



Association for the Development of Education in Africa

**ADEA 2006 Biennial Meeting
(Libreville, Gabon, March 27-31, 2006)**

**Investing in Early Childhood Development:
The Potential Benefits and Costs Savings**

by Karin A. L. Hyde

This document was prepared by ADEA for its Biennial Meeting (Libreville, Gabon, March 27-31, 2006). The views and opinions expressed in this volume are those of the authors and should not be attributed to ADEA, to its members or affiliated organizations or to any individual acting on behalf of ADEA.

The document is a working document still in the stages of production. It has been prepared to serve as a basis for discussions at the ADEA Biennial Meeting and should not be disseminated for other purposes at this stage.

© Association for the Development of Education in Africa (ADEA) – 2006

Association for the Development of Education in Africa (ADEA)

International Institute for Educational Planning

7-9 rue Eugène Delacroix

75116 Paris, France

Tel.: +33(0)1 45 03 77 57

Fax: +33(0)1 45 03 39 65

adea@iiep.unesco.org

web site: www.ADEAnet.org

Contents

ACRONYMS AND ABBREVIATIONS	IV
EXECUTIVE SUMMARY	VI
1 INTRODUCTION	1
RATIONALE FOR INTERVENTIONS IN THE EARLY YEARS	2
THE EVIDENCE.....	5
TARGET AUDIENCE.....	5
REPORT STRUCTURE.....	5
2 BENEFITS OF ECD IN EDUCATION.....	7
ECD PROGRAMMES IN DEVELOPING COUNTRIES	9
COST-BENEFIT STUDIES	12
CONCLUSION	17
3 BENEFITS OF ECD FOR HEALTH.....	18
ECD POTENTIAL FOR REDUCING HEALTH COSTS.....	18
COST-BENEFIT STUDIES	19
4 SOCIAL IMPACT IN ADULTHOOD OF ECD	21
5. COSTS AND FUNDING.....	23
COSTING	24
FUNDING.....	26
6. OUTSTANDING ISSUES AND CONCLUSIONS.....	28
BIBLIOGRAPHY	32
APPENDIX 1: QUALITY IN ECD.....	35
APPENDIX 2: DESCRIPTIONS OF ECD PROGRAMMES	36

List of Tables

1: Repetition in Primary, LYA.....	8
2: Boy/Girls Ratios in Grades 1 and 2 in 24 Village Development Committees.....	11
3: ECD Service Components.....	24
4: Percentage of Public Education Expenditure going to Pre-Primary Level, LYA.....	27
5: Summary of Benefits of ECD.....	28
6: Gross Enrolment in ECCE.....	29

List of Figures

1: Brain Development by Age.....	3
2: Cognitive Development.....	10
3: Repetition and ECD GER.....	17

List of Boxes

1: The Implications of High Repetition Rates in Malawi.....	9
2: Reaction of Nepali Parent to Effect of ECD Centre.....	12

Acronyms and abbreviations

ADEA	Association for the Development of African Education
MDG	Millennium Development Goal
NIEER	National Institute for Early Education Research
PRSP	Poverty Reduction Strategy Paper
SWAP	Sector-wide approach
WGECD	Working Group on Early Childhood Development

1. ABSTRACT

1. Early childhood development (ECD) has been recognised as a key contributor to positive outcomes in school and in adulthood. However, questions remain as to its cost-effectiveness and financial sustainability in the African context. This paper tries to answer some of these questions by reviewing the potential benefits of ECD programmes in three areas: education, health and adulthood. The review is supplemented by summaries of cost-benefit studies and a general discussion of the costing and funding issues.

2 EXECUTIVE SUMMARY

2. At the 2003 Biennale, the Working Group for Early Childhood Development (WGECD) undertook to continue to develop its case that ECD has a major role to play in reaching the education Millennium Development Goals and that it is affordable for Africa. The WGECD is conducting a three-pronged effort to address the question of the affordability of ECD in sub-Saharan Africa. A costing model linked to the preliminary work by Jaramillo and Mingat is being developed and this model is being piloted in three countries. This desk review of the evidence on the costs and benefits of ECD programmes is the third prong. The results of the work on the model and the case studies will also be presented to ADEA at the 2005/6 Biennale.

3. The paper presents three major types of evidence to support the argument for cost-effectiveness of investments in ECD: improvements in the cost-effectiveness of education by increasing survival through reduced repetition, better performance, etc.; more health-seeking behaviours and in adulthood employment, marital and fertility patterns are more beneficial. However, the evidence also suggests that parents of ECD programme participants also benefit: they have more time to pursue training or income generation opportunities; their parenting skills and self-esteem can develop through parental education. They are also more likely to show an interest in and therefore support their children's education.

4. The evidence is drawn from impact assessments, evaluations and cost benefit analyses that have been conducted in several countries. Unfortunately, few reliable studies have been carried out in sub-Saharan Africa, but the range of studies done outside the continent and the consistency of their results build a convincing case.

5. The most reliable evidence comes from experimental studies that investigate the results from those programmes that have randomly assigned participants to ECD and non-ECD experiences and tracked both groups over time. These studies are rare but a quasi-experimental methodology that matches, after the fact, those who did have an ECD experience with those who did not, controlling for key variables (race, income, parental background, etc.) comes close. Most of the studies cited are either experimental or quasi-experimental.

6. The question of costs and affordability is a complex one and involves a series of interrelated decisions about the age of children to be served; the proportion of the age group to be targeted (including their location, characteristics); the kind of services to be offered and the mix of delivery options (home/formal centre/community-based and the personnel involved).

7. Ultimately, each country has to develop its own model based on the resources available and the optimal mix of options.

3 INTRODUCTION

1. Over the last few years, the main mission of ADEA's Working Group on Early Childhood Development (WGECD) has been to make the case that the early development of a child is a concern of all: parents, communities, national governments and donor agencies. Towards this end, the WGECD promotes the integration of ECD¹ interventions as a viable strategy to meet the Education for All targets and Millennium Development Goals through inclusion in on-going national development processes such as SWAPs and PRSPs.

2. The period up to 8 years of age is of supreme importance for emotional, intellectual and social development. Interventions at this stage can have strong and lasting impacts on the health and welfare of adults. Opportunities foregone at this stage can rarely be compensated for at later stages. The review that was conducted by the WGECD in 2003 (Hyde and Kabiru) highlighted research findings from many countries that supported the position that early childhood development programmes can make a highly cost-effective contribution, not only to learning in school but also the overall development of a child into a balanced adult who contributes positively to a nation's development. These effects are particularly strong for children from disadvantaged or disrupted home backgrounds caused by poverty, low levels of parental education, conflict or other stressful situations.

3. The WGECD has also supported work done by Jaramillo and Mingat (2003) to assess the costs of meeting the first Dakar² Goal of "expanding and improving comprehensive early childhood care and education especially for the most vulnerable and disadvantaged children..."

4. During the last ADEA Biennale (Mauritius, 2003), the WGECD made a strong plea to governments and donor agencies to recognise that ECD strategies are viable strategies to combat poverty and meet the education for all targets of universal primary education. The WGECD committed itself in the meeting to present a strong case during the next Biennale (2005/6) to demonstrate that ECD programmes, in particular community-based programmes, are, indeed, affordable.

5. Therefore, the WGECD is conducting a three-pronged effort to address the question of the affordability of ECD in sub-Saharan Africa. A costing model linked to the preliminary work by Jaramillo and Mingat is being developed and this model is being piloted in three countries. This desk review of the evidence on the costs and benefits of ECD programmes is the third prong. The results of this study, the model and the case studies will be synthesised and presented to ADEA at the 2005/6 Biennale.

6. The paper presents three major types of evidence to support the argument for cost-effectiveness of investments in ECD. The first argument brings together available evidence

¹ ECD includes early socialization, education and readiness for school, as well as, the provision of basic health care, adequate nutrition, nurturing and stimulation within a caring environment for children aged up to 8 years of age.

² The first goal from the consensus reached at the World Education Forum held in Dakar, Senegal in 2000.

on the way in which ECD can reduce costs in education by reducing dropout and repetition and improving performance.

7. The second argument brings together the evidence on the benefits to health and welfare. The children who have experienced ECD exhibit health seeking behaviours like avoiding smoking and early pregnancy that are likely to have long term impacts on their health and quality of life. They also have a reduced likelihood of engaging in criminal activities.

8. Thirdly, ECD graduates show evidence of a series of positive effects in adulthood that can be expected to contribute to both economic and social returns. These include a better employment record that is likely to increase their economic productivity; more positive marriage and fertility patterns and a better integration within a circle of friends and family.

9. The positive impact on educational participation and success, health status and employment underline the multisectoral nature of ECD and its fundamental role in poverty reduction. One of the difficulties in ECD advocacy is that the largest proportions of benefits accrue to one group of stakeholders, particularly participants, but the costs are generally borne by a different set of stakeholders—namely, the state or parents of participants. One estimate (Karoly and Bigelow 2005) for the state of California suggested that 19% of the benefits would go to local and central government, 21% to parents and 60% to the participants. However, this finding should not discourage the effort. The use of public resources to support sectors that provide public benefit is a well-understood and accepted tenet of governance. For example, society has recognised that primary schooling generates benefits for all and therefore the state uses public resources, i.e. taxes, to fund primary schooling in all African countries. It should seem a logical extension to use public resources to support ECD programmes which not only yield a benefit in themselves, but also increase the return on primary schooling by increasing attainment, reducing retention and the need for special education interventions.

Rationale for Interventions in the Early Years

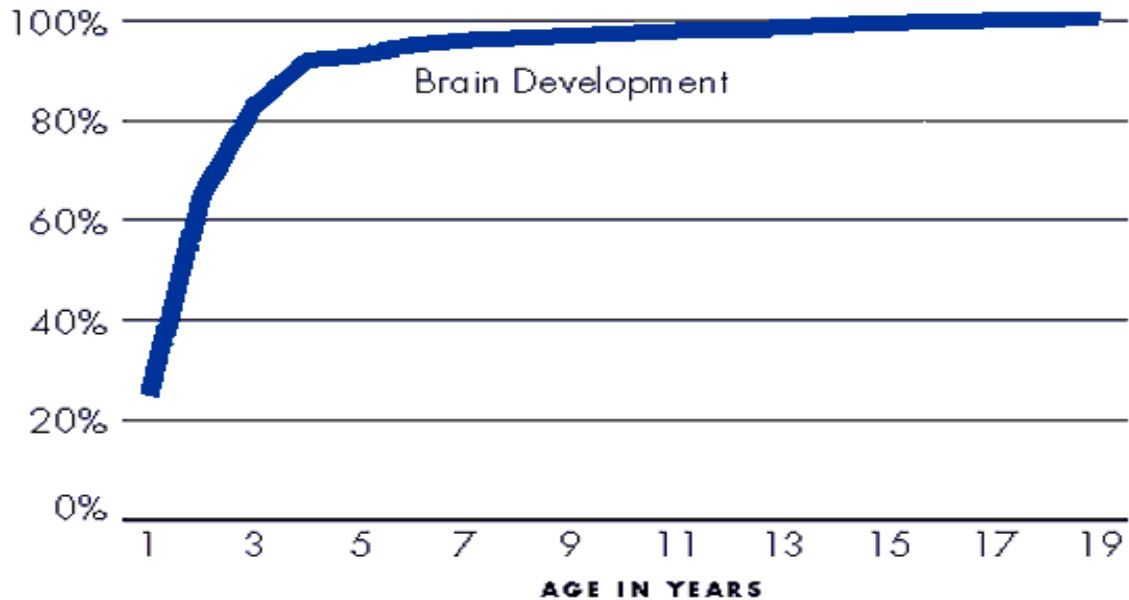
10. Foundation for all growth and development

The early years, the period up to 8 years of age, is a time of vital growth and development for the whole range of human capacities. This period starts when the child is in the womb and a healthy newborn is fundamentally dependent on its mother's level of nutrition and care during pregnancy. Nutrition *in utero* has a major effect on adult height (Floud, Wachter and Gregory 1990). Following birth, adequate care of the newborn is also closely linked to the mother's health and nutritional status.

