THE REPUBLIC OF UGANDA

Uganda's Progress in Attaining the PEAP Targets - in the Context of the Millennium Development Goals

Background Paper for
The Consultative Group Meeting
Kampala, 14-16 May 2003

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Executive Summary

*This paper critically examines Uganda's **progress and challenges** towards the attainment of PEAP targets and Millennium Development Goals (MDGs). These two sets of poverty goals are broadly similar in focus and share the overall objective of holding Government and development partners responsible for development progress.*

There are, however, substantial differences in the quantitative targets - a difference which can be resolved by emphasising the predominance of PEAP targets. MDGs nevertheless continue to play a useful role in Uganda in terms of raising external resources and enriching the existing poverty monitoring framework.

Over the last ten years, Uganda has made substantial progress on the goals of income poverty reduction, UPE, gender parity in primary education, HIV/AIDS and increasing access to safe water. On the other hand, substantial challenges remain in ensuring gender parity in secondary education, combating infant, under-five and maternal mortality, reducing malaria, and improving environmental sanitation.

*The progress in reducing **income poverty** has mainly been due to high economic growth achieved because of good economic policy. Past determinants will continue to play an important role in the future, as will investor confidence, infrastructure expansion and improved quality and access to primary health care and secondary education. Attainability of the 10 percent target by 2017 is within reach, but this will almost certainly require economic growth rates of at least 7 percent per annum.*

*The **education** sector has fully embraced the Millennium Development Goals. The success of the UPE policy can be explained by government commitment, strong ministerial leadership, and timely and concerted external support. These factors remain important future determinants of sector performance combined with quality improvements, availability and efficient use of resources, capacity constraints, population growth and access to post-primary education. **Gender parity** has been attained in primary education as a result of the UPE policy and can be sustained if special attention is given to the needs of the girl child. Gender parity for secondary levels can be attained by 2015 by expanding gross enrolment, promoting institutions chosen by girls and enrolling girls earlier in school.*

***Infant and under-five mortality** have stagnated during the 1990s and remain at very high levels. Major determinants include high fertility, low birth spacing, teenage pregnancies, unsupervised deliveries, falling immunisation coverage, increased malaria prevalence and malnutrition. The story for **maternal mortality** is equally discouraging: There have been no improvements over the past ten years and PEAP targets have been missed. A wide range of multisectoral interventions are needed to reduce infant and maternal mortality. The single most important activity - improving the access to obstetric emergency health care - is likely to be very costly. Other sector outputs, such as education and water/sanitation are also critical.*

***Malaria** prevalence has increased because of increased cloroquine resistance, limited use of mosquito nets, and possibly climatic change. In response, Government has abolished tax and tariffs on bednets and introduced home-based management of fevers. Malaria can be reduced if bednets use is encouraged, a new drug policy implemented, pregnant women presumptively treated and constant drug supply ensured.*

*Substantial progress has been made in reducing the prevalence of **HIV/AIDS** due to early intervention, committed and sustained political leadership, a strong focus on prevention and a multi-sectoral approach. The PEAP target of 5 percent by 2005 can be attained if the IEC campaign focuses on increasing awareness of prevention, condoms are adequately distributed and used, and mother-to-child transmission reduced.*

*Access to **safe water** expanded rapidly over the last decade due to availability of cheap technologies, emphasis on hardware provision, central implementation and substantial increase in resource availability. However, the water sector has now reached a turning point where it cannot rely on past strategies: Cheap interventions are running out, decentralisation policies are temporarily slowing progress and stakeholders are questioning value-for-money. Future success depends on the twin objectives of successful decentralisation and efficiency improvements.*

***Environmental sanitation** remains poor and little progress has been registered. There is low household demand and the importance of sanitation for household health and productivity must be recognised. Despite the existing memorandum of understanding, sector performance is hampered by poor inter-sectoral collaboration, fragmented and ineffective funding, and lack of best practice. There is an urgent need for increased attention, and possibly a need to re-think current intervention practices.*

*Full attainment of PEAP targets and MDGs have substantial **budgetary and macroeconomic implications**. This situation is particularly acute because of a large fiscal deficit financed by external assistance which is not sustainable in the long run. Government is effectively working within a constrained environment where insufficient resources and low absorptive capacity stand in the way of achieving sector progress. The absorptive capacity constraints are evident in the very sharp rise in the unit costs of public construction over the last four years. More aid is therefore not always desirable nor sufficient to attain poverty goals.*

*The issues raised in this paper are intended to inform the upcoming **PEAP revision**. The Millennium Development Goals should and can be usefully incorporated in the revised PEAP, which will also focus on updating existing targets and setting new ones. Increased policy attention will be given to child and maternal mortality and to environmental sanitation. Given the budgetary, macroeconomic and absorptive capacity constraints facing the economy, the revised PEAP will also highlight the tradeoffs which must be made between competing demands for public expenditures and competing objectives.*

