care	Antenatal care - vaccines	Antenatal care - malaria	% mothers receiving iron supplementation during pregnancy	Vitamin A supplementation
6	Multiple Indicator Cluster Surveys (MICS Round 4) UNICEF (2011)							x How many times did you receive antenatal care? Blood pressure measured; urine sample analysed; blood sample analysed	x Tetanus	x medicine to prevent malaria		
7	World Health Statistics (WHO, 2011b).		x					x	x % of children immunized against neonatal tetanus	x medicine to prevent malaria		x % of children 5-59 months receiving
Regional or National Indices on Child Well-												
8	African Union Indicators for Monitoring the Plan of Action for the Education in the Second Decade (Arnott et al., 2008).		x (% not enrolled in primary education)	x	x							
9	Australia Early Development Index (Sanson et al., 2010).											
10	Child Development Index - Ecuador (UNICEF/ODNA, 2006).				% of children enrolled in secondary education							
11	Child Development Index in Peru (UNICEF/INEI, 2008; 2011).											
12	The Child Development Index: The State of Brazil's Children 2006 (UNICEF, 2005).							x (at least 6 visits)				

									2.3 Parenting	3.1 Basic survival and nutrition			
Indices	Professional care at delivery	Access and use of health services	Age appropriate health education	% mothers receiving preventive information HIV/AIDS	% children immunized against...	Well-child check-up in past 12 months	Caregiver's participation in parenting programs	Under-1 (infant) mortality	Female infant and under 5 mortality rate	Under-5 Mortality	Distribution of causes of death among children		
6	Multiple Indicator Cluster Surveys (MICS Round 4) UNICEF (2011)	x			x	x (complete immunization card)			x		x		
7	World Health Statistics (WHO, 2011b).	x			% of population 15-24 with correct knowledge of AIDS	x Tuberculosis, Diphtheria, Pertussis, Tetanus, Polio, Measles, Hepatitis B (1 year old)			x	x	x	x HIV/AIDS, diarrhoea, measles, malaria, pneumonia, prematurity, birth asphyxia, neonatal sepsis, congenital abnormalities, injuries	
Regional or National Indices on Child Well-													
8	African Union Indicators for Monitoring the Plan of Action for the Education in the Second Decade (Arnott et al., 2008).								x		x		
9	Australia Early Development Index (Sanson et al., 2010).												
10	Child Development Index - Ecuador (UNICEF/ODNA, 2006).										x		
11	Child Development Index in Peru (UNICEF/INEI, 2008; 2011).	x											
12	The Child Development Index: The State of Brazil's Children 2006 (UNICEF, 2005).					x (DPT and Tetramune)							

		3. Child development outcomes										
		3.2 Developmental health (health, learning and behaviour) and school readiness										
Indices	Low birth weight	Stunting / malnutrition	Overweight and obesity	School readiness	Alertness and responsiveness	Sensorial development	Physical health and well being	Motor development	Socio-emotional development	Learning	Language and cognitive development	
6	Multiple Indicator Cluster Surveys (MICS Round 4) UNICEF (2011)	x birth weight	height and weight at birth		x Literacy and numeracy skills		x (e.g., sometimes is to sick to play, episodes of diarrhoea? Treatment for diarrhoea?	x (e.g., can take an object with two fingers)	x (Does (name) get along well with other children? Kick, bite or hit other children?	x Does (name) get distracted easily?)	x Does (name) follow simple directions on how to do something correctly?)	
7	World Health Statistics (WHO, 2011b).	x	x	x								
Regional or National Indices on Child Well												
8	African Union Indicators for Monitoring the Plan of Action for the Education in the Second Decade (Arnott et al., 2008).		x									
9	Australia Early Development Index (Sanson et al., 2010).				x		x		x		x	
10	Child Development Index - Ecuador (UNICEF/ODNA, 2006).		x				% of children punished with maltreatment					
11	Child Development Index in Peru (UNICEF/INEI, 2008; 2011).		x									
12	The Child Development Index: The State of Brazil's Children 2006 (UNICEF, 2005).											

								4. Biological and environmental risks				
Indices	Communication skills	General knowledge	Develop. limitations	Moral and spiritual	Approaches toward learning	Behavioural problems	Water and sanitation home	Food deprivation	Maternal smoking	Alcohol consumption during pregnancy	Percentage of the population using solid fuels	
6	Multiple Indicator Cluster Surveys (MICS Round 4) UNICEF (2011)	x	x (e.g., name) name at least one object)	x			x Source of drinking water				x fuels mainly used for cooking?	
7	World Health Statistics (WHO, 2011b).						x Sanitation and drinking water				x	
Regional or National Indices on Child Well-												
8	African Union Indicators for Monitoring the Plan of Action for the Education in the Second Decade (Arnott et al., 2008).											
9	Australia Early Development Index (Sanson et al., 2010).	x	x									
10	Child Development Index - Ecuador (UNICEF/ODNA, 2006).											
11	Child Development Index in Peru (UNICEF/INEI, 2008; 2011).						x					
12	The Child Development Index: The State of Brazil's Children 2006 (UNICEF, 2005).											

				5. Child Protection									6. Poverty	
Indices	Teratogens (lead)	Children in emergency and war zones	Child marriage	Female genital mutilation	Child labour	Sexual exploitation and abuse	Violence against children	Attitudes toward domestic violence	Birth registration / certificate	Child trafficking	Knowledge of rights	Poverty	Basic material needs	
6	Multiple Indicator Cluster Surveys (MICS Round 4) UNICEF (2011)								x "In your opinion, is a husband justified in hitting or beating his wife in the following situations...?"	x	x			
7	World Health Statistics (WHO, 2011b).											x % of population living with less than \$US per day		
Regional or National Indices on Child Well														
8	African Union Indicators for Monitoring the Plan of Action for the Education in the Second Decade (Arnott et al., 2008).													
9	Australia Early Development Index (Sanson et al., 2010).													
10	Child Development Index - Ecuador (UNICEF/ODNA, 2006).													
11	Child Development Index in Peru (UNICEF/INEI, 2008; 2011).								x			x high financial dependency		
12	The Child Development Index: The State of Brazil's Children 2006 (UNICEF, 2005).													