11. Up to the age of 8, the young child grows rapidly, particularly his brain. By the age of 8, while the average person has attained approximately 50% of their adult body weight, the brain has attained 90% (Rutter and Rutter 1993). Consequently, this is a time of great importance for cognitive, emotional and psychological development. Further, there are critical periods when certain kinds of stimulation lead to particular kinds of brain development: emotional control ages 0-2, vision, ages 0-2, social attachment, ages 0-2, vocabulary, ages 0-3, second language, ages 0-10, math/logic ages 1-4, and music, ages 3-10 (Begley 1996). During this key development period, the number of cells in some areas of the brain can almost double within as little as a year. The brains of children aged between two and three are 2.5 times as

active as adult brains and remain more active for the first ten years of life (Mustard in Young 2002b).

Figure 1. Brain Development by Age



Source: Bruner and others, 2005.

12. The developing brain is very sensitive to environmental influences (both physiological and social) and the impact of these influences is long lasting. The environment (the level and quality of nutrition, the amount of intellectual stimulation, opportunities for expression, forming of social relationships, stress, etc.) affects the rate of growth of brain cells and the extent and breadth of the connections between trillions of brain cells (Carnegie Task Force on Meeting the Needs of Young Children, Starting Points 1994). The development of these connections helps determine children's critical thinking skills, self-confidence, problem-solving abilities and ability to cooperate with others (Ramey and others 2000). Other evidence (McCain and Mustard 1999) suggests that the lack of positive stimulation or presence of chronic stress during this period of childhood may lead to adults who find it difficult to manage stress, regulate their emotions or control their behaviour. There is also emerging evidence that attitudes and choices about their health can be affected by interventions in these early years (Palfrey and others, 2005).

13. Nutrition at this stage not only affects brain development but also physiological development. Stunting and reduced physical growth can both result from poor nutrition during this period. Prevention of disease through vaccination and inoculation and the reduction of many of the common childhood infections are also important for ensuring appropriate physiological and mental development.

State Responsibility

14. Parents and the community are, and should remain, the primary source of care and stimulation for the young child. However, there are compelling reasons why the state should become involved. The first is the role as duty bearer for the rights of children. Virtually

every African state has signed up to the Convention on the Rights of the Child and thus accepted the responsibility for protecting children's rights to health, safety, education etc.

15. Secondly, ECD is central to the attainment of both the EFA goals and the MDGs. The first EFA goal is "Expanding and improving comprehensive early childhood care and education especially for the most vulnerable and disadvantaged children..." The other goals call for universal access to and completion of free primary education, giving life skills to youths and adults, promoting adult literacy, gender equity and enhancing the quality of education. In all of these goals, ECD programmes in the early years can facilitate and underpin progress.

16. ECD also has strong linkages to most of the Millennium Development Goals (MDG), namely:

- Reduce by half the percentage living in extreme poverty by 2015
- Reduce by two-thirds infant and under-5 mortality
- Reduce maternal mortality by three-quarters
- Universal primary enrolment by 2015
- Gender equality in education by 2015
- National strategies for sustainable development

17. Thirdly, the effects of conflict, poverty, HIV/AIDS and lack of knowledge impede the ability of parents and communities to provide the care and protection necessary for young children. To the extent possible, this means the responsibility must revert to the state to ensure that children's rights to care, stimulation and safety are protected.

18. Fourthly, labour markets are evolving and changing in many African countries. These changes can mean that women and mothers, who are often the primary caregivers, can no longer combine childcare with their economically productive roles. Again the state and communities must explore different modalities for ensuring that children are properly cared for.

19. Fifthly, the evidence discussed in Chapters 2-5 will demonstrate that early childhood provides a low-risk, high return that pays off handsomely in human resource development. The state consistently makes high-risk investments in infrastructure or provides tax breaks for industries or individual firms in the belief that these will pay off long term in economic development. These incentive programmes carry several risks—the risk that the industry might fail, or not be as profitable as expected; the risk that the entrepreneur might move to another country before the state can recoup its investment in the form of employment and higher incomes, etc. On the other hand, early childhood programmes and interventions allow children to incorporate the incentives in a way that cannot be diminished or eroded by an uncertain future (CED 2004).

20. ECD intervention programmes are labour intensive and in that way can generate employment for women, and men, with a wide range of skill levels and expertise.

21. The evidence presented below will show that appropriate programmes and interventions in these early years not only affect children's health (emotional, physical and cognitive) but that these effects continue and are sustained into adulthood. Further, the evidence shows that these effects are stronger for 'at-risk' or 'vulnerable' children and therefore, have a powerful role to play in poverty reduction and income inequality. Reducing poverty and economic

inequities are benefits in themselves and also have a direct impact on promoting democracy, governance and social cohesion. Concentration of wealth (of any kind) in the hands of the privileged few makes for a world “that is neither efficient nor just nor safe.” (Page 5, Fiske 1998).

The Evidence

22. The following sections are based on impact assessments, evaluations and cost benefit analyses that have been conducted in several countries. Unfortunately, few reliable studies have been carried out in sub-Saharan Africa, but the range of studies done outside the continent and the consistency of their results build a convincing case.

23. Theoretically, the most reliable evidence comes from experimental studies that investigate the results from those programmes that have randomly assigned participants to ECD and non-ECD experiences and tracked both groups over time. These studies are rare but a quasi-experimental methodology that matches, after the fact, those who did have an ECD experience with those did not, controlling for key variables (race, income, parental background, etc.) comes close. Most of the studies cited here are either experimental or quasi-experimental.

24. The fact that many of the studies have been carried out in other countries means that researchers have made assumptions that might not be true for sub-Saharan Africa. These include assumptions about absolute and relative returns to education, the distribution of disadvantaged children in society and the sources of this disadvantage, absolute and marginal costs of ECD programmes, the relative value of current expenditures against future benefits and the content of ECD programmes. Many of the studies make a range of estimates based on the rate at which future earnings or savings are discounted—based on the principle that current assets are worth more to most people than future income. Many of the studies also incorporate evidence from social and economic surveys that have gathered detailed information on individual and household expenditure and time use—data that might not be available in some African countries.

25. Finally, much of the evidence comes from the analysis of ‘pre-schools’ rather than ECD more broadly. This is not to say that other forms of support and nurturance of young children do not produce benefits in the future but the research focus seems to have been on the impact on schooling—performance, attendance and graduation rates.

Target Audience

26. ADEA’s government membership is primarily made up of the Ministers of Education and they are, therefore, the principal audience for this study. However, it should be clear from the foregoing discussion that ECD crosses Ministerial and sectoral boundaries and that the benefits referred to above and discussed below are similarly multisectoral. Therefore, the audience extends to Ministers of Finance, Gender, Constitutional Affairs, Home Affairs and so on and is in fact government wide.

Report Structure

27. After the introduction, which lays out the background and rationale of this study, there are three chapters that look at the evidence for benefits in education, health and adult family formation and productivity. Chapter 2 focuses on preschool or other school readiness

programmes and is targeted at children from 3 years of age. These are the kind of programmes that have been most studied. Chapter 3 looks at those components that are intended to improve health. Most of these programmes target children from birth. The fourth chapter looks at the impact of all age programmes. The fifth chapter reviews costing and financing issues. The sixth chapter discusses outstanding issues and presents a set of recommendations for policy makers.

4. Benefits of ECD in Education

28. Most indicators of output and quality of African education systems bear little comparison with most of the rest of the world. For example, according to recent UNESCO statistics (UNESCO 2003b) levels of repetition, and dropout are unacceptably high in SSA and indicate that in general educational systems are inefficient and of poor quality. Further, a number of factors external to the education system contribute to their inefficiency and low quality, namely—malnutrition, poor standards of personal and public health, HIV/AIDS (social, health and economic effects) and conflict (Young 2002).

29. There is good evidence that repetition is often a precursor to dropout and those children who drop out before they reach the fifth year of primary school would not have spent enough time in school to develop lasting literacy or numeracy or receive the knowledge and skills that would make a significant difference to their life chances.

30. The causes of repetition vary—they include poor performance (caused by poor school readiness, absence, poor instruction, inadequate instructional tools) and can also be the result of administrative decisions that may or may not be related to objective criteria.

31. As a result, a significant proportion of the expenditure on education systems in SSA is wasted—making no direct contribution to learning and other outcomes of graduates. Every cent that is spent on a repeater means less available for teaching and learning materials and every seat taken up by a repeater contributes to overcrowding and deterioration of the learning environment.

32. High levels of repetition artificially inflate the enrolment of an education system, thereby increasing class sizes, the teacher pupil ratio, the number of teachers required, the number of textbooks and other teaching aids required and creates a general upward pressure on facilities and a downward pressure on system effectiveness and quality.

33. Conversely, there is a general positive association between pre-school enrolment and school survival and a negative association between enrolment. The higher a country's pre-school enrolment, the higher the proportion of the primary school cohort survives to Grade 5. Mingat (2005a) estimates that, on average, one additional percentage point in the gross enrolment rate at the pre-school level implies a reduction of 0.12 percent in the repetition rate; a reduction of one percent in the repetition rate leads to an increase of 0.875 percentage points in the survival rate.

The cost implications of repetition

34. UNESCO estimated (using 1995 figures) that 33% of public current expenditure on education in sub-Saharan Africa was spent on repeaters, approximately 6.2 billion US dollars (Fiske 1998). Since 1995, many countries have attempted to move to free primary education (Kenya, Rwanda, Malawi, Uganda, etc.), which has led to substantial increases in school populations. Even if there were no increase in the rate of repetition and dropout in these

expanded systems, there would be a commensurate increase in the resources being spent on children who will gain no significant benefit from their school experience.

35. Yet many systems in Africa have repetition rates of 25% or more, sometimes based on the misunderstanding that repetition promotes learning and content mastery. Further, such decisions are often taken for reasons that are not performance related—like punishing children who are seen as inattentive, poorly motivated or uncooperative (Fiske 1998, page 37). The data in the table below shows that repetition rates ranged from less than 1% in the Seychelles, which has had universal preschool for more than a decade, to more than 36.1% in Rwanda.