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List of Acronyms and Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ARI	Acute Respiratory Infection
CG	Consultative Group
DFID	Department for International Development
DOTS	Direct observation of treatment
DWD	Directorate for Water Development
EFA	Education for All
EHD	Environmental Health Department (Ministry of Health)
EPRC	Economic Policy Research Centre
GDP	Gross Domestic Product
GNP	Gross National Product
HIV	Human Immunodeficiency Virus
ICRG	International Country Risk Guide
IEC	Information Education and Communication
MDG	Millennium Development Goal
MFPED	Ministry of Finance, Planning and Economic Development
MOES	Ministry of Education and Sports
MOH	Ministry of Health
MWLE	Ministry of Water, Lands and Environment
NWSC	National Water and Sewerage Corporation
OLS	Ordinary Least Squares
P1-P7	Primary School levels 1 to 7
PEAP	Poverty Eradication Action Plan
PMES	Poverty Monitoring and Evaluation Strategy
PMTCT	Prevention of mother to child transmission of HIV/AIDS
PPA	Participatory Poverty Assessment
PPP	Purchasing Power Parity
PRSC	Poverty Reduction Support Credit
PRSP	Poverty Reduction Strategy Paper
PSR	Poverty Status Report
S1-S6	Secondary School levels 1 to 6
SSA	Sub Saharan Africa
SWAP	Sector Wide Approach
TB	Tuberculosis
TOT	Terms of Trade
UDHS	Uganda Demographic and Health Survey
UN	United Nations
UNAIDS	United Nations Programme for HIV/AIDS
UNHS	Uganda National Household Survey
UPE	Universal Primary Education
UPPAP	Uganda Participatory Poverty Assessment Process
WFFC	World Fit For Children

Introduction

Over the past decade, a solid foundation has been laid for the future economic and social development of Uganda. There has been recovery from the civil conflicts of the 1970s and 1980s, and substantial progress has been registered in terms of high economic growth, poverty reduction and relative political stability. A strong international reputation has been established in reform with a home-grown economic strategy focusing explicitly on the eradication of poverty this reputation and track record have generated substantial external support in the form of aid, debt relief and technical assistance.

In this relatively favourable economic and political climate, it is important that continuous efforts are made to ensure that the current high level of public spending is converted into a real improvement in poor people's lives. The Government is already institutionally well-equipped to handle this challenge: The Vision 2025 document sets the broad national ambitions; the Poverty Eradication Action Plan (PEAP) outlines the necessary policy actions and influences budget allocations in the medium term. The Poverty Monitoring and Evaluation Strategy (PMES) identifies relevant monitoring indicators and targets. Guided by the strategic priorities identified in the PEAP, the Medium Term Expenditure Framework (MTEF) sets out the Government's medium term budgetary allocations within a fiscal framework which is compatible with macroeconomic stability and private sector led growth. Finally, the biannual Poverty Status Reports and the annual PEAP Progress Reports monitor the implementation of the PEAP in the short to medium term.

In addition to the existing poverty monitoring system, Government has also signed up to the Millennium Development Goals (MDGs) under the UN Millennium Declaration[1]. The MDGs have grown out of the agreements and resolutions of world conferences organised by the United Nations in the past decade. They include: 1) eradication of poverty; 2) achieving universal primary education; 3) promoting gender equality and empowering women; 4) reducing child mortality; 5) improving maternal health; 6) combating malaria, HIV/AIDS and other diseases; 7) ensuring environmental sustainability; and 8) developing a global partnership for development. The Millennium Development Goals also stipulate a number of targets, such as reducing maternal mortality by three-quarters between 1990 and 2015[2].

The purpose of this paper is to critically examine Uganda's progress and challenges towards the attainment of the PEAP and MDG targets. It differs from related reports, such as the recently completed Poverty Status Report 2003, in several ways. First, through its principal focus on outcome indicators that measure the quality-related aspects of life that ultimately matter to people. Secondly, by also focusing on MDGs *in addition* to the PEAP targets analysed in the Poverty Status Report. Finally, by employing a relatively longer time horizon. The intention is to give policy makers a broad overview of where we are in terms of achieving poverty goals. More specifically, this paper will discuss the questions set out below:

1. What are the major PEAP and MDG targets and how do they compare?
2. What is Uganda's past performance?
3. What were the major determinants of past performance?

[1] Uganda remains equally committed to the related World Fit For Children (WFFC) Goals and Education for All (EFA) Goals.
[2] See appendix A for a full overview of the Millennium Development Goals.