Factor		1.1 Mother's well-being											
Subfactor													
Indices	Characteristics	Maternal health status	Nutritional status (mothers)	Lifetime risk of maternal death	Female life expectancy (at birth)	Fertility rate/Number of children the mother has	Use of modern contraception	Desire for last birth	Has the mother's menstrual period returned since the birth of (name)?	Teenage pregnancy	Mother's psychological well-being	% of mothers suffering from post- partum depression	
13	Child Well-Being Index (Bradshaw and Richardson, 2009). European Union, Norway, Iceland.	Measures of child well-being								x			
14	Child Well-Being in the Mediterranean - the Mediterranean Child Welfare Index (Van der Gaag and Dunkelberg, 2005).	Proposes a child welfare index for the Mediterranean region											
15	Early Development Instrument - Canada (Janus and Offord, 2007).	Population measure of developmental health (and school readiness) before school entry											
16	Family Care Indicators (FCIs) (Hamadani et al., 2010).	To measure the quality of stimulation of the home environment											
17	Indicadores de la Educación de la Primera Infancia en America Latina (Indicators for Early Childhood Education in Latin America). UNESCO-ORLEAC (2008).	Demographic and service quality indicators											
18	Indicators for Early Childhood Development: Western Cape Province, South Africa (Dawes et al., 2006).	National indicators for early childhood development	x										
19	Los Ninos y Ninas del Ecuador a inicios del siglo XXI. Observatorio de los Derechos de la Ninez y Adolescencia (ODNA, 2010).	Socio-demographic information of children											

1. The mother and the home environment

1.2 Parenting practices /developmental care

	Indices	Perceived social support raising child	Mother's literacy level	Estimate ratio of female to male earned income	Maternal employment	Breastfeeding	Infant formula	Healthy eating	Vitamin or mineral supplements	Vigorous physical activity	Child discipline	Young people who brush their teeth
13	Child Well-Being Index (Bradshaw and Richardson, 2009). European Union, Norway, Iceland.							x (%of children who eat breakfast and fruit - daily)		x		x
14	Child Well-Being in the Mediterranean - the Mediterranean Child Welfare Index (Van der Gaag and Dunkelberg, 2005).											
15	Early Development Instrument - Canada (Janus and Offord, 2007).											
16	Family Care Indicators (FCIs) (Hamadani et al., 2010).											
17	Indicadores de la Educación de la Primera Infancia en America Latina (Indicators for Early Childhood Education in Latin America). UNESCO-ORLEAC (2008).		x (both parents)		x							
18	Indicators for Early Childhood Development: Western Cape Province, South Africa (Dawes et al., 2006).		x									
19	Los Ninos y Ninas del Ecuador a inicios del siglo XXI. Observatorio de los Derechos de la Ninez y Adolescencia (ODNA, 2010).		x								x (item gives different options for the kind of discipline methods used by caregivers)	

1.3 Home environment

	Indices	Family and peer relationship	% of children living in single parent families	% of children living in stepfamilies	% of children who live in households where the caregiver is over 60, disabled, incapacitated	Number of members in the household	Who takes care of the child when parents are absent?	% of children who report that parents spend time "just talking to them"	Play	Play material (variety)	Sources of play materials	Participation in household decision making (child)
13	Child Well-Being Index (Bradshaw and Richardson, 2009). European Union, Norway, Iceland.	x	x	x				x				
14	Child Well-Being in the Mediterranean - the Mediterranean Child Welfare Index (Van der Gaag and Dunkelberg, 2005).											
15	Early Development Instrument - Canada (Janus and Offord, 2007).											
16	Family Care Indicators (FCIs) (Hamadani et al., 2010).							x		x Things which make/play music, things fro drawing or writing, picture books for children, etc	x household objects, things from outside, toys brought from store, home-made toys	
17	Indicadores de la Educación de la Primera Infancia en America Latina (Indicators for Early Childhood Education in Latin America). UNESCO-ORLEAC (2008).		x			x						
18	Indicators for Early Childhood Development: Western Cape Province, South Africa (Dawes et al., 2006).				x							
19	Los Ninos y Ninas del Ecuador a inicios del siglo XXI. Observatorio de los Derechos de la Ninez y Adolescencia (ODNA, 2010).	x	x (item gives different options for family structure)	x (item gives different options for family structure)			x (item asks who takes care of the child when parents are absent)	x (item gives different options for the kind of activity)				

		2.1 Enrolment and quality pre-primary and primary education										
Indices	Early stimulation practices	Household books/newspapers	Enrolment ECD	Enrolment ECD for vulnerable - excluded	Gender parity index - ECD	Quality pre-primary education	% of trained teachers in pre-primary education	% of female teachers in pre-primary education	Health and nutritional services within ECD programs	Pupil/teacher ratio pre-primary	New entrants to primary education with ECCE experience	
13	Child Well-Being Index (Bradshaw and Richardson, 2009). European Union, Norway, Iceland.		x									
14	Child Well-Being in the Mediterranean - the Mediterranean Child Welfare Index (Van der Gaag and Dunkelberg, 2005).		x									
15	Early Development Instrument - Canada (Janus and Offord, 2007).											
16	Family Care Indicators (FCIs) (Hamadani et al., 2010).	x Read books, sing songs, take child outside the home, play with child, spend time with child naming things, etc										
17	Indicadores de la Educación de la Primera Infancia en America Latina (Indicators for Early Childhood Education in Latin America). UNESCO-ORLEAC (2008).		x			x	x		x	x		
18	Indicators for Early Childhood Development: Western Cape Province, South Africa (Dawes et al., 2006).		x	x		x Proportion of ECD facilities that meet national quality standards						
19	Los Ninos y Ninas del Ecuador a inicios del siglo XXI. Observatorio de los Derechos de la Ninez y Adolescencia (ODNA, 2010).		x									

2. Care and education services

2.2 Provision and quality of health services

Indices	Primary education intake rates	Enrolment primary school	Internal efficiency: repetition and drop-out	Primary school completion	Academic achievement in primary / secondary school	School achievement primary school	Prenatal health care	Antenatal care - vaccines	Antenatal care - malaria	% mothers receiving iron supplementation during pregnancy	Vitamin A supplementation
	13	Child Well-Being Index (Bradshaw and Richardson, 2009). European Union, Norway, Iceland.	x			x	x				
14	Child Well-Being in the Mediterranean - the Mediterranean Child Welfare Index (Van der Gaag and Dunkelberg, 2005).										
15	Early Development Instrument - Canada (Janus and Offord, 2007).				x						
16	Family Care Indicators (FCIs) (Hamadani et al., 2010).										
17	Indicadores de la Educación de la Primera Infancia en America Latina (Indicators for Early Childhood Education in Latin America). UNESCO-ORLEAC (2008).	x	x			x	x (at least 6 visits)				
18	Indicators for Early Childhood Development: Western Cape Province, South Africa (Dawes et al., 2006).										
19	Los Niños y Niñas del Ecuador a inicios del siglo XXI. Observatorio de los Derechos de la Niñez y Adolescencia (ODNA, 2010).	x					x			x	

									3.1 Basic survival and nutrition				
									2.3 Parenting				
Indices	Professional care at delivery	Access and use of health services	Age appropriate health education	% mothers receiving preventive information HIV/AIDS	% children immunized against...	Well-child check-up in past 12 months	Caregiver's participation in parenting programs	Under-1 (infant) mortality	Female infant and under 5 mortality rate	Under-5 Mortality	Distribution of causes of death among children		
13	Child Well-Being Index (Bradshaw and Richardson, 2009). European Union, Norway, Iceland.					x (Measles, DPT3, polio)		x					
14	Child Well-Being in the Mediterranean - the Mediterranean Child Welfare Index (Van der Gaag and Dunkelberg, 2005).									x			
15	Early Development Instrument - Canada (Janus and Offord, 2007).												
16	Family Care Indicators (FCIs) (Hamadani et al., 2010).												
17	Indicadores de la Educación de la Primera Infancia en America Latina (Indicators for Early Childhood Education in Latin America). UNESCO-ORLEAC (2008).	x								x			
18	Indicators for Early Childhood Development: Western Cape Province, South Africa (Dawes et al., 2006).					x Percentage of children 0-12 months who are fully immunised	x	x		x			
19	Los Niños y Niñas del Ecuador a inicios del siglo XXI. Observatorio de los Derechos de la Niñez y Adolescencia (ODNA, 2010).	x			x								