Country	Latest Year	% Repeaters	
		Both sexes Total	Female
Algeria	2000/2001	12.5	9.5
Angola	1998/1999	35.2	37.7
Benin	2000/2001	19.9	19.8
Botswana	2000/2001	3.4	2.6
Burkina Faso	2000/2001	17.6	17.7
Burundi	2000/2001	24.5	25.0
Cameroon	2000/2001	24.5	23.6
Cape Verde	2000/2001	11.6**	10.3**
Chad	2000/2001	25.5	25.9
Comoros	2000/2001	26.0**	25.5**
Congo	2000/2001	24.9	24.0
Côte d'Ivoire	2000/2001	22.3	23.0
Democratic Rep. of the Congo	1998/1999	15.5	11.9
Djibouti	2000/2001	14.3	14.2
Egypt	2000/2001	5.2**	3.9**
Eritrea	2000/2001	13.9	14.1
Ethiopia	2000/2001	7.4	8.4
Gabon	2000/2001	36.9	35.6
Gambia	1999/2000	10.6**	10.5**
Ghana	2000/2001	5.2	5.0
Guinea	2000/2001	20.2	19.5
Guinea-Bissau	1999/2000	24.0	24.5
Kenya	1999/2000	2.0**	2.5**
Lesotho	2000/2001	18.3	16.4
Liberia	1999/2000	2.7	3.2
Madagascar	2000/2001	30.1	29.0
Malawi	2000/2001	15.4**	15.2**
Mali	2000/2001	10.7**	19.4**
Mauritania	2000/2001	15.2	15.5
Mauritius	2000/2001	4.2	3.8
Morocco	2000/2001	12.7	10.8
Mozambique	2000/2001	23.6	24.0
Namibia	2000/2001	13.2	11.4
Niger	2000/2001	10.2	10.5
Rwanda	2000/2001	36.1	36.2
Sao Tome and Principe	1998/1999	30.7	28.7
Senegal	2000/2001	13.9	13.7
Seychelles	2000/2001	0.1	0.1
Sierra Leone	2000/2001	2.8	2.6
South Africa	2000/2001	7.9**	6.9**
Sudan	1999/2000	11.3	11.8
Swaziland	2000/2001	17.1**	14.5**
Togo	2000/2001	24.0	24.3
Tunisia	2000/2001	14.1	12.3
Uganda	2000/2001	9.7**	9.8**
United Republic of Tanzania	2000/2001	3.2**	3.2**
Zambia	2000/2001	6.2	5.9

*National estimation
**UNESCO Institute of Statistics estimation

36. There are numerous strategies for reducing repetition and drop out—improving instruction, increasing relevance, making schools more child-friendly, making classrooms more gender-sensitive and hospitable to girls, etc. The availability of good quality ECD intervention programmes both in the form of pre-schools and as part of a general provision of health services for young children makes children more healthy and better able to learn. Increasing access by lowering the cost of schooling and making schools closer to children

Box 1: The Implications of High Repetition Rates in Malawi

The level of repetition is very high. In 2001, on average 25% of each grade repeated the year and in Standard 1 40% repeated. The World Bank (World Bank 2004) has estimated that a gradual reduction in the repetition rate (from 25% to 11%) by 2015 would mean a reduction in the number of pupils of approximately 700,000. This would represent a reduction in the number of teachers required of approximately 12,000, assuming a 60:1 pupil teacher ratio.

This level of expansion in the teaching force would require the abandonment of the pre-service training model and increase reliance on in-service training—with all the difficulties that would present in a country with poor transport and communication links.

Source: World Bank 2004.

also has a positive impact.

ECD programmes in Developing Countries

37. There is a growing research/knowledge base that demonstrates that children who have experienced ECD interventions, or at a minimum pre-primary schooling, do better in school than those who have not. Specifically, those children who attend ECD programs are more highly motivated, perform better, get higher scores on cognitive tests, and get on better with their classmates and teachers. ECD graduates are therefore less likely to drop out or to repeat classes. Therefore, the cost of their schooling is reduced and primary and even secondary education is more cost-effective. Thus, ECD in itself can spur educational participation in a region of the world that lags behind on most educational indicators.

38. Tracer studies in developing countries (Myers 1995) indicate that enrolment in ECD leads to more school readiness³, higher probability of on-time enrolment, lower rates of grade repetition and dropout, and improved performance for children who participate.

39. In Kenya, the evidence suggested attendance at a preschool with trained teachers led to a smoother transition from preschool to primary, with lower dropout and repetition in Standard 1. However, these effects were mediated by the quality of the school that the children attended (Njenga and Kabiru 2001).

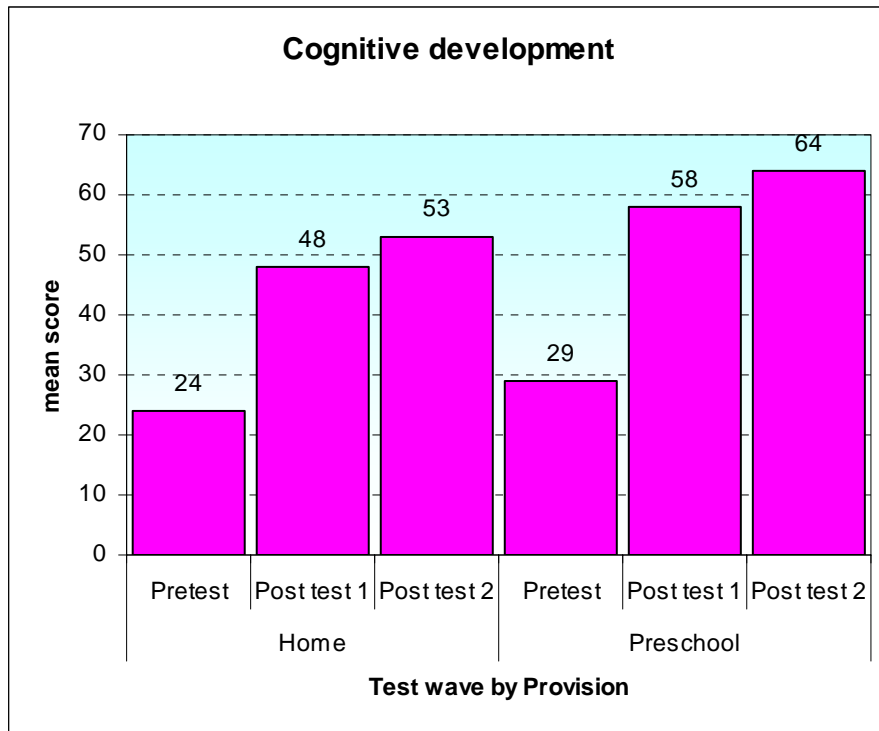
³ School readiness refers to both cognitive and social preparedness to meet the demands of Grade 1. This is of particular importance because dropout rates in Grade 1 are often very high in SSA.

40. More specifically, a study in Guinea and Cape Verde (Jaramillo and Tietjen 2001) found that ‘preschool students in each SES grouping in each country attain higher raw test scores than the control group’ who had not attended preschool. Further, the longer the child attended, the greater the gain.

...the impacts of ECD are strongest for those children from the most deprived backgrounds. The opportunity for additional nutritional, health, and educational inputs at an early age can address the developmental delays that are more likely to afflict poorer children.

41. Research conducted by the Madrasa Resource Centre Regional Research Programme compared 463 children in Kenya, Uganda and Zanzibar—one group who had attended the Madrasa preschools, one that had attended an alternative preschool and one who had not attended preschool.

Figure 2
Source: Preschool Impact Study



42. Their cognitive ability was assessed using two different cognitive development tests, the African Child Intelligence Test (ACIT) and the British Ability Scale (BAS) at three different times.

43. The Early Childhood Environment Rating Scale (ECERS) was used to assess the quality of services provided. The results are illustrated in Figure 2. The children who had attended preschool demonstrated both higher levels of cognitive ability at the two post-test periods of assessment and also greater growth in cognitive ability compared to those who had stayed at home.

44. The children who attended the Madrasa Resource Centres scored higher than those who attended other preschools that researchers put to the higher quality of these Centres. The ECERS gave the MRCs higher ratings than the other preschools (Preschool Impact Study ??).

45. Research conducted under the Profiles Project in Jamaica indicated that early childhood experience was one of the five strongest factors with an influence on grade repetition and failure in primary school in Jamaica (Vaughan 2005). Two key objectives of the Project were to determine the cognitive, academic and behavioural outcomes of different socio-economic and academic environments for pre-school children and to determine the relationships between the environments and the outcomes. A nationally representative sample of 5-6 year olds was used as a baseline.

46. The first follow-up study was conducted with children aged approximately 7 and the second follow-up study's subjects were of about 9. There was evidence of widening gaps in performance between the low and high SES children and increasing reports of behavioural problems. The author recommended early interventions to counter these before they became established and stable.

47. Attendance at an early childhood programme was associated with improved academic and behavioural outcomes. The report also recommended strengthening several aspects of ECD programming: parental education about parenting, stimulation of the children, health monitoring and standards setting and monitoring.

Save the Children (US) Project in Nepal

48. In 1996, SCF (US) initiated a community based and managed ECD programme in Siraha. The programmes enrol girls and boys in equal proportions and disproportionately enrol *dalit* children (25% compared to 17% in the population). The girls who leave this programme are just as likely as boys to enter primary school and the *dalit* children from the centre are twice as likely as other *dalit* children to enter primary. SCF (US) sees these centres as a powerful strategy for promoting gender and caste equity, promoting enrolment and school success and reducing dropout.

Table 2: Boy/Girl Ratios in Grades 1 and 2 in 24 Village Development Committees		
	ECD Group	Non-ECD Group
Boy/girl ratio in Grade 1	50/50	61/39
Boy/girl ratio in Grade 2	54/46	66/34
Source: Save the Children, 2003.		

49. Since the first cohort of 291 children enrolled in primary school in 2000, they have been following their progress⁴. There was good news on several fronts. These ECD graduates had passed from Class 1 to Class 2 at double the rate of other children; by July 2004, four years after they had enrolled, 80% had progressed without any repetition and 10% had skipped one class; which puts them on track to complete the five year primary cycle at more than twice the rate of other children. In 2003, it was estimated that only about 50% of Nepali children who ever enrol complete the cycle. At current trends, over 90% of the ECD graduates will complete. Even the few who fail a year, demonstrate persistence. Over the four year period, only 14 children had dropped out, an annual rate of 1.2% in a country where the annual dropout is about 10 times as great.

50. Parents and teachers have also noted positive social changes in the children—they are described as ‘neat and clean, respectful and obedient’ but also self-assured, capable and highly motivated. The ECD graduates are seen as eager to learn and with very good social skills. This combination of traits is prized by both their parents and teachers (Save the Children 2003).

51. The ECD centres are expected to be self-sustaining within five years with some support from the local education offices. [The Ministry of Education is planning to expand coverage of the Centres to about 50% by 2009.](#) They see several potential additional benefits: reduction of class sizes in Grade 1 and removal of underage children from Grade 1.

Box 2: Reaction of Nepali Parent to Effect of ECD Centre

Thakani Devi Choudhary -- parent: "Why would we not be satisfied? Every activity of the center helps our children improve. They learn so much from games and songs, and they don't feel stress in learning this way. They share the things they learn each day with us, and it makes us happy to see what they are learning. These children are so different from other children! They know how to speak to others. If you asked a non ECD child a question, you wouldn't get an answer -- they would probably run away if they saw a new person. But you can go test this at the center and see how confident they are. They'll answer you very confidently. They are all friendly with one another and they play without quarrelling. These children are talkative, and they never stop asking questions."

Source: Accessed from www.childcareexchange.com.

Cost-Benefit Studies

High Scope/Perry Preschool Project⁵

52. The High Scope/Perry Preschool Project was initiated in the 1962 in Ypsilanti, Michigan in the United States. From the start it was designed to be an intervention to address the high rates of failure and grade repetition in the local school system (Schweinhart 2002) and to target children living in poverty. Since 1970, High/Scope has published five comprehensive reports on the children who experienced the High/Scope Perry Preschool: one on the effects of the programme at the end of children's enrolment in preschool, one at age 10, one at age 15, one at age 19, and one at age 27. A report on the effects at age 40 has just been published (Schweinhart and others 2005). Cost-benefit analyses were done at age 27 and age 40.

⁴ Personal communication from Udayalaxmi Pradhanaga and Sheridan Bartlett, 2004.

⁵ Further descriptions of the ECD programmes are given in Appendix 2.

53. The original experimental design identified a small group of 123 African-American children who were perceived to be at high risk of school failure. Half (58) were randomly assigned to attend a high quality preschool at ages 3 and 4 and the other half (65) received no preschool at all.

54. The programme group also significantly outperformed the no-programme group on various intellectual and language tests from their preschool years up to age 7; on school achievement tests at ages 9, 10, and 14; and on literacy tests at ages 19 and 27. At ages 15 and 19, the programme group had significantly better attitudes toward school than the no-programme group. Programme-group parents had better attitudes toward their 15-year-old children's schooling than did no-programme parents.

55. An earlier cost-benefit analysis of the same programme (Schweinhart, Barnes and others 1993) had estimated that \$7 was saved for every \$1 of initial investment (\$7600 per child in 1992 dollars) based on the societal savings from lower dropout, welfare payments, crime, teenage pregnancy and unemployment.