4. What are the critical determinants of future performance?
5. Are the goals realistic and attainable, individually and collectively?

Most of the poverty goals under review essentially fall under PEAP Pillar 4: Improving the quality of life of the poor. The paper is therefore structured along the lines of the MDG Goals rather than the PEAP. It is important to emphasise that care has been taken to ensure that important PEAP *outcome* targets are not omitted through this approach. It should be emphasised that this paper does not attempt to discuss all goals and indicators, but rather a careful selection of these. Goals for which trends and targets are readily available have received priority attention. Particular emphasis is also given to the goals of eradicating poverty, where Uganda has made substantial progress and reducing infant and maternal mortality, where performance has been less impressive. Improving the access to safe water and sanitation is also discussed extensively, due to a relatively strong record on water, but remarkable lack of progress on sanitation. The paper begins with some clarifications regarding the mutual roles and relationship between the two sets of goals. This is followed up by an analysis of the PEAP targets and MDGs - goal by goal. The broad budgetary and macroeconomic consequences of meeting the poverty goals are then highlighted and the paper concludes by summarising implications for the upcoming revision of the PEAP.

PEAP Targets and MDGs

The presence of different PEAP and MDG goals has led to different interpretations of their overall purpose amongst various stakeholders. This paper begins by outlining their relative roles and relationship.

In general terms there is a substantial overlap between the two. Like the MDGs, the PEAP also has broad national goals for poverty eradication, UPE, gender, child and maternal mortality, HIV/AIDS (but not malaria), environmental sustainability and partnership principles. A detailed comparison indicates that ten PEAP goals are directly comparable with the MDGs (see appendix table B1). Both also share the same overall objective of holding Government and development partners accountable for development progress.

The crucial difference lies in the quantitative targets that each of them embody. In general, the PEAP targets relate to poverty, UPE, HIV/AIDS and water are more ambitious than the MDG targets. On the other hand, the MDG targets for gender equality in education, infant mortality and maternal mortality are more ambitious than those set out in the PEAP (see appendix table B2).

There are several good arguments for letting the national PEAP targets predominate. First of all, it was never felt that the intention that the MDGs should superimpose its quantitative targets on the national level, rather these should be seen as global targets. The purpose of the MDGs was to induce developing countries to set their own national targets through a process of consultation. In fact, events in the country superseded this intention as many PEAP targets were already in place in 1997 before the Millennium Declaration was adopted in 2000. PEAP targets were set through a process of intense consultation through, amongst others, the Poverty Monitoring Network. Secondly, the PEAP has successfully been the overall planning framework during the past six years in Uganda, and sectors have geared their resource allocations and activities increasingly towards these targets. Finally, in comparison with the MDG targets, the PEAP targets are typically more realistic and relevant.

Despite the predominance of PEAP targets, the MDGs can play several useful and important roles. First, the MDG targets have already been fully embraced by certain sectors, such as education. Secondly, they can be used to enrich the existing list of poverty monitoring indicators, notably in relation to MDG goal 6 (HIV/AIDS, malaria and tuberculosis). Finally, the MDGs are useful for international comparisons so that Uganda can measure its own performance against that of similar countries using the same yardstick.

In sum, the question is not about a choice between two substitutes, but a realisation that both the PEAP targets have important and distinct roles to play. The challenge for the PEAP revision process is therefore one of synthesis and integration of the MDGs.