3. Child development outcomes

3.2 Developmental health (health, learning and behaviour) and school readiness

	Indices	3.2 Developmental health (health, learning and behaviour) and school readiness													
		Low birth weight	Stunting / malnutrition	Overweight and obesity	School readiness	Alertness and responsiveness	Sensorial development	Physical health and well being	Motor development	Socio-emotional development	Learning	Language and cognitive development			
13	Child Well-Being Index (Bradshaw and Richardson, 2009). European Union, Norway, Iceland.	x		x								x Self-report health (8 items); % of children reporting liking school; % of children rating liking themselves above the mid-point of a life satisfaction scale			
14	Child Well-Being in the Mediterranean - the Mediterranean Child Welfare Index (Van der Gaag and Dunkelberg, 2005).		x Adequate nutrition												
15	Early Development Instrument - Canada (Janus and Offord, 2007).				x				x		x				x
16	Family Care Indicators (FCIs) (Hamadani et al., 2010).														
17	Indicadores de la Educación de la Primera Infancia en America Latina (Indicators for Early Childhood Education in Latin America). UNESCO-ORLEAC (2008).		x Risk of malnutrition		x										
18	Indicators for Early Childhood Development: Western Cape Province, South Africa (Dawes et al., 2006).		x Under weight rate and stunting rate									x Age specific prevalence rate of children with 1 or more activity limitations			
19	Los Ninos y Ninas del Ecuador a inicios del siglo XXI. Observatorio de los Derechos de la Ninez y Adolescencia (ODNA, 2010).		x									% of children who feel physically safe			

								4. Biological and environmental risks				
Indices		Communication skills	General knowledge	Develop. limitations	Moral and spiritual	Approaches toward learning	Behavioural problems	Water and sanitation home	Food deprivation	Maternal smoking	Alcohol consumption during pregnancy	Percentage of the population using solid fuels
13	Child Well-Being Index (Bradshaw and Richardson, 2009). European Union, Norway, Iceland.											
14	Child Well-Being in the Mediterranean - the Mediterranean Child Welfare Index (Van der Gaag and Dunkelberg, 2005).											
15	Early Development Instrument - Canada (Janus and Offord, 2007).	x										
16	Family Care Indicators (FCIs) (Hamadani et al., 2010).											
17	Indicadores de la Educación de la Primera Infancia en America Latina (Indicators for Early Childhood Education in Latin America). UNESCO-ORLEAC (2008).											
18	Indicators for Early Childhood Development: Western Cape Province, South Africa (Dawes et al., 2006).			x Children under 2 years with moderate and severe disabilities								
19	Los Niños y Niñas del Ecuador a inicios del siglo XXI. Observatorio de los Derechos de la Niñez y Adolescencia (ODNA, 2010).											

				5. Child Protection									6. Poverty	
Indices	Teratogens (lead)	Children in emergency and war zones	Child marriage	Female genital mutilation	Child labour	Sexual exploitation and abuse	Violence against children	Attitudes toward domestic violence	Birth registration / certificate	Child trafficking	Knowledge of rights	Poverty	Basic material needs	
13	Child Well-Being Index (Bradshaw and Richardson, 2009). European Union, Norway, Iceland.											x (children living in workless households)		
14	Child Well-Being in the Mediterranean - the Mediterranean Child Welfare Index (Van der Gaag and Dunkelberg, 2005).											x GDP per capita (PPP US\$)		
15	Early Development Instrument - Canada (Janus and Offord, 2007).													
16	Family Care Indicators (FCIs) (Hamadani et al., 2010).													
17	Indicadores de la Educación de la Primera Infancia en America Latina (Indicators for Early Childhood Education in Latin America). UNESCO-ORLEAC (2008).						x					x		
18	Indicators for Early Childhood Development: Western Cape Province, South Africa (Dawes et al., 2006).								x			x Percentage of children living in poverty		
19	Los Ninos y Ninas del Ecuador a inicios del siglo XXI. Observatorio de los Derechos de la Ninez y Adolescencia (ODNA, 2010).				x (the item asks the frequency with which the child participates in childcare activities)				x					

Factor		1.1 Mother's well-being											
Subfactor													
Indices	Characteristics	Maternal health status	Nutritional status (mothers)	Lifetime risk of maternal death	Female life expectancy (at birth)	Fertility rate/Number of children the mother has	Use of modern contraception	Desire for last birth	Has the mother's menstrual period returned since the birth of (name)?	Teenage pregnancy	Mother's psychological well-being	% of mothers suffering from post- partum depression	
20	United States National Indicators for Child Health (Seith and Isakson, 2011).	Examines health disparities and developmental health gradients in the USA											
Global Indices on Care and Education													
21	ECCE - Basic Indicators on Young Children (UNESCO, 1995).	Collective responsibility of early childhood development, including role of parents and the community				x Total fertility rate							
22	Education for All Year 2000 Assessment - Statistical Document (UNESCO, 2000b).	Two indicators for monitoring Goal 1											
23	Progress for Children - A Report Card on Child Protection. Number 8. (UNICEF, 2009b).	Indicators on child protection											
24	UNESCO EFA Global Monitoring Report indicators (UNESCO, 2011).	Selected indicators used in annex tables for monitoring Goals 1 (ECCE), 2 (UPE), 4 (adult literacy), 5 (quality) and 6 (gender equality)											
Early Learning Development Standards													
25	Early Learning and Development Standards (ELDS) in East Asia and the Pacific (Miyahara and Meyers, 2008). Cambodia, China, Fiji, Lao PDR, Mongolia, Thailand, Vietnam.	Provides early learning development standards											
26	Early Learning and Development Standards for children from 0-6 years (Republic of Macedonia Ministry of Labour and Social Policy, 2009).	Provides early learning development standards for children 0-6											

		1. The mother and the home environment										
		1.2 Parenting practices /developmental care										
Indices		Perceived social support raising child	Mother's literacy level	Estimate ratio of female to male earned income	Maternal employment	Breastfeeding	Infant formula	Healthy eating	Vitamin or mineral supplements	Vigorous physical activity	Child discipline	Young people who brush their teeth
20	United States National Indicators for Child Health (Seith and Isakson, 2011).									x		
Global Indices on Care and Education												
21	ECCE - Basic Indicators on Young Children (UNESCO, 1995).		x									
22	Education for All Year 2000 Assessment - Statistical Document (UNESCO, 2000b).											
23	Progress for Children - A Report Card on Child Protection. Number 8. (UNICEF, 2009b).											
24	UNESCO EFA Global Monitoring Report indicators (UNESCO, 2011).		x Adult female literacy rate and female youth literacy rate			x						
Early Learning Development Standards												
25	Early Learning and Development Standards (ELDS) in East Asia and the Pacific (Miyahara and Meyers, 2008). Cambodia, China, Fiji, Lao PDR, Mongolia, Thailand, Vietnam.											
26	Early Learning and Development Standards for children from 0-6 years (Republic of Macedonia Ministry of Labour and Social Policy, 2009).											