56. It should be noted that this was quite an expensive programme with very low pupil/teacher ratios and highly qualified teachers—yet the benefit to stakeholders far outweighed the investment.

Abecedarian Project

57. A recent cost/benefit analysis of the Abecedarian Project (Masse and Barnett 2002) suggested smaller but still substantial savings from investment in quality ECD services. The study found that at age 21 the experimental group children were much more likely to have attended university (four-year college) than the control group children (P=36%, C=13%, p=.01). In general, the results from the assessments (at ages 8, 12, 15 and 21) supported the claim that the preschool intervention was effective in improving measures of intelligence and achievement over the long term. A further benefit was reported in Campbell and Ramey (1995): the preschool participants experienced lower levels of grade retention and placements in special education classes than the control group.

58. The researchers looked at seven categories of benefit:

- Earnings and fringe benefits of participants,
- Earnings and fringe benefits of future generations,
- Maternal employment and earnings,
- Elementary and secondary education cost-savings,
- Improved health,
- Higher education costs, and
- Welfare use.

59. This project was more expensive than the High Scope/Perry, with an average annual total cost *per child* of \$13,600. The findings of the cost-benefit analysis were that:

- The Abecedarian Project generated roughly four dollars in benefits for every dollar invested.

- Mothers of children who were enrolled can also expect greater earnings – about \$133,000 more over their lifetimes.
- School districts can expect to save more than \$11,000 per child because participants are less likely to require special education or remedial education.
- The next generation (children of the children in the Abecedarian project) are projected to earn nearly \$48,000 more throughout their lifetimes because of the impact the project had on their parents.

Chicago Child-Parents Centers

60. A study of children who attended the Chicago Child-Parent Centers (CPCs), which provide education and family support services to low-income children from ages 3 to 9, also offers evidence of the long-lasting benefits of early intervention. The follow-up study used ‘an alternative-program, quasi-experimental design’ in which the behaviours of the 989 children who attended 20 CPCs in preschool and kindergarten from 1983-86 were compared to a random sample of 550 eligible children from comparable family backgrounds who had attended all-day kindergartens but not participated in the CPCs.

61. Five main categories of benefits were estimated:

- Reductions in expenditures for the school remedial services of grade retention and special education,
- Reductions in criminal justice system expenditures for both juvenile and adult arrest and treatment,
- Reductions in child welfare system expenditures associated with child abuse and neglect,
- Averted tangible costs to crime victims, and
- Increases in adult earnings and tax revenues projected for increases in educational attainment.

62. Relative to the comparison group, CPC participants had a 29% higher rate of high school completion, a 33% lower rate of juvenile arrest, a 42% reduction in arrest for a violent offence, a 41% reduction in special education placement, a 40% reduction in the rate of grade retention, and a 51% reduction in child maltreatment (Reynolds and others, 2001).

63. The cost-benefit analysis (Reynolds and others 2005) indicated that each component had economic benefits that exceeded costs. With an average cost per child of \$6,730 (1998 dollars) for 1.5 years of participation, the preschool programme generated a total social return \$47,759 per participant. Participants were the main beneficiaries due to the increased earnings capacity projected to come from higher educational attainment. Tax payers and victims benefited to the extent of \$25,771 per participant. The public benefited from increased taxes linked to higher expected earnings capacity (28%), while there were cost savings from a lower rate of arrests (28%), lower costs to crime victims (24%) and savings from school remedial services (18%). Overall, each dollar invested in the programme returned \$7.10 dollars to society. Excluding benefits to participants, the ratio of programme benefits to costs for the general public was \$3.83 for every dollar invested. The ratio of benefits to costs for government savings alone was \$2.88 per dollar invested.

Peers Early Education Partnership

64. The Peers Early Education Partnership (PEEP) is a birth to 5 intervention programme based in a disadvantaged area of Oxford in the United Kingdom. It was conceived as a literacy programme and aimed to promote school readiness, numeracy and self-esteem. There is no selection into the programme; all families with children in the relevant age group (up to age 5) are invited to take part in weekly activities held in community centres. The programme offered both parent-centred and child-centred activities. From 1998 to 2005, PEEP was the subject of a long-term evaluation, the Birth to School Study (BTSS). The main aim of the BTSS was to investigate the effects of PEEP on the children and families from the community it served. Embedded within this aim were dual objectives: to determine if the intervention had an effect within the community as a whole and simultaneously, to determine whether it had an effect on the particular families who participated in the PEEP weekly sessions (Evangelou and others 2005).

65. The principal findings based on comparing children in communities where PEEP was available with children in communities without PEEP were:

On parents

- Compared to similar parents with no access to the programme, PEEP parents reported a significantly enhanced view of their parent-child interaction when the children were 1 year of age and also when they were 2.
- Parents living in the PEEP community were rated as providing a significantly higher care-giving environment when their children were age 2, compared to parents living in an area where PEEP was not available.

On the cognitive development of children

- Although PEEP children, compared to similar children from an area with no access to the programme, scored significantly lower on general cognitive and language outcomes collected at ages 2 and 4, by ages 3 and 5, there were no significant differences between the two groups. PEEP children, compared to a similar group of children with no access to PEEP, made significantly greater progress between the ages of 2 and 4, 2 and 5 and 4 and 5 in a cluster of skills related to future literacy success. These included vocabulary, phonological awareness of rhyme and alliteration, letter identification, understanding of books and print and writing.
- Similarly, children living in the PEEP community, compared to a similar group of children with no access to PEEP, scored significantly lower on a range of general cognitive, language and literacy skills at ages 2, 3, 4 and 5. Despite these early disadvantages, the same children made significantly greater progress in a similar cluster of literacy skills as above, between the ages of 2 and 5 and 4 and 5, though these were in a slightly reduced number of outcomes and showed smaller effect sizes.

On the socio-emotional development of children

- There were no significant differences at ages 2, 3 and 4 to either PEEP children, or to comparison children with no access to PEEP, on a range of socio-emotional outcomes. The picture changed when self-esteem was measured for the first time at age 5. At this point, PEEP children showed an advantage in 5 out of 7 possible sub-scales on the self-esteem measure.
- PEEP children, compared to a similar group of children with no access to PEEP, showed no significant advantages in their progress in socio-emotional development.

66. Although the effects do not appear as strong as those reported for High Scope/Perry or the Abecedarian projects, two things should be noted. First, this programme was not as intensive; second, the PEEP children did show greater growth in cognitive, language and

literacy outcomes and skills than the non-PEEP children. They also showed higher self-esteem at 5 years of age. This is consistent with findings from other studies and it is these sorts of differences that have a cumulative effect on life outcomes into adulthood.

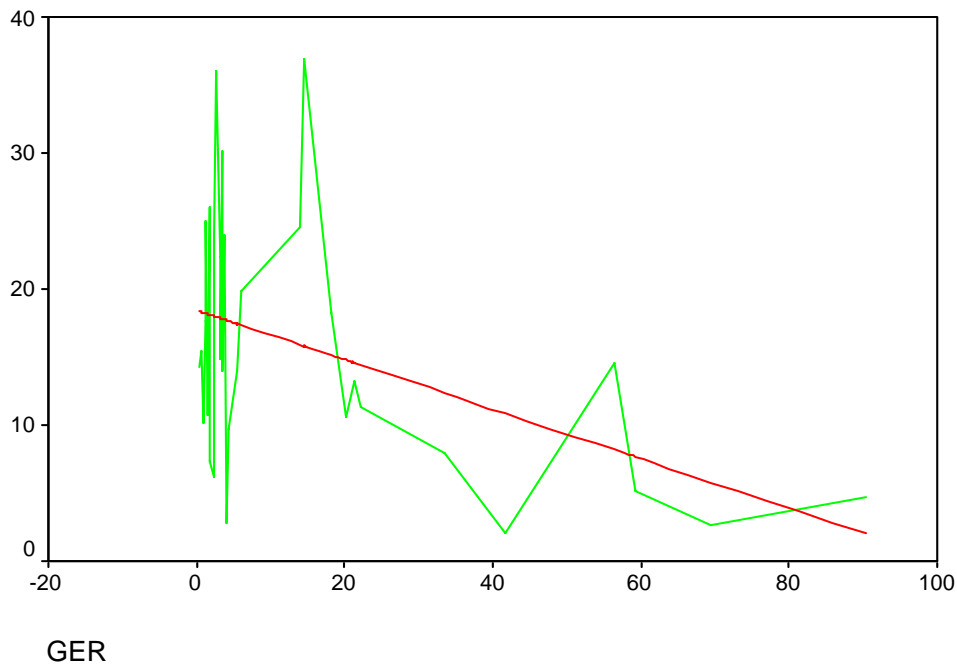
67. The Department for Education and Skills (DfES) in the United Kingdom commissioned a review of the international evidence of, *inter alia*, the impact of ECD interventions on child outcomes (McQuail and others, 2003). The evidence for the review came from 15 countries: Australia, New Zealand, United Kingdom (UK) and United States (US); four Nordic countries—Denmark, Finland, Norway and Sweden; seven ‘Other European’ countries—Belgium, France, Germany, Italy, the Netherlands, Portugal and Spain.

68. The evidence on outcomes came mostly from the English language countries and suggested that the potential benefits of ECEC provision are greatest for children from disadvantaged backgrounds, although all children could benefit. All things being equal, studies from Sweden and New Zealand suggested that more preschool experience led to greater benefit for children.

69. All the studies indicated that quality of provision had a direct, significant impact on the child’s developmental outcomes. A US study found that children who benefited from responsive and sensitive caregivers who talked more to them had higher cognitive and language development ratings than others who did not (NICHD Early Childcare Research Network, 2000). Similar results were reported from the United Kingdom.

70. Apart from this evidence from specific ECD programmes, there is also indirect evidence from the negative association at the national level between repetition rates and the pre-school enrolment level (Jaramillo and Mingat 2003). The data in figure 3 below comes from the UNESCO Institute of Statistics. In other work, they compare the data from 133 countries and find that children who do not experience preschool have a 50% primary school completion rate and in countries where at least half the children are in preschool, there is an 80% primary school completion rate (Mingat and Jaramillo 2003).

Figure 3: Repetition and ECD GER



Conclusion

71. From the descriptions of the programmes above, the following elements stand out:
- A good pre-school programme can make a significant difference to a child's persistence in school—which entails a range of activities and skills including the willingness to work hard, the ability to get on with teachers and fellow pupils, a greater ability to avoid the pitfalls of adolescence like early pregnancy and drug-taking
 - ECD programmes can have indirect positive effects on parents by freeing them to work or study and can have direct effects when they incorporate parenting classes and support. This impact on parents means that at least some of the benefits are realised very soon after the investment and therefore this can reduce some of the discounting of the return.
 - Finally, there is a positive and substantial return over the lifetime of the children who benefit from attending pre-school programmes. The higher than expected educational attainment leads to higher lifetime incomes.

5. Benefits of ECD for Health

72. The use of ECD health interventions to improve the health, nutritional status, and mortality of young children are well known and this study will review the contributions that can be made in two diseases, malaria and HIV/AIDS both of which are major causes of both mortality and morbidity in sub-Saharan Africa.

73. The treatment of mothers during their pregnancy to reduce the incidence or severity of malaria helps contribute to reductions in the number of low birth weight babies, ensuring their adequate development in the womb and readiness and ability to develop in early childhood. Malaria is responsible for 30- 50 percent of all outpatient visits to clinics and up to 50 percent of hospital admissions (UNICEF 2004) consuming scarce resources to combat a preventable disease.

74. Health ECD interventions, like educational interventions, must address both the mother and the child and there are efforts being put in place to fight not just not malaria, There are cost effective strategies for the control of malaria in pregnant women and young children, the prevention of anaemia and the prevention of HIV transmission during pregnancy, birth and breastfeeding. These interventions can be transmitted in antenatal, neonatal and child health services (WHO World Health Report 2005).