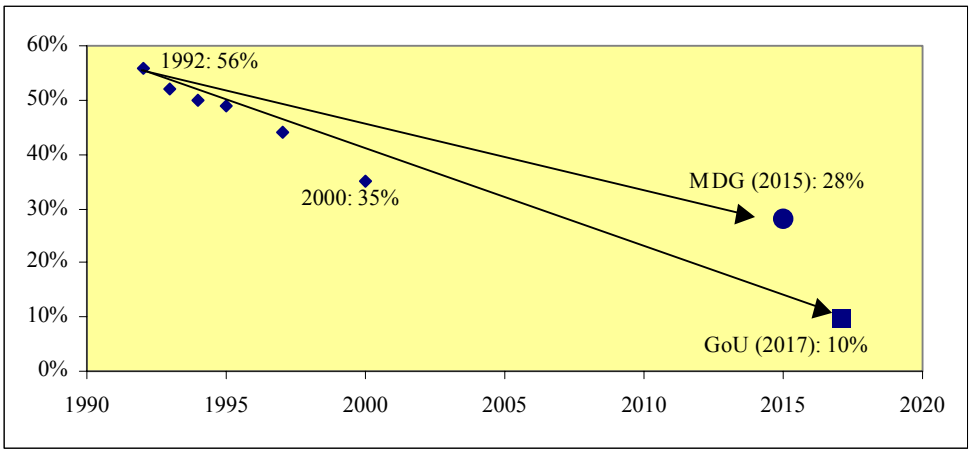
1. Poverty Eradication

Trends and targets

Poverty eradication is the overall objective of Government policy. The income-based interpretation[3] of this goal is the PEAP target of reducing the incidence of household poverty to 10 percent by 2017. In comparison, the Millennium Development Goal for poverty eradication translates into a target of 28 percent poverty by 2015. This target is considerably less ambitious than the PEAP target. Uganda has done relatively well compared to many other Sub-Saharan African countries in achieving high economic growth of 6.9 percent per year during the 1990s and ensuring improved incomes for poor as well as better-off households. As illustrated in figure 1, the incidence of poverty fell from 56 percent in 1992, to 44 percent in 1997 and 35 percent in 2000. The PEAP target therefore remains realistic and attainable.

The underlying growth in household incomes has been relatively broad-based with all major livelihood groups benefiting. Urban areas have, however, grown relatively faster than rural areas, and poverty has not fallen in the Northern region, where 66 percent of the population remain poor. In comparison the poverty incidence is much lower in Central (20 percent), West (28 percent) and East (37 percent). Inequality has therefore risen slightly, especially between 1997 and 2000, due to rural-urban and inter-regional disparities. The progress achieved in terms of reducing household poverty can therefore be fully attributed to general economic growth rather than reduced inequality, which highlights the imperative of maintaining rapid and broad based economic growth if Uganda is to attain the PEAP target for poverty eradication. The subsequent discussion therefore focuses on the major determinants of high economic growth in the country during the 1990s and how to maintain it in future.

Figure 1. Uganda's progress in eradicating income poverty, 1992-2000.



Source: Appleton (2001) and MFPED (2001a).

Determinants of growth and poverty reduction

What were the main factors behind the observed fall in income poverty during the 1990s? Based on a review of the available micro- and macroeconomic evidence, five major, and mutually inter-dependent, explanatory factors emerge: 1) Economic recovery; 2) Good

[3] Income poverty is only one of several dimensions of poverty, such as powerlessness, exclusion, insecurity and isolation. A fact highlighted by the participatory poverty assessments (MFPED 2000, 2003c).

economic policy; 3) Favourable terms of trade; 4) Positive effects of aid and; 5) Diversification of rural livelihoods. Each of these factors are briefly discussed below.

Economic recovery. Uganda's very high economic growth rates in the post-conflict period can be explained by the recovery from civil conflict. Since 1987 Government has invested substantially in physical infrastructure, especially in expanding the hitherto neglected road network. The restoration of internal peace also gradually increased investor confidence and could have contributed as much as 1.3 percentage point of the observed increase in per capita income in 1990-97 (Keefer, 2000)[4].

Good economic policy. Economic recovery could not have been achieved had it not been for Uganda's strong macroeconomic performance in the 1990s which was based on two key reforms: the legalisation of the parallel market in foreign exchange in 1990, and the attainment of macroeconomic stability, achieved in 1992 through fiscal and monetary discipline, and coffee market liberalisation. (Henstridge and Kasekende, 2001). A number of parastatals and government-owned companies were also privatised, capital flows liberalised and a tax reform programme was implemented. It is estimated that the macroeconomic reforms and the associated fall in the parallel market premium contributed up to 2.1 percentage points of Uganda's per capita growth in 1990-97. Good economic policy also increased Uganda's aid effectiveness.

Favourable terms of trade in the period 1990-97 is another important explanatory factor for growth and poverty reduction. The terms of trade (export prices relative to import prices) improved at an annual rate of 3.5 percent in this period estimated to have contributed up to 1.3 percentage points of per capita growth in 1990-97. The liberalisation of the coffee sector made possible one of the single biggest reduction in poverty by ensuring that the bulk of the windfall proceeds from the 1994-95 coffee boom went to coffee growing households. To illustrate, the share of the world market price received by the farmer increased from 23.1 percent in 1989/90 to 41.2 in 1994/95 and 43.7 in 1999/00 (Kasekende, 2000).

Positive effects of aid. Official development assistance has been relatively well spent compared to most other countries, boosted public expenditure and helped Government implement its programmes. This led to substantial social sector investments, particularly in the education and health sectors thereby laying a foundation for future growth. The returns to these investments will, however, not be encountered until the medium and long term. It is estimated that aid to Uganda contributed 31 percent of the annual economic growth rate. Thus, in the absence of aid, the growth rate per capita would have been 3.8 percent per year instead of 5.5 percent[5]. Due to the positive correlation between growth and poverty reduction, it is estimated that 29 percent of the decline in poverty between 1992 and 1997 was due to aid.