1.3 Home environment

	Indices	Family and peer relationship	% of children living in single parent families	% of children living in stepfamilies	% of children who live in households where the caregiver is over 60, disabled, incapacitated	Number of members in the household	Who takes care of the child when parents are absent?	% of children who report that parents spend time "just talking to them"	Play	Play material (variety)	Sources of play materials	Participation in household decision making (child)
20	United States National Indicators for Child Health (Seith and Isakson, 2011).											
Global Indices on Care and Education												
21	ECCE - Basic Indicators on Young Children (UNESCO, 1995).											
22	Education for All Year 2000 Assessment - Statistical Document (UNESCO, 2000b).											
23	Progress for Children - A Report Card on Child Protection. Number 8. (UNICEF, 2009b).						x					
24	UNESCO EFA Global Monitoring Report indicators (UNESCO, 2011).											
Early Learning Development Standards												
25	Early Learning and Development Standards (ELDS) in East Asia and the Pacific (Miyahara and Meyers, 2008). Cambodia, China, Fiji, Lao PDR, Mongolia, Thailand, Vietnam.											
26	Early Learning and Development Standards for children from 0-6 years (Republic of Macedonia Ministry of Labour and Social Policy, 2009).											

		2.1 Enrolment and quality pre-primary and primary education										
Indices	Early stimulation practices	Household books/newspapers	Enrolment ECD	Enrolment ECD for vulnerable - excluded	Gender parity index - ECD	Quality pre-primary education	% of trained teachers in pre-primary education	% of female teachers in pre-primary education	Health and nutritional services within ECD programs	Pupil/teacher ratio pre-primary	New entrants to primary education with ECCE experience	
20	United States National Indicators for Child Health (Seith and Isakson, 2011).											
Global Indices on Care and Education												
21	ECCE - Basic Indicators on Young Children (UNESCO, 1995).			x								
22	Education for All Year 2000 Assessment - Statistical Document (UNESCO, 2000b).			x Gross enrolment in ECD programmes							x primary school entrants attended some form of organized ECD programme	
23	Progress for Children - A Report Card on Child Protection. Number 8. (UNICEF, 2009b).											
24	UNESCO EFA Global Monitoring Report indicators (UNESCO, 2011).			x Total pre-primary enrolment, GER, % enrolment in private institutions		x GPI of GER	x	x		x	x	
Early Learning Development Standards												
25	Early Learning and Development Standards (ELDS) in East Asia and the Pacific (Miyahara and Meyers, 2008). Cambodia, China, Fiji, Lao PDR, Mongolia, Thailand, Vietnam.											
26	Early Learning and Development Standards for children from 0-6 years (Republic of Macedonia Ministry of Labour and Social Policy, 2009).											

		2. Care and education services										
								2.2 Provision and quality of health services				
Indices		Primary education intake rates	Enrolment primary school	Internal efficiency: repetition and drop-out	Primary school completion	Academic achievement in primary / secondary school	School achievement primary school	Prenatal health care	Antenatal care - vaccines	Antenatal care - malaria	% mothers receiving iron supplementation during pregnancy	Vitamin A supplementation
20	United States National Indicators for Child Health (Seith and Isakson, 2011).											
Global Indices on Care and Education												
21	ECCE - Basic Indicators on Young Children (UNESCO, 1995).											
22	Education for All Year 2000 Assessment - Statistical Document (UNESCO, 2000b).			x								
23	Progress for Children - A Report Card on Child Protection. Number 8. (UNICEF, 2009b).											
24	UNESCO EFA Global Monitoring Report indicators (UNESCO, 2011).	x Total new entrants, net and gross intake rates	x Total, GER, NER, Adjusted NER, % enrolment in private institutions	x per grade	x survival rate to grade 5, last grade							
Early Learning Development Standards												
25	Early Learning and Development Standards (ELDS) in East Asia and the Pacific (Miyahara and Meyers, 2008). Cambodia, China, Fiji, Lao PDR, Mongolia, Thailand, Vietnam.											
26	Early Learning and Development Standards for children from 0-6 years (Republic of Macedonia Ministry of Labour and Social Policy, 2009).					x						

		2.3 Parenting							3.1 Basic survival and nutrition			
Indices	Professional care at delivery	Access and use of health services	Age appropriate health education	% mothers receiving preventive information HIV/AIDS	% children immunized against...	Well-child check-up in past 12 months	Caregiver's participation in parenting programs	Under-1 (infant) mortality	Female infant and under 5 mortality rate	Under-5 Mortality	Distribution of causes of death among children	
20	United States National Indicators for Child Health (Seith and Isakson, 2011).		x (includes dental care)			x						
Global Indices on Care and Education												
21	ECCE - Basic Indicators on Young Children (UNESCO, 1995).		x % of population that can reach local health care within one hour's walk or travel							x		
22	Education for All Year 2000 Assessment - Statistical Document (UNESCO, 2000b).											
23	Progress for Children - A Report Card on Child Protection. Number 8. (UNICEF, 2009b).											
24	UNESCO EFA Global Monitoring Report indicators (UNESCO, 2011).				x Tuberculosis, Diphtheria, Pertussis, Tetanus, Polio, Measles, Hepatitis B (1 year old)					x		
Early Learning Development Standards												
25	Early Learning and Development Standards (ELDS) in East Asia and the Pacific (Miyahara and Meyers, 2008). Cambodia, China, Fiji, Lao PDR, Mongolia, Thailand, Vietnam.											
26	Early Learning and Development Standards for children from 0-6 years (Republic of Macedonia Ministry of Labour and Social Policy, 2009).											