75. In the 2005 World Health Report, calls for an expansion of the known strategies for reducing child mortality to ensure universal coverage with a continuum of care from the parent to the referral hospital.

76. The 'Integrated Management of Childhood Illness' aims to treat the child in a comprehensive, holistic fashion, recognising that it is the child who is brought to the health worker, not a disease; that there are a whole of range of illnesses and conditions that can affect children and each child needs to be investigated as an individual. An integral part of IMCI is parent education, to enable them to prevent the onset of illness, identify the early signs and implement treatment procedures at home.

77. The relative contribution of HIV/AIDS to child mortality is small, approximately 6.5% in 2003 (WHO 2005), but it is increasing. Individual country conditions affect the size of the contribution.

ECD Potential for Reducing Health Costs

78. The impact of ECD interventions on health and health-seeking behaviour in adulthood can be both direct and indirect and is seen as mediated through the expected higher level of education attained by ECD graduates. Children in high quality ECD programmes have also been reported to develop an understanding that they have control over their lives and that actions have consequences.

79. The direct effect is a result of better knowledge or knowledge seeking behaviour that enables more educated individuals to be more aware both of threats to their health and also to what action should be taken to mitigate these health threats.

80. Indirectly, the higher education status translates to more opportunities to seek employment opportunities that lead to a higher income that would otherwise be the case. Generally, such opportunities are available in occupations that are relatively safe and do not offer daily threats to health and welfare. Further a higher income increases one's ability to seek health care.

81. For example, in the African context evidence is growing that education level is a major predictor of one's willingness (and ability) to use a condom or adopt other behaviours that will reduce one's exposure to the HIV virus. In some of the studies (see below) a relationship was found between having experienced the programme intervention and several health seeking behaviours.

Cost-Benefit Studies

Brookline Early Education Project

82. The 25-year follow-up of children enrolled in the Brookline Early Education Project differs in several respects from the two impact assessments discussed above. First, the BEEP was available to all children in the relatively affluent community (Brookline Massachusetts) who wanted to participate as well as children from Boston who were from relatively less privileged backgrounds. Second, it focussed on health impacts and thirdly the design is quasi-experimental. It identified a comparison group at the time of the follow-up survey and did not have a control group of children it had followed from the time of the intervention (Palfrey and others, 2005).

83. Out of the 282 children enrolled at birth, 120 were identified and included in the 25-year follow-up. This sample differed from the original sample in three respects: a greater proportion of college-educated mothers (76.9% vs. 59.2%), a smaller proportion of urban families (20.8% vs. 29.3%) and a higher proportion of girls.

84. The results of the analysis indicated that there were actually four groups, suburban, urban, BEEP and non-BEEP. In general, outcomes were better for the suburban group (income, education, etc.) but participating in BEEP made a difference to the urban group, making their health outcomes comparable to the suburban group. Participating in BEEP was associated with higher levels of health efficacy, more positive health behaviours, and less depression. The researchers point to early training given to the children in executive decision making—organizing, planning and task completion as a possible reason for their being better caretakers of their own health. Schulman (2005) suggests that preschool can help children to understand that their actions have consequences and that they bear responsibility for what happens to them and that these early lessons have an influence on decision-making in all aspects of their lives.

High Scope/Perry Project

85. At ages 27 and 40, participants were more health conscious in a number of areas—wearing a seatbelt, drinking of alcohol, smoking and the use of sedatives, marijuana and heroin.

- Participants at age 27 were more likely to report usually or always wearing seat belts—57 percent versus 34 percent.
- Participants were less likely to drink. At age 27, 44 percent of participants reported that they never drank, compared to 36 percent of non-participants; 16 percent of participants drank several times a week or daily, compared to 26 percent of non-participants.
- Smoking was less prevalent among participants at age 27, with 45 percent saying they smoked cigarettes compared to 56 percent of non-participants.
- At age 40, participants were less likely than non-participants to report using sedatives, sleeping pills or tranquillisers (17 percent versus 43 percent), marijuana or hashish (48 percent versus 71 percent), or heroin (0 percent versus 9 percent) (Schulman 2005).

86. Analysis of Brazil's Living Standard Measurement Study gave similar results with respect to teenage pregnancy as High Scope/Perry, that is, the incidence of teenage pregnancy is less than half for girls aged 10-18 who have attended preschool compared to those who had not (Young 2002a).

Chicago Child-Parents Centres

87. The family support services appear to have led to a reduction in the likelihood of children being abused or neglected than children in the comparison group. Only 5 percent of children who had participated in the preschool programme had reported in accidents of neglect or abuse from ages 4 to 17, compared to 10.3 percent of children in the comparison group. This reduction in child abuse and neglect translates into \$770 in savings per programme participant by lowering costs for the child welfare system and other victim services (Schulman 2005).

Abecedarian Project

88. Results suggested a possible impact on smoking. Participants were less likely to smoke (39% were smokers vs. 55% in the control group), resulting in health benefits and longer lives, for a total benefit of \$164,000 per person.

Conclusion

89. Although health outcomes were not the focus of most of the follow-up or cost-benefit studies, except for the Brookline study, it is clear that ECD can have a positive impact on a range of health choices including adolescent pregnancy, the consumption of alcohol and illicit drugs, the use of seat belts and smoking. Again, like the education outcomes, the health effects are thought to be the result of early lessons absorbed during the early years.

6. Social Impact in Adulthood of ECD

90. Several of the impact studies provided evidence of generalised positive effects that influenced success in adulthood. These effects led to a range of results (detailed below) that included lower rates of single motherhood, later marriage but longer marriages, greater ability to raise their own children, greater closeness to friends and family and a higher tendency to be self-supporting.

High Scope/Perry

91. In early adulthood, participants showed evidence of positive marital and fertility patterns in ways that were likely to bring a benefit to society through their effect on their own children, for example, fewer extra-marital births and longer marriages. The differences between participants and non-participants included:

- At 19, the programme women's rate of pregnancy was approximately half that of the control group.
- Women who had participated in the programme were much more likely to be married at age 27 than women who had not participated—40 percent versus 8 percent.
- Men who had participated in the programme and men who had not participated were equally likely to be married at age 27, but those who had participated had been married an average of 6.2 years by that point compared to 3.3 years for non-participants.
- At age 27, more than half (54 percent) of female non-participants were single mothers compared to only 32 percent of female participants.
- At age 27, female participants had an average of 1.0 out-of-wedlock births compared to an average of 1.7 for non-participants. Fifty-seven percent of births to female participants were out-of-wedlock, while 83 percent of births to non-participants were out-of-wedlock.
- Nearly one-quarter (23 percent) of female non-participants had ever had an abortion by age 27; only 4 percent of participants had done so.
- A higher percentage of male participants than non-participants were raising their own children as of age 40 (57 percent versus 30 percent).
- At age 27, a significantly higher percentage of participants said they found it easy to feel close to family and friends (66 percent versus 48 percent).
- At age 40, participants were more likely to report that they were getting along very well with their families (75 percent versus 64 percent) (Schulman 2005).

92. Early on there were differences between the females who had undergone the programme and those who had not in the rates of treatment for mental impairment (8% vs. 36%) and of grade repetition (21% vs. 41%). These differences led to significant differences in school survival with 84% of the programme females graduating from regular high school against 32% of the no-programme group. For both males and females, the graduation rate for the programme group was 65% versus 45% for the no-programme group.

93. The 2005 follow-up study (Schweinhart and others 2005) found that “In constant 2000 dollars discounted at 3%, the economic return to society of the Perry Preschool programme was \$258,888 per participant on an investment of \$15,166 per participant—\$17.07 per dollar invested. Of that return, \$195,621 went to the general public—\$12.90 per dollar invested, and \$63,267 went to each participant—\$4.17 per dollar invested. Of the public return, 88% (\$171,473) came from crime savings, 4% (\$7,303) came from education savings, 7% (\$14,078) came from increased taxes due to higher earnings, and 1% (\$2,768) came from welfare savings. Preschool programme participants earned 14% more per person than they would have otherwise—\$156,490 more over their lifetimes in undiscounted 2000

dollars. Male programme participants cost the public 41% less in crime costs per person—\$732,894 less in undiscounted 2000 dollars over their lifetimes.” The return to society was 21% greater for the females than for the males.

Abecedarian Project

94. No significant difference was found between the treatment and no-treatment groups in the likelihood of being involved in crime. The researchers ascribed this to the fact that both groups lived in an environment that was generally low in crime (Campbell and Ramey 1995).

95. When the children were 4½, those whose mothers were under 18 years of age were more likely to graduate from high school, to receive post-secondary training, to be self-supporting and not to give birth to more children, if their children were in the preschool group. In general, the mothers in the preschool group were more likely to be employed and to have skilled or ‘semi-skilled’ jobs.

96. Participants are projected to make about \$143,000 more over their lifetimes than those who did not take part in the programme.

7. Costs and Funding

97. Appropriate investment in ECD is a more efficient intervention for the improvement of educational systems than remedial programmes later on. They have a high payoff (Duncan and others 1998; Heckman 1999; Ramey and others 2000) and cost less with more dramatic and persistent results than interventions at other education levels (van der Gaag and Tan 1998).

98. James Heckman supports investment in ECD as a strategy for reducing the educational attainment inequalities that underpin income inequality in the United States. These educational inequalities have been persistent and in his monograph, Heckman and Krueger (2003), he analyses the contributions to reductions in inequity that have been made by a series of social programmes, ECD interventions, school-based programmes and assistance for working-age individuals. The conclusion is that the ECD interventions had the strongest impact, were persistent and had an influence on educational attainment (years of schooling, grade repetition and use of special education classes) that made their impact inter-generational and, therefore, self-sustaining.

99. However, moving to a universally accessible system of ECD interventions is both a complex and a costly process. Certainly, the rate of expansion of educational services for this age group has historically been low. Jaramillo and Mingat (2003) make the point that at past rates of growth, it will take close to 200 years for the poorest countries (low-income IDA) to reach ECD enrolment levels of 50%. They estimate that by 2015, the average level of gross enrolment would be 16.3% (9.9% in IDA and 53.2% in non-IDA countries) if enrolment growth continues to follow historical patterns. A substantial and concerted effort will be necessary to bring ECD enrolments to anything close to acceptable levels by 2015.

100. Funding is required, but each country will need to develop the capacity (human and institutional) to absorb this funding and put it to the most efficient use. The balance of state versus community versus private sponsorship will need to be decided on an individual country basis. For example, Ghana is planning to have kindergarten be an integral part of its tuition-free basic education system (Government of Ghana 2004); in Mauritius provision is almost all private (including employers) but the government provides technical support and training to a sector that enrolls virtually all children of the relevant age. In Kenya, coverage was estimated to be around 38% in 2003 and 70% of this was provided within the private sector or in a community-managed environment (MOEST, Kenya, 2005).

101. The size of the sector, the number of children aged between 0 and 8, and how fast it is growing (or declining) are vital pieces of information for the planning process. Fertility rates can fall because of increased levels of education among women, state policy on the availability and type of contraceptive options; the prevalence of HIV in women of childbearing age; and the quality of antenatal services available to them; and the structure of the labour market for women.

Costing

102. To get an understanding of what it will cost to introduce a universal or near-universal system of services for children aged between 0 and 8, several broad and related questions need to be addressed⁶.

103. The first of these is: what services will be provided? The table from the Tamil Nadu (India) Integrated Child Development Services division, Department of Women and Child Development, Ministry of Human Resource Development, is illustrative of the range of services that could be provided. Decisions will need to be made as to which of these components need to be and can be incorporated.