Diversification of rural income. While crop agriculture remains the main source of income, non-farm activities became a more important source of livelihood in the rural areas during the 1990s. The observed fall in income poverty is therefore also associated with livelihood diversification, featuring an expansion in non-farm income. Diversification represents a

[4] Per capita annual GDP growth in 1990-97 averaged 3.2 percent (Keefer, 2000). These estimates are upper-bound since they assume that all the progress was made in the 1990s. Nevertheless, they do highlight relative magnitudes of the major growth components.

[5] Growth is expressed in purchase power parity in these calculations.

move away from subsistence farming into more economically productive activities such as fishing, petty trading or small scale service provision.

Insecurity

Not all developments have been positive with respect to reducing income poverty. The Northern region has not seen much poverty reduction, in fact it increased from 60 to 66 percent between 1997 and 2000. This area has since the 1980s been characterised by insecurity ranging from wars and civil strife, rebel activity, highway robberies to cattle rustling that have resulted into mass human displacement, death, loss of property and disruption of development opportunities. The situation in Northern Uganda will be discussed in a separate background paper for this year's CG meeting.

Determinants of future progress

When trends are compared with targets in a diagram such as that presented in figure 1, it is important not to fall into the trap of assuming that past progress is irreversible. In other words, although poverty has fallen from 56 to 35 percent there is no guarantee that this downward trend will automatically continue. To what extent are past determinants of poverty eradication a good guide to continued progress? To address this question we make use of a basic simulation model based on the work of Keefer (2000) and Appleton (2001). The model estimates the impact of various economic reforms and policies on the attainability of the PEAP poverty target[6]. These arguments are supported by existing micro level evidence on households and enterprises and the recently completed participatory poverty assessment.

Beyond recovery

The simulation model assumes a baseline per capita growth rate of 2.0 percent per annum. This reflects the expectation of ~~to~~ long-run economic growth in the absence of substantial economic reforms. The baseline growth rate is lower than what was achieved during the 1990s as a reflection of the fact that the country has reaped most of the benefits from economic recovery. Under this baseline it is estimated that the poverty incidence would fall to 16.0 percent by 2017, whereby the PEAP target would be missed.

Table 1. Policy simulations and their effect on economic growth and poverty.

Simulation variable	Change	Economic growth p.a.	Per capita growth p.a.	Poverty by 2017
Baseline Scenario	-	*5.0%*	*2.0%*	*16.0%*
Terms of trade shock	-6.6%	4.2%	1.3%	21.7%
Investor confidence	+0.4 points	5.5%	2.5%	12.8%
Secondary education	+0.237	5.3%	2.4%	13.4%
Financial deepening	+20%-points	5.2%	2.3%	14.4%

Note: See appendix B for details. Investor confidence is modelled using an ICRG (International Country Risk Guide) variable measuring contract and property rights. Population growth is assumed to be 2.9% per year. Source: Calculations based on Keefer (2000) and Appleton (2001).

Terms of trade

The terms of trade fell by a total of 46 percent between 1996 and 2001 (i.e. 6.6 percent p.a.) due to a sharp fall in coffee prices and a simultaneous increase in oil prices. This is a strong contrast to the situation during the mid-1990s. Rather than being an engine for future growth and poverty reduction, the unfavourable terms of trade (TOT) emerge as a constraining factor

[6] Appendix C details the methodology.

towards attaining the PEAP poverty target. On the basis of the simulation model, the TOT deterioration is estimated to reduce per capita growth by 0.7 percentage-points per year and thus poverty would be 21.7 percent by 2017 rather than 16.0 percent as in the baseline. This is a quite a substantial impact and highlights the importance of this variable, but it should be kept in mind that terms of trade shocks are rarely permanent in this sense. In fact, coffee prices have increased in recent months, although oil prices remain high. Favourable terms of trade has contributed to poverty reduction in the past, and can possibly also do so in the future.

Investor confidence
With low levels of domestic savings and investment, high economic growth must also come in the form of foreign direct investment. It is estimated that increase in investor confidence to a level of the Sub-Saharan African average would potentially add half a percentage point to per capita growth rates thereby bringing poverty levels down to 12.8 percent by 2017.

Education
Continued government and private investment in education also delivers poverty reducing benefits in the longer run. Deininger and Okidi (2002) show that households with higher initial levels of education have substantially better chances of escaping poverty than other households. On the macro level, our simulations show that if Uganda could catch up with the rest of SSA on secondary education then poverty could be reduced to 13.4 percent by 2017 compared to the baseline of 16.0 percent.