		3. Child development outcomes										
		3.2 Developmental health (health, learning and behaviour) and school readiness										
Indices		Low birth weight	Stunting / malnutrition	Overweight and obesity	School readiness	Alertness and responsiveness	Sensorial development	Physical health and well being	Motor development	Socio-emotional development	Learning	Language and cognitive development
20	United States National Indicators for Child Health (Seith and Isakson, 2011).			x				x				
Global Indices on Care and Education												
21	ECCE - Basic Indicators on Young Children (UNESCO, 1995).		x under age 5									
22	Education for All Year 2000 Assessment - Statistical Document (UNESCO, 2000b).											
23	Progress for Children - A Report Card on Child Protection. Number 8. (UNICEF, 2009b).											
24	UNESCO EFA Global Monitoring Report indicators (UNESCO, 2011).	x	x under age 5									
Early Learning Development Standards												
25	Early Learning and Development Standards (ELDS) in East Asia and the Pacific (Miyahara and Meyers, 2008). Cambodia, China, Fiji, Lao PDR, Mongolia, Thailand, Vietnam.						x	x	x (interaction skills with adults and peers, diversity appreciation, adaptive social behaviours)	x		x (logic and reasoning, analytical thinking, problem solving, memory, concept formation)
26	Early Learning and Development Standards for children from 0-6 years (Republic of Macedonia Ministry of Labour and Social Policy, 2009).				x	x (e.g., child responds to mother's breast when hungry, child cries due to sudden increase of noise in the room)		x Fine and gross motor development. Also includes sociomotoric development	x (building a positive self-image, self-confidence, ability to understand emotions, positive emotional state, respect and responsibility)	x		x (language and literacy development; logic and thinking, mathematics and numbers, arts, sciences)

								4. Biological and environmental risks				
Indices		Communication skills	General knowledge	Develop. limitations	Moral and spiritual	Approaches toward learning	Behavioural problems	Water and sanitation home	Food deprivation	Maternal smoking	Alcohol consumption during pregnancy	Percentage of the population using solid fuels
20	United States National Indicators for Child Health (Seith and Isakson, 2011).						x			x		
Global Indices on Care and Education												
21	ECCE - Basic Indicators on Young Children (UNESCO, 1995).							x reasonable access to safe water				
22	Education for All Year 2000 Assessment - Statistical Document (UNESCO, 2000b).											
23	Progress for Children - A Report Card on Child Protection. Number 8. (UNICEF, 2009b).											
24	UNESCO EFA Global Monitoring Report indicators (UNESCO, 2011).											
Early Learning Development Standards												
25	Early Learning and Development Standards (ELDS) in East Asia and the Pacific (Miyahara and Meyers, 2008). Cambodia, China, Fiji, Lao PDR, Mongolia, Thailand, Vietnam.				x (morality values and cultural development)	x (attentiveness, persistence, time management, organization)						
26	Early Learning and Development Standards for children from 0-6 years (Republic of Macedonia Ministry of Labour and Social Policy, 2009).	x (e.g., child points the finger at or reaches an object)	x Reading and writing	x		x (curiosity and taking initiative, creativity, persistence,						

				5. Child Protection									6. Poverty	
Indices	Teratogens (lead)	Children in emergency and war zones	Child marriage	Female genital mutilation	Child labour	Sexual exploitation and abuse	Violence against children	Attitudes toward domestic violence	Birth registration / certificate	Child trafficking	Knowledge of rights	Poverty	Basic material needs	
20	United States National Indicators for Child Health (Seith and Isakson, 2011).	x (lead)												
Global Indices on Care and Education														
21	ECCE - Basic Indicators on Young Children (UNESCO, 1995).											x GNP per capita		
22	Education for All Year 2000 Assessment - Statistical Document (UNESCO, 2000b).													
23	Progress for Children - A Report Card on Child Protection. Number 8. (UNICEF, 2009b).	x	x	x	x	x	x	x	x	x				
24	UNESCO EFA Global Monitoring Report indicators (UNESCO, 2011).											x GNP per capita		
Early Learning Development Standards														
25	Early Learning and Development Standards (ELDS) in East Asia and the Pacific (Miyahara and Meyers, 2008). Cambodia, China, Fiji, Lao PDR, Mongolia, Thailand, Vietnam.													
26	Early Learning and Development Standards for children from 0-6 years (Republic of Macedonia Ministry of Labour and Social Policy, 2009).													

Factor		1.1 Mother's well-being											
Subfactor													
Indices	Characteristics	Maternal health status	Nutritional status (mothers)	Lifetime risk of maternal death	Female life expectancy (at birth)	Fertility rate/Number of children the mother has	Use of modern contraception	Desire for last birth	Has the mother's menstrual period returned since the birth of (name)?	Teenage pregnancy	Mother's psychological well-being	% of mothers suffering from post- partum depression	
27	Programa Regional de Indicadores de Desarrollo Infantil (PRIDIS) (Interamerican Development Bank, 2011). Costa Rica, Ecuador, Nicaragua, Paraguay, Peru.	In construction. Regional program in Latin American to compile ECD information and use between-country comparable indicators. PRIDI combines information from mothers' reports with direct observation of children											
Maternal Well-Being and Mental Health													
28	The 2011 Mothers' Index (Save the Children, 2011).	To monitor women's health status		x	x		x						
29	Girls' Investment Index (Save the Children, 2001).	To monitor health development of girls		x Maternal mortality ratio			x			x Births to women 15 to 19			
30	Mother's Mental Health, Self Reporting Questionnaire (WHO, 1994).	A 20 item questionnaire to assess women's psychological health									Headaches, appetite, sleep, easily frightened, hands shake, nervous, poor digestion, not thinking clearly, unhappy, cry more than usual, difficulty making decisions, daily work is suffering, lost interest in things, suicide thoughts, easily tired		

		1. The mother and the home environment										
		1.2 Parenting practices /developmental care										
Indices		Perceived social support raising child	Mother's literacy level	Estimate ratio of female to male earned income	Maternal employment	Breastfeeding	Infant formula	Healthy eating	Vitamin or mineral supplements	Vigorous physical activity	Child discipline	Young people who brush their teeth
27	Programa Regional de Indicadores de Desarrollo Infantil (PRIDIS) (Interamerican Development Bank, 2011). Costa Rica, Ecuador, Nicaragua, Paraguay, Peru.											
Maternal Well-Being and Mental Health												
28	The 2011 Mothers' Index (Save the Children, 2011).		x Years of maternal schooling	x								
29	Girls' Investment Index (Save the Children, 2001).		x Adult female literacy rate and female youth literacy rate									
30	Mother's Mental Health, Self Reporting Questionnaire (WHO, 1994).											

1.3 Home environment

	Indices	Family and peer relationship	% of children living in single parent families	% of children living in stepfamilies	% of children who live in households where the caregiver is over 60, disabled, incapacitated	Number of members in the household	Who takes care of the child when parents are absent?	% of children who report that parents spend time "just talking to them"	Play	Play material (variety)	Sources of play materials	Participation in household decision making (child)
27	Programa Regional de Indicadores de Desarrollo Infantil (PRIDIS) (Interamerican Development Bank, 2011). Costa Rica, Ecuador, Nicaragua, Paraguay, Peru.											
Maternal Well-Being and Mental Health												
28	The 2011 Mothers' Index (Save the Children, 2011).											
29	Girls' Investment Index (Save the Children, 2001).											
30	Mother's Mental Health, Self Reporting Questionnaire (WHO, 1994).											