Components	Sub-Components
Immunization	Vaccines (BCG, DPT, OPV, TT, Measles)
Health check-ups	<ol style="list-style-type: none"> 1. Recording of weight 2. Verification of immunization status 3. Administration of FST, Vitamin A and Deworming medicine
Referral services	<ol style="list-style-type: none"> 1. Case recording 2. Referral to Public Health Clinic, Community Health Clinic, Sub-centre
Treatment of minor illnesses	<ol style="list-style-type: none"> 1. Hospital referrals 2. Home based care
Supplementary feeding	<ol style="list-style-type: none"> 1. Provision of noon meal– pulses, cereals, oil, vegetables, sugar/iodised salt 2. Provision of Supplementary Feeding
Growth monitoring and promotion	<ol style="list-style-type: none"> 1. Recording of weight and height in growth cards 2. Counselling
Nutrition and health education	<ol style="list-style-type: none"> 1. Counselling 2. Home visits 3. Demonstrations 4. Awareness campaigns
Early care and stimulation for younger children under three years	<ol style="list-style-type: none"> 1. Interventions with mothers/caregivers
Early joyful learning opportunities to children in the three to six years age group	<ol style="list-style-type: none"> 1. Play activities 2. Pre-school education

104. The second question is ‘how many?’ How many vaccines, schools, teachers, practitioners, health and social workers, antenatal clinics, early childhood centres, support networks for parents of young children, books and learning resources does it take to cover the population of children in the relevant age group currently and to meet future population estimates. What age categories are to be used and what are the numbers within each category? If the resources are not available to provide universal coverage, what strategy is in place to ensure that the most disadvantaged groups are prioritised?

105. An integral part of the answer to the first question is the second: how do children access these services and where do they access them—at home, in centres, schools or any other environment? Do these places meet the needs of all children—those with disability, those living in remote areas, in both urban and rural environments and of all religious faiths?

⁶ Adapted from personal communication from Sian Williams of (???) about a joint Inter American Development Bank and University of the West Indies project to develop a draft model for financing ECD in the Caribbean as part of the Child Focus II Project to support

If not, what steps can be taken to ensure that their specific needs are being met and that access to services is truly universal and all children have their rights observed? Depending on the age of the children involved, costs and resources, each country/community will have an optimal mix of centre versus community versus household provision.

106. Service delivery also has implicit the question of 'quality'. Do parents know enough and are they sufficiently empowered to provide the support their children need for optimal development? Are the interventions that are in place appropriate and sufficient to make a difference for children's development? Are the teachers and practitioners using the kind of learning methods that work? Are the centres and schools adequately equipped? Are beneficial ratios of practitioners to children in operation? Are the children learning the skills and attitudes that will help them do well in school and make positive decisions about life choices? Are records being kept and evaluations performed? Standards have to be set and regularly assessed.

107. Fourthly, the context has to be right, there has to be a supporting environment⁷ with regulations, policy, employment flexibility and public education in place to raise standards, inspire better parenting? Community development and employment initiatives should include components that support early childhood development. Mechanisms for planning should include application of research on early child development. Caregivers should be recognised as a profession with training, certification and a career ladder.

108. Fifthly, there has to be an assessment of potential benefits and how they relate to question of 'how many' children

109. The definition of 'cost' is also problematical. There are capital and recurrent costs (construction versus health worker wages); and some capital costs like buildings and vehicles have diminishing returns while land, for example, usually appreciates over time.

110. However, comparative information on the actual costs of running ECD programmes is inadequate across countries. One of the reasons for this is that there are a great variety of ECD service delivery models and costs of items also differ from one place to another. Also costs are covered from many sources such as fees, in kind provision, labour, government and donor contributions (ECDNA 1998; Colleta and Reinhold 1997). There are no generic answers to these questions and each country must develop its own formulae.

111. The Madrasa Resource Centre has produced pro forma costing for the establishment and running of centres in Kenya, Uganda and Zanzibar over a three-year period. The Kenyan estimate, for 34 children and two teachers, was US\$53.94 per child per year. The Ugandan model costs US\$49.60 per child per year (45 children and three teachers) while the Zanzibari model estimates are US\$30.34 per child (56 children and four teachers) per year over three years—despite the fact that the basic requirements for the centres are the same.

⁷ Charles, L (2003) Extending Early Childhood Indicators in the Caribbean. Presentation at the UNESCO Institute of Statistics Workshop on Education Statistics, Grenada, April 2003. Caribbean Child Development Centre, University of the West Indies, Mona, Jamaica; Planning Institute of Jamaica (2000) Strategic/ Operational Review of National Early Childhood Programme, Kingston, Jamaica

112. While in general, better programmes that have more robust positive effects are more expensive, the cost difference may not be large. For example, a US study found that programmes that were of acceptable quality cost only 10% more than other poorer programmes (Helburn 1995). In addition, a study carried out in Guinea (Jaramillo and Tietjen 2001) found that children from low cost preschools performed better on some tasks than children from high cost preschools.

113. According to Helburn (1995), the most critical areas for investment would be in staff/child ratios, higher staff wages, staff training and experienced administrators. Proposals for reducing costs include care in private homes rather than centre-based care and locally made toys or toys adapted from the local environment.

114. Other cost-cutting proposals from the Consultative Group on ECCD are:

- Focus services on limited, disadvantaged populations
- Use trained community workers or family members as caregivers and teachers
- Use all available resources (people of all ages, facilities available part-time, recycled materials)
- Use existing infrastructure by incorporating ECCD elements into ongoing health, nutrition, regional development, and adult education programmes.
- Use mass media and all other means of communication

Funding

115. There are four main sources of funding—public (either through subsidised services or direct transfers to parents), employers (full or partial subsidies of services for their employees or a state levy), community (in collaboration with state, employers or parents) and private (financed entirely and directly by fees paid by parents). In most African countries, a major proportion of resources for ECD services are provided by parents and communities, national NGOs and international funding agencies. Communities meet the costs of ECD services by putting up physical facilities, providing equipment and materials and paying staff. In some countries local authorities finance ECD by employing teachers and supervisors, constructing facilities, sponsoring the training of teachers and supervisors and providing materials and equipment. From table 4, five countries have no state provision of pre-primary places (Ethiopia, Sierra Leone, Uganda, Comoros and Namibia). The three countries with the highest government provision are Benin, Niger and South Africa.

116. Funding levels are inadequate and this is one of the major constraints limiting the expansion of the ECD programmes and implementation of policies. For the majority of the countries, the allocation for ECD is less than 0.01 percent of the Ministry of Education budget (see table 4). The percentage allocated for ECD is higher if the funds allocated for children in health, nutrition and social welfare are included.

117. In thirteen of the 19 countries in table 4, expenditure on pre-primary level is less than 1% of public expenditure on education. In Kenya for example, 0.24% of the Ministry of Education's recurrent budget is allocated to ECD. Most of this is utilized for salaries of staff who undertake coordination, maintenance of standards, curriculum and training of teachers (Sang and others 2002). In Kenya, Lesotho, Namibia, and Zimbabwe, the pre-primary GER ranges from 18% to 41%, yet this seems to be entirely supported by individuals and

communities. If such a large proportion of the cohort is enrolled at this level, it would seem only equitable that more public resources be devoted to it. Gabon, Mali, Niger, and Senegal have lower enrolment ratios but their governments spend more, relatively, on the pre-primary level.

118. The international funding bodies that provide a high proportion of funding in the forms of grants and loans include UNICEF, UNESCO, Bernard van Leer Foundation, Save the Children, Christian Children’s Fund, Aga Khan Foundation and the World Bank. Involvement of the private sector is limited.

Country	Year	%
Benin	2000	1.23**
Botswana	2000	0.0
Burundi	2000	0.26
Chad	1999	0.00
Comoros	1998	0.00
Côte d’Ivoire	2000	0.01**
Equatorial Guinea	2000	4.21**
Gabon	2000	10.50**
Kenya	2000	0.24*
Lesotho	1999	0.0
Mali	1999	0.96**
Namibia	1998	0.00
Niger	2000	2.30**
Senegal	1998	2.59*
Sierra Leone	1998	0.00
South Africa	1999	1.23
Swaziland	1998	0.03
Togo	2000	0.51**
Zimbabwe	1999	0.02**

* National Estimate ** UIS Estimate
Source: UIS, March, 2003

119. Supplementary funding options include:

- Special taxes, e.g. payroll taxes
- Trust funds to which governments, donors, or other stakeholders can contribute
- Private sector donations and philanthropy—in kind provision, direct provision of childcare, childcare credits, etc.

African countries need to mobilise internal resources to sustain the projects started through this funding.

8. Outstanding Issues and Conclusions

Overview

120. The wide range of programmes that report significant, positive, long-term effects is very encouraging. The studies have suggested that ECD interventions can have a range of positive effects for parents of participants, participants and children of participants immediately, in the medium term and in the long term (see table 5).

Group	Benefits	Source ⁸
Parents	<ol style="list-style-type: none"> 1. Increased time for work -> higher income 2. Increased time for study -> higher income 3. Increased self-confidence in parenting skills 4. Increased interest in child's schooling and progress 	<ol style="list-style-type: none"> 1. Abecedarian 2. Abecedarian 3. PEEP 4. Perry, SC (US) in Nepal
Participants while in programme	<ol style="list-style-type: none"> 1. Faster rate of cognitive development 2. More self confidence 	<ol style="list-style-type: none"> 1. PEEP, (UK) Madrasa Resource Centre (Zanzibar) 2. SC (US) in Nepal, PEEP
Participants in school	<ol style="list-style-type: none"> 1. Better performance 2. Higher rates of retention 3. Lower rates of special education 4. Lower aggression scores 	<ol style="list-style-type: none"> 1. SC(US) in Nepal, Abecedarian 2. Perry, SC(US) 3. Abecedarian 4. Perry, Chicago Child-Parents Centres, Abecedarian 5. Profiles (Jamaica)
Participants as adolescents	<ol style="list-style-type: none"> 1. Lower rates of teenage pregnancy 2. Higher rates of secondary school completion 3. Better health choices 4. Reduce the likelihood that they will be arrested 	<ol style="list-style-type: none"> 1. Perry, Brazil LSMS 2. Perry, Chicago Child-Parents Abecedarian 3. Brookline 4. Perry, Chicago Child-Parents
Participants in adulthood	<ol style="list-style-type: none"> 1. Higher rates of marriage 2. Longer marriages 3. Higher lifetime incomes 	<ol style="list-style-type: none"> 1. Abecedarian, Perry 2. Perry 3. Perry, Abecedarian, Chicago Child-Parents
Children of participants	<ol style="list-style-type: none"> 1. Projected higher lifetime incomes 	Abecedarian

121. The studies cited above have focussed on those benefits that can be monetised—significant areas of benefit that cannot have a monetary value put on them, like enhanced self esteem on the part of both the participants and their parents, cannot be included although they are valued.

122. Although ECD interventions definitely add value to children's lives in many ways: they should not be viewed as sufficient in themselves. Some studies have found that family context (maternal education and income for example) and child characteristics have a greater explanatory power than ECD interventions in explanatory child outcomes (Vaughan 2005, NICHD Early Child Care Research Network, 1996).

⁸ Descriptions of programmes cited are in appendix 2.

123. The question of which model to be used in any particular country remains to be answered and the case studies being undertaken as part of this overall study may answer some of the questions and provide guidance as to where countries can start the assessment process.

124. The benefits and costs savings were driven by taking disadvantaged, at risk children and making changes that significantly reduced their likelihood of unsafe behaviours (early pregnancy, crime, drug taking, smoking) and increasing the likelihood of higher educational attainment, employment and positive health-seeking behaviours. The conclusion to be drawn is that in the short term the major benefit is to be derived from targeting those children in African countries most at risk of school failure and low status employment.

125. The benefits should be clear. For example, the World Bank has proposed the expansion of ‘nursery schooling’ to take in the under-age children who are currently enrolled in Grade 1 as well as to generally improve school readiness and thereby reduce the 40% dropout from Standard 1 (World Bank 2004).