Health
Although it was not included in the simulation, there is also empirical support for seriously considering the growth potential of a healthy and productive population. Studies have shown that households who in 1992 were afflicted by health problems, experienced a consumption growth 1.8 percentage points lower than those who had been free of such problems in 1992-99, according to UPPAP findings. Ill-health and disease was also the most frequently cited cause of poverty by poor people, due to reduced productivity, time spent on taking care of the sick and direct and indirect costs of treatment. This underlines the importance of supply of curative and preventive care, in addition to the intrinsic value of good health.

Infrastructure
Studies have also shown, that households with access to roads and electricity grew significantly faster than households without access. In a similar vein, Ugandan firms have reported electricity as the single most important constraint to productive investment and growth. These constitute strong arguments for substantial investments in power supply. Government is already prioritising this area and progress has been made in recent years as reported in the Poverty Status Report 2003.

Finally, the simulations in this section illustrate the point that achievement of the PEAP target requires systematic and multiple reforms: Neither of the policy variables alone can bring economic growth to a level high enough to reduce headcount poverty to 10% by 2017. Only when multiple reforms are implemented will the government target be within reach. Table 2 summarises the argument, and outlines the basic foundations of a growth strategy. As illustrated, most of the past determinants of success will continue to be relevant in future[7].

[7] Reference is also made to the CG paper on strategies for economic growth.

Table 2: How to achieve the PEAP poverty target

Past determinants	Future determinants
• Economic recovery • Good economic policy→ • Favourable terms of trade→ • Positive effects of aid→ • Livelihood diversification→ • Insecurity→	• Increased investor confidence • Invest in infrastructure (power & roads) • Expand secondary education • Increase access to health care

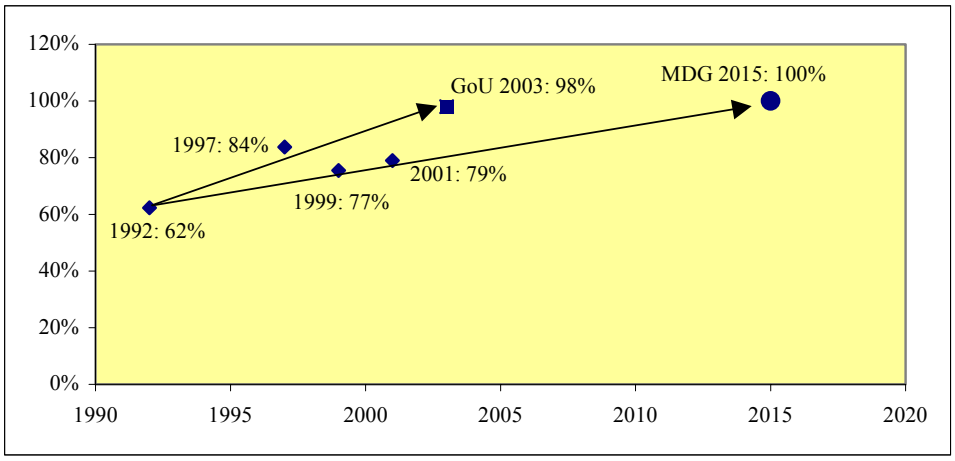
Note: → = Indicates relevance as a future determinant.

2. Achieve Universal Primary Education

Trends and targets

The MDG is that *by 2015, 100 percent of 6-12 year old child everywhere boys and girls alike will be able to complete a full course of primary schooling*. When UPE was introduced in 1997, gross primary enrolment surged from 3.4 million in 1996 to 6.9 million in 2001. Net primary enrolment rates also increased from 62 percent in 1992 to 77 percent in 1999/2000, according to household survey data. Although not directly comparable, the 2000/01 UDHS estimates net enrolment at 79 percent. More recent and accurate data is currently not available, but there is broad agreement that the PEAP target of 98 percent by 2003 is unlikely to be met. Based on the financial situation and performance until now, net enrolment of 95% can be achieved, but survival rates of 100 percent for P7 is unrealistic. Given the current situation in the north and other constraints, 100 percent is too ambitious. The PEAP target of ensuring 20 percent P7 net enrolment is also unlikely to be met. This indicator increased from 8 to 10 percent between 2000 and 2002.

Figure 2. Primary School Net Enrolments in Uganda, 1992-2000.



Note: The 2001 figure may not be directly comparable with 1992-1999 figures.
Source: Household survey data. 2001 figure from UDHS 2000/01.

Determinants of past performance

Although quantitative targets have not been met, UPE is broadly considered to have been a successful policy amongst stakeholders, including the poor people themselves. Government commitment to increase education financing and timely, concerted donor support were the two most critical factors for this success. The political and financial commitment of Government, is evidenced by the rapid implementation of UPE and the government-facilitated improvements in transparency and accountability at the national, district and school levels. Another important factor was the strong and successful efforts of the leadership in the education sector in implementing earlier reforms followed by the Education Strategic Investment Plan. Public education spending increased from 2.6 percent of GNP in 1996 to 4 percent in 2000, equivalent to an increase from 24 to 32 percent of the total discretionary recurrent budget. The share of primary education in the education budget reached 70 percent, but has fallen slightly in recent years.