				2.1 Enrolment and quality pre-primary and primary education								
Indices		Early stimulation practices	Household books/newspapers	Enrolment ECD	Enrolment ECD for vulnerable - excluded	Gender parity index - ECD	Quality pre-primary education	% of trained teachers in pre-primary education	% of female teachers in pre-primary education	Health and nutritional services within ECD programs	Pupil/teacher ratio pre-primary	New entrants to primary education with ECCE experience
27	Programa Regional de Indicadores de Desarrollo Infantil (PRIDIS) (Interamerican Development Bank, 2011). Costa Rica, Ecuador, Nicaragua, Paraguay, Peru.											
Maternal Well-Being and Mental Health												
28	The 2011 Mothers' Index (Save the Children, 2011).											
29	Girls' Investment Index (Save the Children, 2001).											
30	Mother's Mental Health, Self Reporting Questionnaire (WHO, 1994).											

		2. Care and education services										
								2.2 Provision and quality of health services				
Indices		Primary education intake rates	Enrolment primary school	Internal efficiency: repetition and drop-out	Primary school completion	Academic achievement in primary / secondary school	School achievement primary school	Prenatal health care	Antenatal care - vaccines	Antenatal care - malaria	% mothers receiving iron supplementation during pregnancy	Vitamin A supplementation
27	Programa Regional de Indicadores de Desarrollo Infantil (PRIDIS) (Interamerican Development Bank, 2011). Costa Rica, Ecuador, Nicaragua, Paraguay, Peru.											
Maternal Well-Being and Mental Health												
28	The 2011 Mothers' Index (Save the Children, 2011).											
29	Girls' Investment Index (Save the Children, 2001).		x Female primary school enrolment as percent of male enrolment				x					
30	Mother's Mental Health, Self Reporting Questionnaire (WHO, 1994).											

		2.3 Parenting							3.1 Basic survival and nutrition			
Indices		Professional care at delivery	Access and use of health services	Age appropriate health education	% mothers receiving preventive information HIV/AIDS	% children immunized against...	Well-child check-up in past 12 months	Caregiver's participation in parenting programs	Under-1 (infant) mortality	Female infant and under 5 mortality rate	Under-5 Mortality	Distribution of causes of death among children
27	Programa Regional de Indicadores de Desarrollo Infantil (PRIDIS) (Interamerican Development Bank, 2011). Costa Rica, Ecuador, Nicaragua, Paraguay, Peru.											
Maternal Well-Being and Mental Health												
28	The 2011 Mothers' Index (Save the Children, 2011).	x										
29	Girls' Investment Index (Save the Children, 2001).								x			
30	Mother's Mental Health, Self Reporting Questionnaire (WHO, 1994).											

		3. Child development outcomes										
		3.2 Developmental health (health, learning and behaviour) and school readiness										
Indices		Low birth weight	Stunting / malnutrition	Overweight and obesity	School readiness	Alertness and responsiveness	Sensorial development	Physical health and well being	Motor development	Socio-emotional development	Learning	Language and cognitive development
27	Programa Regional de Indicadores de Desarrollo Infantil (PRIDIS) (Interamerican Development Bank, 2011). Costa Rica, Ecuador, Nicaragua, Paraguay, Peru.				x Basic school readiness skills					x Includes a series of different dimensions with emphasis on social skills and the ability of managing new social situations		x Capacity to resolve problems (cognitive)
Maternal Well-Being and Mental Health												
28	The 2011 Mothers' Index (Save the Children, 2011).											
29	Girls' Investment Index (Save the Children, 2001).											
30	Mother's Mental Health, Self Reporting Questionnaire (WHO, 1994).											

								4. Biological and environmental risks				
Indices		Communication skills	General knowledge	Develop. limitations	Moral and spiritual	Approaches toward learning	Behavioural problems	Water and sanitation home	Food deprivation	Maternal smoking	Alcohol consumption during pregnancy	Percentage of the population using solid fuels
27	Programa Regional de Indicadores de Desarrollo Infantil (PRIDIS) (Interamerican Development Bank, 2011). Costa Rica, Ecuador, Nicaragua, Paraguay, Peru.											
Maternal Well-Being and Mental Health												
28	The 2011 Mothers' Index (Save the Children, 2011).											
29	Girls' Investment Index (Save the Children, 2001).											
30	Mother's Mental Health, Self Reporting Questionnaire (WHO, 1994).											

				5. Child Protection									6. Poverty	
Indices	Teratogens (lead)	Children in emergency and war zones	Child marriage	Female genital mutilation	Child labour	Sexual exploitation and abuse	Violence against children	Attitudes toward domestic violence	Birth registration / certificate	Child trafficking	Knowledge of rights	Poverty	Basic material needs	
27	Programa Regional de Indicadores de Desarrollo Infantil (PRIDIS) (Interamerican Development Bank, 2011). Costa Rica, Ecuador, Nicaragua, Paraguay, Peru.													
Maternal Well-Being and Mental Health														
28	The 2011 Mothers' Index (Save the Children, 2011).													
29	Girls' Investment Index (Save the Children, 2001).													
30	Mother's Mental Health, Self Reporting Questionnaire (WHO, 1994).													

Appendix 5: A selection of existing early childhood development and well-being indices

Index	Author(s)
African Union Indicators for Monitoring the Plan of Action for the Education in the Second Decade	Association for Development of Education in Africa; Arnott et al. (2008)
Australia Early Development Index (AEDI)	Australian Department for Education, Employment and Workplace Relations; Sanson et al. (2010)
Child Development Index in Peru	UNICEF, Instituto Nacional de Estadística e Informática (2008, 2011)
Child Development Index - Save the Children	Save the Children (UK) (2008)
The Child Development Index: The State of Brazil's Children 2006	UNICEF (2005), in The State of Brazil's Children 2006
Child Status Index (CSI)	USAID, MEASURE Evaluation and Duke University (O'Donnell K. et al., 2008)
Child Well-Being Index (EU + Norway + Iceland)	Bradshaw (University of York) and Richardson (OECD) (2009)
Dimensions of child well-being	UNICEF Innocenti Research Centre Report Card 7 (2007)
Early Childhood Development Policies Around the World - WB	World Bank, Emiliana Vegas (2011, draft phase)
Early Development Instrument (EDI)	Janus and Offord, Offord Centre for Child Studies , McMaster University (2007)
Early Learning and Development Standards (ELDS) in East Asia and the Pacific	UNICEF East Asia and Pacific Regional Office; Miyahara and Meyers (2008)
Early Learning and Development Standards for Children from 0-6 years (Republic of Macedonia)	Republic of Macedonia, Ministry of Labour and Social Policy (2009); UNICEF
Family Care Indicators (FCIs)	Hamadani et al. (2010)
A Framework of Early Childhood Indicators for General Comment 7 (CRC)	GC7 Indicators Group (OHCHR, UNCRC, UNICEF, WHO, International Children's Centre, HELP at University of British Columbia, Bernard van Leer, Aga Khan Foundation, Consultative Group on ECCD); Vaghri et al. (2010)

Index	Author(s)
Indicators for Early Childhood Development (Western Cape Province, South Africa)	Child, Youth, Family and Social Development , Human Sciences Research Council; Dawes et al. (2006)
Indicators for Early Childhood Education in Latin America	UNESCO-ORLEAC Santiago, Regional Office for Education in Latin America and the Caribbean (2008)
Inequality in child well-being in the world's richest countries	UNICEF Innocenti Research Center, Report Card 9 (2010a)
Multiple Indicator Cluster Surveys (MICS 4) UNICEF	UNICEF (2011)
OECD Child Well-Being Indicators	OECD, Directorate for Employment, Labour and Social Affairs (2009)
OECD Early Childhood Education and Care (ECEC)	OECD, Directorate for Education, ECEC Network
A Report Card on Child Protection	UNICEF Innocenti Research Centre Report Card 8 (2009b)
State-level indicators for socio-emotional development	National Center for Children in Poverty
United States National Indicators for Child Health	National Center for Children in Poverty; Seith and Isakson (2011)
World Vision Child Well-Being Outcomes (CWBO)	World Vision

Source: Adapted from Loizillon (2011).