Expanding Coverage

126. This process is likely to be a multi-phase one. The first stage will involve selecting a model or set of models of service delivery and deciding which aspects of the current system, however rudimentary, will be eliminated, expanded or adapted. There will need to be good information about the size of the population, about family structures and parenting styles and how they vary by income, religion, ethnicity and geographic location.

127. Implicit in the selection of the models will be decisions about funding strategies—amount, source of funds and disbursement and accounting procedures. ECD must be included in the national budget and explicitly part of the planning process.

Table 6	GROSS ENROLMENT IN ECCE				NEW ENTRANTS TO PRIMARY EDUCATION WITH ECCE EXPERIENCE AS %					
		1999/2000		GPI	1998/99			1999/2000		
Country or territory	Total	Male	Female	F/M	Total	Male	Female	Total	Male	Female
Benin	6.9	7.1	6.7	0.94	...	...	...	...	...	...
Botswana	...	...	...	...	27.0**	24.3**	29.9**	...	...	...
Burkina Faso	1.6*	1.6*	1.6*	1.02	2.8	2.5	3.2	...	...	...
Burundi	0.9*	0.9*	0.8*	0.95	...	...	...	...	...	...
Cameroon	10.2	9.6	10.8	1.13	...	...	...	...	...	...
Comoros	1.7	1.6	1.8	1.08	4.0	4.5	3.5	99.8	99.8	...
Congo	2.7	2.2	3.2	1.47	...	...	...	...	...	...
Côte d'Ivoire	2.7**	2.8**	2.7**	0.97	...	...	...	...	...	...
Equatorial Guinea	30.0**	29.3**	30.7**	1.05	...	...	...	...	...	...
Eritrea	5.5	5.7	5.3	0.93	...	...	...	...	...	...
Ethiopia	1.7	1.8	1.7	0.93	...	...	...	...	...	...
Gambia	28.3**	29.8**	26.8**	0.90	27.5	27.2	27.8	...	...	...
Ghana ³	57.1	57.3	56.9	0.99	...	...	...	...	...	...
Guinea-Bissau	3.9	3.8	4.0	1.05	...	...	...	...	...	...
Kenya ³	38.4	37.1	39.7	1.07	...	...	...	...	...	...
Lesotho ³	21.8	20.3	23.3	1.15	...	...	...	...	...	...
Liberia	69.5	73.7	65.3	0.89	...	...	...	25.8	20.3	31.5
Madagascar	3.4	3.3	3.4	1.02	...	...	...	...	...	...

Mali ³	2.4	1.9	2.9	1.53	...	...	...	...	...	...
Mauritius	96.1	95.2	97.0	1.02	97.0	...	...	...	...	...
Namibia	64.7	60.2	69.3	1.15	...	...	...	...	...	...
Niger	0.9	0.9	1.0	1.02	...	...	...	...	...	...
Senegal	3.0	2.9	3.0	1.06	...	...	...	...	...	...
Seychelles ⁴	...	...	...	...	100.0	100.0	100.0	100.0	100.0	100.0
Sierra Leone	4.0	3.9	4.2	1.07	...	...	...	5.3	4.8	5.9
South Africa	21.8	21.8	21.8	1.00	...	...	...	...	...	...
Togo	2.2	2.2	2.3	1.06	...	...	...	...	...	...
Uganda	2.8	2.8	2.8	1.00	2.5	4.9	...	...	...	...
Zambia ³	2.3*	2.1*	2.5*	1.21	8.5	7.7	9.4	...	...	...

2. Enrolment ratios have not been calculated due to inconsistencies between enrolment and the United Nations population data.

3. Data in italics are for 1998/99.

4. Enrolment ratios have not been calculated due to lack of United Nations population data by age.

* National estimate

** UNESCO Institute for Statistics
(UIS) estimate

Source: 2005 EFA Monitoring Report

The personnel available to provide services to children and parents—health, education, safety, etc. will need to be developed and deployed.

128. Other important questions that will need to be resolved include the management of the sector—should ECD be overseen by a single Ministry/authority or should existing Ministries continue to implement those aspects of ECD that fall under their purview. For example, if preschools are managed by the Ministry of Education, immunization, growth monitoring and disability screening by the Ministry of Health, and birth registration under the Ministry of Home Affairs, how will these different Ministries coordinate their work in the sector as a whole and for individual children and their parents.

129. However, the demonstration that ‘ECD is a good thing’ may not be a sufficient basis for state investment, especially when the state is operating under severe financial constraints. What this study, in conjunction with the case studies and model being developed, has shown is that ECD can ‘generate’ resources, in the form of cost savings and increased productivity that will not only repay the investment but also generate additional benefits for the state. In many countries education and health sectors, the main implementers of ECD programmes, already take a major proportion of government budgets and any move to increase, even in the short-term, their share and ECD’s share within the separate budgets will be difficult and need strong economic evidence of the relative benefits of investing in this area.

Research, Evaluation and Data

130. The outstanding questions of cost, programme content, delivery models, etc. can be answered through an ongoing programme of research, monitoring, evaluation and data analysis. Ongoing data collection efforts (health surveys, social and economic essays, the DHS, etc.) can be utilised and adapted to provide a lot of the information required, supplemented when necessary with ECD-specific research. The social and economic surveys etc. will be valuable for developing knowledge about home-based, community-managed and other less formal mechanisms for providing childcare and services to children.

131. Recommendations for Policy and Decision Makers

1. Review policy environment and ensure the national context will support quality interventions to improve the life chances of young children
2. Develop standards and identify delivery models that will support ongoing efforts to meet the EFA goals and MDGs
3. Strengthen the state's role as guarantor of children's rights.
4. Develop funding strategies that link social returns to expenditures for children. For example, savings at primary to increased spending at pre-primary or savings from hospital admissions to providing mosquito nets.
5. Marshal all stakeholders and actors to support pre-primary, as has been done successfully with primary school in many countries.
6. Focus public spending on the most disadvantaged children, this is likely to bring the greatest returns
7. The major partners should be parents and communities to ensure ownership and sustainability; to promote the use of local knowledge and traditions; to empower communities

9. Bibliography

- ARNOLD, Caroline (2005).- "Positioning ECCD in the 21st Century." Coordinators' Notebook Issue 28. Consultative Group on ECD.
- BEGLEY, S (1996).- "Your Child's Brain." *Newsweek*. February 19: 55-61.
- BRUNER, C., S. FLOYD and A. Copeman (2005).- *Seven Things Policy Makers Need to Know About School Readiness*. Des Moines, Iowa: Child and Family Policy Center. www.finebynine.org/pub.html.
- CAMPBELL, F.A., and C.T. RAMEY (1995).- "Cognitive and School Outcomes for High-Risk African American Students at Middle Adolescence: Positive Effects of Early Intervention." *American Education Research Journal*, Volume 32, Number 4, pp. 743-772.
- CANDAPPA, M., P. MOSS, C. CAMERON, S. MCQUAIL, A. MOONEY and P. PETRIE (2003).- *Early Years and Childcare International Evidence Project: Funding and Sustainability*. London: Institute of Education, University of London. Accessed from www.dfes.gov.uk/research on September 26, 2005.
- CARNEGIE CORPORATION (1994).- *Carnegie Task Force on Meeting the Needs of Young Child. Starting Points*. New York. Carnegie Corporation.
- COLLETA N. J. and A. J. REINHOLD (1997).- *Review of early childhood policy and programmes in Sub-Saharan Africa*, World Bank.
- COMMITTEE FOR ECONOMIC DEVELOPMENT. (2002). - Preschool for all: investing in a productive and just society: a statement on national policy. New York/Washington; Committee for Economic Development. Accessed from www.ced.org/projects/educ.shtml
- ___ (2004).- Developmental Education: The Value of High Quality Preschool Investments as Economic Tools. Working Paper. New York/Washington; Committee for Economic Development. Accessed from www.ced.org/projects/educ.shtml
- ___ (2004).- A New Framework for Assessing the Benefits of Early Education. Working Paper. New York/Washington; Committee for Economic Development. Accessed from www.ced.org/projects/educ.shtml
- DUNCAN, G.J., J. BROOKS-GUNN, W. JEAN YOUNG and J.R. SMITH (1998).- "How much does Childhood Poverty Affect the Life Chances of Children?" *American Sociological Review* 63:406-23.
- ECDNA. (1998). - Policy and Programming in Early Childhood Development in Africa: A report of a Workshop held in Cape Town, December 1997. Nairobi.
- EVANGELOU, M., G. BROOKS, S SMITH and D. JENNINGS. (2005). - The Birth to School Study: A Longitudinal Evaluation of the Peers Early Education Partnership (1998-2005)
- FISKE, Edward B. (1998). - *Wasted Opportunities: When Schools Fail. Repetition and Dropout in Primary Schools*. Education for All Status and Trends. UNESCO: Paris.
- FLOUD, R., K. WACHTER, and A. GREGORY. (1990). - *Height, Health and History: Nutritional Status in the United Kingdom, 1750-1980*. Cambridge: Cambridge University Press.
- GOVERNMENT OF GHANA. (2004). - Early Childhood Care and Development Policy. Accra: Ministry of Women and Children's Affairs.
- HECKMAN, J.J. (1999). - *Policies to Foster Human Capital, NBER Working Paper Series No. 7288*. Cambridge, Mass.: National Bureau of Economic Research.
- HECKMAN, J.J. and Alan B. KRUEGER. (2003). - *Inequality in America: What Role for Human Capital Policies*. Cambridge: Massachusetts Institute of Technology Press.
- HYDE, Karin A.L. and Margaret KABIRU. (2003). - *Early Childhood Development as an Important Strategy to Improve Learning Outcomes*. ADEA Working Group on Early Childhood Development.
- JARAMILLO, A. and A. MINGAT. (2003). - *Early Childhood Care and Education in Sub-Saharan Africa: What would it take to meet the Dakar goal?* Draft. The World Bank: Africa Region.
- JARAMILLO, A. and K. TIETJEN. (2001). - *Can We Do More for Less? A Look at the Impact and Implications of Preschools in Cape Verde and Guinea*. The World Bank.