Determinants of future performance

Government has already committed itself to spending at least 31 percent of the total discretionary recurrent budget on education, which is an important signal to development

partners. It also reflects the fact that the overall level of sector funding is the major determinant, but there are several unknowns: Will Government be able to realise an increase its revenue collection to sustain higher expenditures on education? In addition, the capacity to absorb higher spending is not infinite. District absorptive capacity has been an important constraint over the last five years both in terms of classroom construction, teacher training and recruitment. As discussed later in this paper, there are also signs that additional aid inflows may have negative impacts on the economy. In this regard, more efficient use of available resources within the sector will also be critical for future success.

Uganda's population is also growing very rapidly, currently at 3.4 percent per year. This has huge implications for the total costs of meeting Government targets. The costs of realising UPE highlights the need for more active family planning policies. HIV/AIDS is another broad determinant, which causes teacher absenteeism, mortality and additional costs for schooling orphans. Controlling the spread of this illness and of the sector to integrate its implications in policy formulation, implementation and management is equally critical.

The biggest challenge for UPE remains to improve educational quality - an observation often mentioned by the poor people themselves. The most frequently cited recommendation on education in PPA2 (more than half of all sites) was to ensure that teachers are motivated to work. To improve quality and support the classroom pedagogical processes, the educational sector has initiated a range of initiatives, such as monitoring and inspection of learning conditions and introducing a hardship allowance for teachers working in remote areas. Ensuring high quality teaching has an important impact on completion rates, otherwise parents may decide to withdraw their children from school. There are signs that this is a common phenomenon with P7 completion rates currently at 66 percent for males and 60 percent for females, while survival rates (a more accurate measure) are around 72-73 percent for current P1-P3 cohorts. Student dropouts are principally associated with cost (direct and opportunity), but also with distance, cultural barriers and school level factors (MoES, 2002).

Finally, the sustainability of UPE depends critically on improved access to post-secondary education. Otherwise transition rates from primary to secondary are likely to fall dramatically, and retention in primary will decrease. There are intentions to universalise secondary education over time, but the resource implications are overwhelming. If all children attended S1-S4 and 50% S5-S6 in public institutions at current ratios, the entire Government budget would have to be allocated to post-primary education and training. Both the PEAP and the MDGs lack targets for post-primary education, which must be considered an urgent priority.

Table 3. How to achieve Universal Primary Education Target

Past determinants	Future determinants
• Government commitment (political and financial) →	• Efficient use and availability of resources
• Strong leadership in MoES→	• Absorptive spending capacity
• Timely and concerted external support→	• Population factors (growth and HIV/AIDS)
	• Quality improvements
	• Access to post-primary education

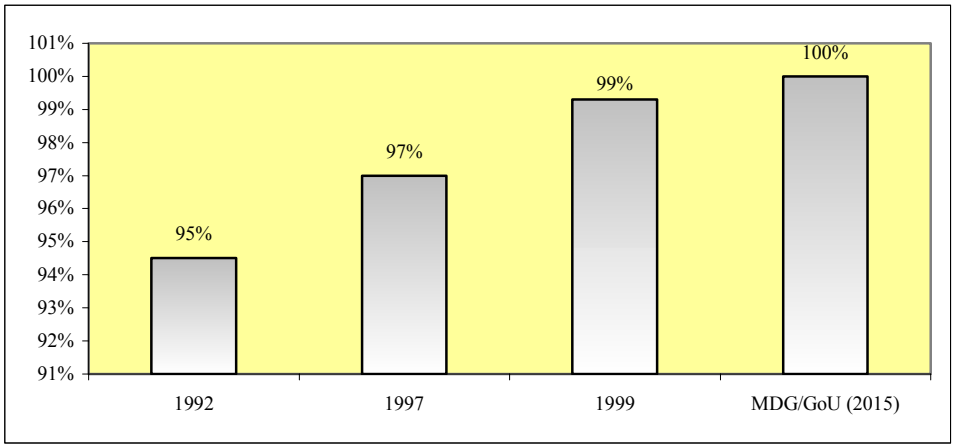
Note: → = Indicates relevance as a future determinant.