Appendix 6: Proposed ISCED 2011 Early Childhood Education definition

The text below is the proposed new definition of ISCED Level 0 – Early Childhood Education. The text is extracted from the document which will be under consideration at the 36th General Conference of UNESCO in October-November 2011 and has not yet been formally adopted (UNESCO-UIS, 2011, pp-21-24).³⁷

10. ISCED LEVEL 0 – EARLY CHILDHOOD EDUCATION

A. PRINCIPAL CHARACTERISTICS

100. Programmes at ISCED level 0, or ‘early childhood education’, are typically designed with a holistic approach to support children’s early cognitive, physical, social and emotional development and introduce young children to organized instruction outside of the family context. ISCED level 0 refers to those early childhood programmes that have an intentional education component. These programmes aim to develop socio-emotional skills necessary for participation in school and society and to develop some of the skills needed for academic readiness and to prepare them for entry into primary education.
101. In this level, programmes are not necessarily highly structured but are designed to provide an organized and purposeful set of learning activities in a safe physical environment. They allow children to learn in interaction with other children under the guidance of staff/educators, typically through creative and play-based activities.
102. ISCED level 0 programmes target children below the age of entry into ISCED level 1. There are two categories of ISCED level 0 programmes: early childhood educational development and pre-primary education. The former has educational content designed for younger children (in the age range 0-2 years) whilst the latter is designed for children from age 3 years to the start of primary education.
103. Programmes classified at ISCED level 0 are referred to in many ways across the world, for example early childhood education and development, play school, reception, pre-primary or pre-school or educación inicial. For programmes provided in crèches, daycare centres, nurseries or guarderías, it is important to ensure that they meet the ISCED level 0 classification criteria specified below. For international purposes the term ‘early childhood education’ is used to label ISCED level 0.

B. CLASSIFICATION CRITERIA

104. For the definition of early childhood education, the following criteria are relevant:

Main criteria

- a. Educational properties of the programme (see Paragraph 105 and 106);
- b. Institutional context (see Paragraph 107);
- c. Typical target age of children for which the programme is designed (see Paragraphs 102 and 108); and

³⁷ The final ISCED 2011 text will be submitted to the 187th session of the Executive Board of UNESCO in September 2011, and, if approved, to the 37th session of the General Conference for adoption by Member States of UNESCO in October-November 2011.

d. Programme intensity/duration (see Paragraph 110).

Subsidiary criteria

a. Staff qualifications (see Paragraph 111);

b. Existence of a regulatory framework (see Paragraph 112); and

c. Typically not part of compulsory education (see Paragraph 113).

105. The educational properties of early childhood educational development can be described as follows: the learning environment is visually stimulating and language-rich and fosters self-expression with an emphasis on language acquisition and the use of language for meaningful communication. There are opportunities for active play so that children can exercise their coordination and motor skills under supervision and in interaction with staff. Programmes providing only childcare (supervision, nutrition and health) are not covered by ISCED.

106. The educational properties of pre-primary education can be described as follows: through interaction with peers and educators, children improve their use of language and their social skills, start to develop logical and reasoning skills, and talk through their thought processes. They are also introduced to alphabetical and mathematical concepts, understanding and use of language, and encouraged to explore their surrounding world and environment. Supervised gross motor activities (i.e., physical exercise through games and other activities) and play-based activities can be used as learning opportunities to promote social interactions with peers and to develop skills, autonomy and school readiness.

107. ISCED level 0 programmes are usually school-based or otherwise institutionalized in a context organised for a group of children (e.g. centre-based, community-based, home-based). ISCED level 0 excludes purely family-based arrangements that may be purposeful but are not organized in a 'programme' (e.g. informal learning by children from their parents, other relatives or friends).

108. Within ISCED 0, early childhood educational development programmes are targeted at children aged 0-2 years; and pre-primary education programmes are targeted at children aged 3 to the start of ISCED 1. The upper age limit for the pre-primary education category depends in each case on the theoretical age of entry into ISCED level 1, i.e. primary education (but see Paragraph 117).

109. Integrated early childhood education programmes that span the two sub-categories of ISCED 0 (i.e. educational programmes for children aged 0 to the start of ISCED 1) need special consideration for classification. For programmes divided into years, stages or cycles: those corresponding to the content criteria in Paragraph 105 should be classified as early childhood educational development, and those corresponding to the content criteria in Paragraph 106 should be classified as pre-primary education. Where no subdivision of the programme exists, classification into the two categories should be based on the ages of the participants.

110. ISCED recommends the following minimum intensity and duration to improve cross-national comparability: educational programmes must account for at least the equivalent of 2 hours per day and 100 days a year of educational activities in order to be classified in ISCED.

111. Where appropriate, the requirement of pedagogical qualifications for educators is a good proxy criterion for an educational programme in those education systems in which such a requirement exists. It serves to distinguish early childhood education from child care for which no explicitly pedagogically trained staff is required. 112. Where relevant, the existence of a reference or regulatory framework issued or recognized by relevant national authorities (e.g. a Ministry of Education, other relevant Ministry or affiliated institution) is a good proxy criterion for an educational programme. This would include guidelines, standards or instructions that describe the learning opportunities provided to young children. 113. In education systems that

have compulsory schooling, non-compulsory educational programmes which are designed to take place before they start of compulsory education and which fulfil the criteria above are classified as ISCED level 0. In addition, in some countries the first stage or cycle of compulsory education may also be classified at ISCED level 0 if it fulfils the criteria at this level. Thus, the beginning of compulsory education is not a sufficient criterion to distinguish ISCED level 0 programmes from ISCED level 1 programmes even though this may be the case in some education systems.

C. CONSIDERATIONS CONCERNING PROGRAMMES SPANNING ISCED LEVELS

114. Educational programmes spanning ISCED levels 0 and 1 need special consideration for classification. In education systems where a part of early childhood education is included in 'basic education', only those grades, stages or cycles corresponding to the criteria given in Paragraph 104 should be classified as ISCED level 0. Those grades, stages or cycles corresponding to the criteria given in Paragraph 124 should be classified as ISCED level 1.
115. If use of the classification criteria does not result in a clear boundary between ISCED levels 0 and 1, ISCED recommends: i) for programmes spanning ISCED levels 0 and 1 that are organized in stages, the end of the stage closest to 6 years of age should be used as the transition point between ISCED levels 0 and 1; ii) for programmes spanning ISCED levels 0 and 1 not divided into stages, grades targeting children under the age of 6 should be classified as ISCED level 0, and the remaining grades should be classified as ISCED level 1.