- KAROLY, Lynn A. and James H. BIGELOW. (2005). - *The Economics of Investing in Universal Preschool Education in California*. Prepared for the David and Lucile Packard Foundation. Rand Organisation.
- MASSE, L. N., and W. S. BARNETT. (2002). - A Benefit Cost Analysis of the Abecedarian Early Childhood Intervention, website: [www.nieer.org] accessed on September 6, 2005.
- MCCAIN and MUSTARD (1999)
- MCQUAIL, S., A MOONEY, C. CAMERON, M. CANDAPPA, P. MOSS and P. PETRIE. (2003). - *Early Years and Childcare International Evidence Project: Child Outcomes*. London: Institute of Education, University of London. Accessed from www.dfes.gov.uk/research on September 26, 2005.
- MINGAT, A. (2005a).- Early Childhood Care and Education in Sub-Saharan Africa: Towards Expansion of coverage and targeting of efficient services. Prepared for ADEA Biennale 2006. Preliminary Draft
- MINGAT, A (2005b).- Rapport suite aux missions au Burkina Faso et en Gambie, pour le compte de l'ADEA (groupe de travail sur la petite enfance) et avec l'appui de l'UNICEF, sur la stratégie de développement des activités pour la petite enfance. Draft.
- MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY, KENYA. (2005). - Background Report of Kenya. UNESCO/OECD Early Childhood Policy Review Project.
- MUSTARD in YOUNG (2002b)
- MYERS, R. G. and J. L. EVANS. (1995). - Childrearing Practices. Article prepared for the section "Marriage and the Family" of the *Encyclopaedia of Third World Women*, Ed. Nelly P. Stromquist.
- NICHD EARLY CHILD CARE RESEARCH NETWORK. (1996). - Characteristics of infant child care: factors contributing to positive caregiving. *Early Childhood Research Quarterly*, 11 (3), 269-306 (cited in McQuail and others, 2003).
- NJENGA, A. and M. N. KABIRU. (2001). - In the web of cultural transition: A tracer study of children in Embu District, Kenya. Bernard van Leer Foundation.
- PALFREY, Judith, Penny HAUSER-CRAM, Martha B. BRONSON, Marji Erickson WARFIELD, Selcuk SIRIN and Eugenia CHAN. (2005). - "The Brookline Early Education Project: A 25 Year Follow-up Study of a Family-Centered Early Health and Development Intervention". *Pediatrics* Vol 116 No 1.
- RAMEY, C.T., F.A. CAMPBELL, M. BURCHINAL, M.L. SKINNER, D.M. GARDNER, and S.L. RAMEY. (2000). - "Persistent Effects of Early Intervention on High Risk Children and Their Mothers." *Applied Development Science* 4:2-14.
- REYNOLDS, Arthur J. J. A. TEMPLE, Dylan L. ROBERTSON and Emily A. MANN. (2001). - "Age 21 Cost-Benefit Analysis of the Title I Chicago Child-Parent Center Program." Executive Summary accessed from www.waisman.wisc.edu/cls on September 9, 2005.
- RUTTER Michael, and Marjorie, (1993). - *Developing Minds: Challenge and Continuity Across the Life Span*. New York, NY. Harper Collins.
- SAVE THE CHILDREN. (2003). - *What's the Difference: An ECD Impact Study from Nepal. Summary*
- SCHULMAN, Karen. (2005). - "Overlooked Benefits of Prekindergarten". NIEER Policy Report, accessed from www.nieer.org.
- SCHWEINHART, L. J., H.V. BARNES, and D.P. WEIKART. (1993). - *Significant benefits. The High/Scope Perry Preschool Study Through Age 27*. Ypsilanti, MI: High/Scope Press.
- SCHWEINHART, L.J. (2002). - "How the High/Scope Perry Preschool Study Grew: A Researcher's Tale". Phi Delta Kappa Center for Evaluation, Development, and Research Newsletter, June 2002, No. 32.
- SCHWEINHART, L.J. (2005). - The High Scope Perry Preschool Study through Age 40: Summary, Conclusions and Frequently Asked Questions.
- SCHWEINHART, L. J., MONTIE, J., XIANG, Z., BARNETT, W. S., BELFIELD, C. R., & NORES, M. (2005). - *Lifetime effects: The High/Scope Perry Preschool study through age 40*. (Monographs of the High/Scope Educational Research Foundation, 14). Ypsilanti, MI: High/Scope Press.

- VAN DER GAAG, J. and J-P TAN (1998). - *The Benefits of Early Child Development Programs: An Economic Analysis*. Washington, D.C.: World Bank.
- VAUGHAN, Margaret S. (2005).- *The Jamaican Pre-School Child: The Status of Early Childhood Development in Jamaica (Results from the Profiles Project*. Kingston: Planning Institute of Jamaica.
- UNICEF (2004).- *Malaria: A Major Cause of Child Death and Poverty in Africa*. New York: UNICEF.
- (UNESCO (2003b)
- WORLD BANK (2004).- *Cost, Financing and School Effectiveness of Education in Malawi: A future of limited choices and endless opportunities*. Africa Region Human Development Working Paper Series. Washington D.C.: World Bank accessed from www.worldbank.org.
- YOUNG, M.E. (2002a).- *Early Child Development: A Stepping Stone to Success in School and Lifelong Learning*. Draft. The World Bank: Washington.

Appendix 1: Quality in ECD

National Institute on Early Education Research Quality Standards for Preschool

The features of a high-quality preschool programme focus on what is critical for the child, family, teacher, curriculum, and classroom.

Critical for Children

Children are respected, nurtured, challenged, and encouraged to make meaningful decisions.

They enjoy close, warm relationships with the adults and other children in their classroom.

They do not spend long periods of time waiting, being ignored, or isolated.

Children enjoy and look forward to school.

The child's home language and culture is respected, appreciated, and incorporated into the classroom curriculum.

Classrooms are busy with conversations, projects, experiments, reading and building activities. The materials and activities are individualized and challenge children's intellectual development.

Children have an opportunity to learn basic school readiness skills, using the child's natural curiosity as a powerful motivator.

Critical for Families

Family members are included as partners in all aspects of the educational programme and home culture is incorporated into all communications.

Parents can improve their educational and/or parenting skills.

Critical for Teachers, Curriculum and Classrooms

Teachers have at least a four-year college degree and specific training in early childhood education and are paid accordingly.

Teachers have frequent, meaningful interactions with children. Important concepts such as mathematics and early literacy are taught through projects, everyday experiences, collaborative activities, and active curriculum.

Each child's progress is assessed and necessary adjustments made on a regular basis.

The curriculum incorporates specified goals, expected outcomes, and assessment procedures.

Source: Linda M. Espinosa. 200 'High Quality Pre-School: Why we need it and what it looks like'. *Preschool Policy Matters*, Issue I accessed from www.nieer.org.

Appendix 2: Descriptions of ECD Programmes

1. High Scope/Perry Preschool Programme

The Perry Preschool Programme was a 2-year preschool education programme for 3- and 4-year-old African American children living in low-income families. Teachers had bachelor's degrees and certification in education, and each served 5–6 children. They used the High/Scope educational model in daily 2 1/2-hour classes and visited families weekly. In this model, teachers arranged the classroom and daily schedule to support children's self-initiated learning activities, provided both small-group and large-group activities, and helped children engage in key experiences in child development. Teachers studied and received regular training and support in their use of this educational model.

2. The Carolina Abecedarian Study

The Carolina Abecedarian Study is an experiment in the provision of intensive pre-school services to children in low-income families from infancy to five years of age. The programme followed an experimental design and originally involved 112 children, mostly of African American descent, who were born between 1972 and 1977 and whose family situations were believed to put the children at risk of retarded intellectual and social development. A "High-Risk Index" was used to determine risk for retarded cognitive development. The index was constructed based on factors such as household income, parental education, school histories of family members, welfare payments, parental intelligence, and parental occupations. Selected background characteristics at programme entry were: maternal education of approximately 10 years, maternal IQ of 85, 25 percent of households with both parents, and 55 percent of households on Aid to Families with Dependent Children – AFDC. Between 6 and 12 weeks of age, children were randomly assigned to either a preschool programme or a control group. By 1978, 104 participants remained in the study and the follow-up at age 21 involved all 104 of these participants.

Treatment

The preschool programme was center-based with teacher/child ratios that ranged from 1:3 for infants/toddlers to 1:6 for older children. The center was operated from 7:30 a.m. to 5:30 p.m., five days per week, and fifty weeks out of the year, with free transportation available. The curriculum emphasized language development, but addressed the needs of children in all developmental domains. Children at the center also received medical and nutritional services. In order to avoid the confounding effects of these factors on intellectual development, the same medical and nutritional services were provided to the children in the preschool control group.

Source: L. N. Masse and W. S. Barnett, 2002.

3. The Brookline Early Education Project

Launched in the early 1970s, the programme was the United States' first health and developmental programme sponsored by a school department and open to all children in the community. From 1972 to 1979, the Brookline (Massachusetts) Public Schools administered an innovative, community-based, child health and development programme open to all families within the town and to families in an adjacent area of the city of Boston. The programme's essential goal was to ensure that children in the project would enter kindergarten healthy and ready to learn. The major intervention was a multifaceted health and education programme designed to engage the children's families as their first and best teachers.

A total of 282 children and their families entered the experimental programme in 1972 and 1973 and participated from birth until kindergarten entry. BEEP offered a range of health,

educational, and social services to parents and children, including home visits, parent groups, toy and book libraries, playgroups and pre-kindergarten programs, and health and developmental monitoring. In partnership with community paediatricians in Brookline and Boston, BEEP staff members particularly emphasized and facilitated access to regular health care services. As a result, all of the children had a paediatric primary health care provider. A total of 282 children were enrolled initially, approximately one-third of whom were non-white. The enrolled children were randomly assigned to three treatment intensities, A, B or C. Children in all three levels of service received regular structured health and developmental evaluations (with feedback given to parents), a weekly playgroup at age 2, and a daily preschool programme from 3 to 5 years of age. Parents in the A and B groups had home visits and parent groups

Parents in the A level averaged 14 to 18 home visits and 8 parent group sessions during the children's first 2 years; those in the B level received an average of 10 to 12 home visits and 5 parent group sessions in the same period. Parents in the C level had access to the center to borrow toys or books but did not receive home visits or participate in parent groups.

Source: J. S. Palfrey and others, 2005.

4. Chicago Child-Parents Centers

The Child-Parent Center (CPC) programme is a center-based early intervention that provides comprehensive educational and family-support services to children and their parents from preschool to early elementary school, ages 3 to 9. The children are from low-income families. The CPC programme opened in May 1967 in four sites on Chicago's west side. They were named Cole, Dickens, Hansberry, and Olive Child-Parent Education Centers. The programme is the second oldest (after Head Start) federally-funded preschool programme in the U.S. and the oldest extended early childhood program. Currently, the CPC programme operates in 23 centers throughout the city. The major rationale of the programme is that the foundation for school success is facilitated by the presence of a stable and enriched learning environment during the early childhood years and when parents are active participants in their children's education.

The philosophy of the programme is to help children develop skills in reading, math, and communication through a broad spectrum of classroom and parent activities, and field trips. Each Child-Parent Center is run by a head teacher and includes a staffed parent resource room, school-community outreach activities, and health services. After preschool and kindergarten, the school-age programme in the elementary school provides reduced class sizes, teacher aides for each class, continued parent involvement activities, and an enriched classroom environment for developing reading and math skills.

The Chicago Longitudinal Study began in 1986 to investigate the effects of government-funded kindergarten programs for 1,539 children in the Chicago Public Schools. The study is in its 16th year of operation. Besides investigating the short- and long-term effects of early childhood intervention, the study traces the scholastic and social development of participating children and the contributions of family and school practices to children's behaviour.

Sources: www.nieer.org, and www.waisman.wisc.edu/cls/NEWSLETTER2.PDF

Accessed on September 16, 2005.

Reynolds and others, 2001.

5. Save the Children ECD Centres in Nepal

Between 1998 and 2002, SC supported the start-up of more than 200 ECD centers, providing opportunities for about 13,000 deprived 3 to 5 year-olds in 12 districts. There is a large unmet demand for more centers, and recent breakthroughs in the sustainability of these programs has enabled more rapid expansion undertaken in partnership with the District Education Offices (DEOs) and Village Development Committees.

The centers, run by local women, provide an expanded range of experience for these children, encouraging culturally appropriate active learning and helping them develop skills which will enable them to make good use of whatever learning opportunities are offered in school and elsewhere. Facilitators lead the children in a simple planned programme using a range of low cost materials, offering a mix of directed activities and opportunities for free play.

Source: Save the Children, 2003.

6. The Peers Early Education Partnership (PEEP) and the Birth to School Study (BTSS)

The Peers Early Education Partnership (PEEP) is a birth to 5 intervention programme that aims to improve the life chances of children from a disadvantaged area of Oxford by raising their educational achievement. From 1998 to 2004, PEEP was the subject of a long-term evaluation, the Birth to School Study (BTSS). The main aim of the BTSS was to investigate the effects of PEEP on the children and families from the community it served. Embedded within this aim were dual objectives: to determine if the intervention had an effect within the community as a whole and simultaneously, to determine whether it had an effect on the particular families who participated in the PEEP weekly sessions. The foci of these objectives were parental outcomes related to aspects of parent-child relationships, quality of the care-giving environment and maternal mental health and child outcomes related to cognitive and socio-emotional development. The six year span of the study afforded the opportunity to measure effects year by year from ages 1 to 5, and to measure the rates of progress of each group of children between the different points in time.

Source: Evangelou and others, 2005, accessed from www.dfes.gov.uk on September 26, 2005.

7. Madrasa Resource Centre