D. COMPLEMENTARY DIMENSIONS

116. One dimension differentiates educational programmes in ISCED level 0: – Target age group (see Paragraph 102).

E. PROGRAMMES ALSO INCLUDED IN ISCED LEVEL 0

117. ISCED level 0 includes programmes for children with special needs corresponding to the criteria described in Paragraph 104, irrespective of the age of the children.

F. CLASSIFICATION OF EDUCATIONAL PROGRAMMES AT ISCED LEVEL 0

118. Educational programmes in ISCED level 0 are coded 010 for early childhood educational development programmes and 020 for pre-primary education programmes (see Paragraph 102). There are no subcategories differentiated by the third digit.

G. CLASSIFICATION OF EDUCATIONAL ATTAINMENT AT ISCED LEVELS 0 AND 1

119. For classifying educational attainment, level 0 (less than primary) is used for individuals who never attended an educational programme, who attended some early childhood education (ISCED 0), or who attended some primary but have not successfully completed ISCED level 1 (with or without having attended ISCED 0). Classification codes for educational attainment related to pre-primary and primary education are provided in Table 4.

Source: UNESCO-UIS (2011).

Appendix 7: Questions to measure functional developmental delay in Chile

Only questions of the age bands 3-6 months and 7 to 11 months are included in this Appendix.

Instructions to the interviewer:

Mark as “YES” the following answers: “almost all the times”, “most of the times”;

Mark as “NO” the following answers: “almost never”, “at times”, “sometimes”, “can’t tell

Age Band (AB1): 3-6 months	Domains
1) Does (NAME) usually show an interest in things around him/her by looking at sights or turning towards sounds?	Attention and regulation (Socio-emotional)
2) Does (NAME) usually seem happy or pleased when he/she sees his/her favorite people (e.g. look or smile, make sounds, or move arms in a way that expresses joy)?	Engagement (Socio-emotional)
3) Does (NAME) shows a strong laughter in response to people who smile to him/her, do gestures, talk or play with him/her?	Engagement (Socio-emotional)
4) Does (NAME) hold his/her head up without support?	Gross motor
5) Does (NAME) sit upright with support of something like a cushion?	Gross motor
Age Band 2 (AB2): 7-11 months	
1) Does (NAME) says sometimes two syllabuses together like “da-da”, “ba-ba”, “ma-ma”? (They don’t need to mean something)	Language
2) If you give a piece of bread to (NAME) does he/she tries to eat it?	Cognitive
3) (NAME) shows what he/she wants by pointing at something, reaching out to be picked up, making special noises or saying words?	Purposeful Communication (Language) (Socio - emotional)
4) Does (NAME) respond to people talking or playing with him/her by making sounds, faces or saying words?	Purposeful Communication (Language) (Socio-emotional)
5) Does (NAME) sit upright without leaning against something or having support?	Gross motor

Source of the questions

- AB1 (1,2,4,5) and AB2 (3,4,5): Functional Development Growth Chart (FDQ). These questions were selected by the 1994-1995 National Health Interview Survey on Disability in the USA (NHIS-D)
- AB1 (3) and AB2 (1,2): Pauta Breve de Desarrollo Psicomotor (Brief Scale of Psychomotor Development)

Source: Bedregal et al. (2006).

Appendix 8: CARICOM's Early Child Development Service Standard

Examples from the Minimum Service Standard include:

Group and Class Size

- Children in primary school: class size should not exceed 30 children
- Children 3 and over: Group size should be 26 children
- Children 2 and under: Group size should be 12 children or less

Staff/Child Ratios

- 1:30 for children 7-8
- 2:30 for children 5 – 6 years in primary schools where one person at least is a qualified teacher and has an assistant
- 1:12 for children 3 and 4 years of age
- 1:6 if children 2- 3
- 1:4 for children 1-2
- 1:3 for children under 1
- 1:1 for children with special needs as required

Staff Qualifications

- At least half of the Programme Staff are qualified
- Unqualified Programme Staff are pursuing qualification training
- All staff are trained in First Aid and CPR

Curricula and Materials

For ALL children:

- Basic daily schedule exists that is familiar to children (*e.g. the routines and activities occur in relatively the same sequence most days*)
- Written schedule/timetable is posted in the room and relates generally to what occurs
- At least one indoor and one outdoor activity occurs daily
- Written activity guide/curriculum guide/learning indicators posted
- At least 3 scheduled activities provided for children daily, reflecting the activity guide, to foster creativity, independent thinking and physical development
- Opportunities are provided for children to work independently and confidently on their own choice of projects, over a period of time *e.g. growing seeds, completing a model, painting a series of paintings, completing a story on tape or in pictures, preparing for a group event of their choice*
- Staff provide experiences that will stimulate children to learn by trial and error and risk taking, to develop critical thinking and problem solving skills *e.g. how to conserve water use at the centre; cooking; trying an experiment*

For children 2 years and under:

- Toys and activities are age-appropriate and provide a variety of language and sensory activities both indoors and outdoors on a daily basis
- Opportunities provided for children to look at books, listen to stories, rhymes and songs, recognize pictures, symbols and letters and hear familiar stories retold.

Source: UNESCO (2010*b*).

Appendix 9: Sample of Inputs from the Learning through Play Focus Groups Sessions

Reading of cues/signals:

“Able to understand why the child behave the way they do”

“I see the cues from my baby”

“I never used to understand what my child was trying to signal to me or say to me, now I understand the motivations behind some of his actions”

“Crying used to be interpreted as a hassle – something to be punished or to yell at the child about – now I learned there are good reasons for it that can be addressed – it is important to find out why your child is crying”

“More aware of what children need”

“When baby cries – must discover why crying”

Parents say they use less coercive discipline:

“Used to hit children, mother has reduced hitting”

“Instead of hitting they are now talking to child with love and affection and child is listening to mother” “have learned not to hit their child and are using other methods – hitting children does not help to change their behaviour”

“Deprive a child of toy instead of hitting”

“Let child know what he did is wrong and find alternative way to punish instead of hitting”

“Parents are less harsh with children”

“Before if his child lost a pen, he would hit him now he knows he has to take care of his children”

“Before I was harsh with my babies, now I ask *how are you?*”

“Before it was common for physical punishment to result in a child going to the hospital, LTP has help cut down on that”

“I used to physically punish my children when they did not do their homework, now I do it less, and instead I talk to them, and if they still don’t obey, I take away things they like (television)”

“We have learned to promote dialogue and not to yell... we now speak” (Nicaragua)

“We have learned to communicate with our children – before I yelled at them now I don’t”

“Parents are now not just punishing their kids, but explaining to their kids why they should or should not do something”.

Source: Learning Through Play Program (The Hincks-Dellcrest Centre, Toronto, Canada).