3. Promote Gender Equality in Education

Trends and Targets

The MDG is gender parity in primary and secondary education, preferably by 2005, and no later than 2015. Due to the education sector's commitment to MDG/EFA this is effectively also a PEAP target. Since 1997 the UPE policy of introducing free primary school education for four children in each household – two girls and two boys had two important effects on enrolments. First, it increased enrolment of children from poor households and significantly reduced the poverty gap in terms of access to primary education. Secondly, the effect was particularly beneficial for girls who saw a further increase in enrolment relative to boys thereby eliminating the gender gap in primary enrolments. This was a continuation of a positive trend that had taken place since the beginning of the 1990s driven by a general increase in primary enrolments, as illustrated in figure 3. To sustain gender parity in primary education, it is important to maintain enrolment of children through the improvement of school sanitation facilities, i.e. building of latrines segregated by sex and paying special attention to location and school specific gender differences, particularly on how girls are treated.

Figure 3. Sex Ratios in Primary Education in Uganda, 1992-99.



Source: Household survey data

Administrative data from the Ministry of Education and Sports shows that there are between 20 percent and 35 percent more boys than girls in S1-S4, and over 60 percent more boys in S5-S6. Over 90 percent of enrolments in Business, Technical and Vocational Educational Training are boys. Survey data provides a much more optimistic picture indicating a reduction in the general secondary enrolment gender gap from 67 to 79 percent between 1996 and 2000, slightly higher gross enrolment rates for boys, but almost identical net enrolment rates. On balance, the administrative data is likely to be a more accurate reflection of the true situation - a view widely shared amongst key stakeholders in the sector. Hopefully, this will prompt a more aggressive policy response in favour of girls' enrolment. The PEAP/MDG target is attainable for primary education, and remains possible for secondary education, as discussed below.

Table 4. Summary of Projections for Post-Primary Education

Scenario	Baseline	Status Quo	Radical Reform
Secondary schooling for all sub-counties by	2011	-	2006
Total enrolment by 2011 (mio.)	1.3	1.3	1.8
Gross enrolment rate	45%	35%	>60%
Teachers employed by 2011	16,900	25,000	19,800
Pupil-teacher ratio by 2011	32	23	40
Expenditure share of education budget	22%	40%	22%
Financial implications	Sustainable	Unsustainable	Sustainable
Gender parity (MDG)	Attainable	Not attainable	Attainable

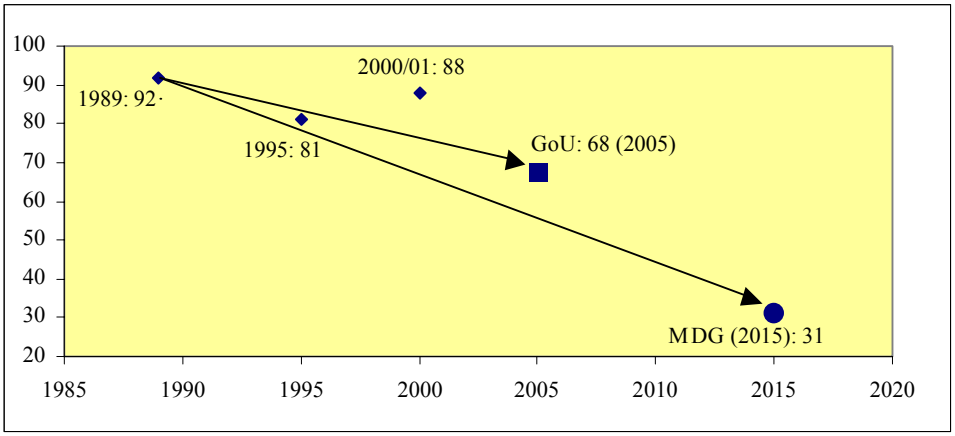
Source: Lewin (2002).

To analyse the attainability of the gender equity by 2015 in secondary education, we draw upon the findings of a detailed projection model developed by Lewin (2002). It would be beyond the scope of this paper to explain the details of this model, but the results confirm that the MDG/PEAP target is attainable in two out of three scenarios (see table 4). It would not be attained in a *status quo scenario* with constant pupil teacher ratios where the number of teachers are allowed to grow with the rise in enrolments. This is partly because gross enrolment rates would not rise above the 50 percent threshold which is considered a critical threshold for gender equity[8], and partly because the increase in enrolment would take place in community polytechnics, which have yet to attract girls. In sum, the key determinants of gender equity are high gross enrolment rates and the type of post-primary institution which is promoted. Putting in place financial incentives or quotas to ensure higher enrolment of girls is also a key factor. Finally, gender bias may also be avoided if girls are encouraged to start schooling earlier than boys, since they are more likely to drop out when they get married or start having children.

[8] Almost all countries with gross enrolment rates (GER) at secondary level over 50% have gender equity or preponderance of girls. Almost all of those with a majority of boys, have GER below 50%.

4. Reduce Child Mortality

Figure 4. Infant Mortality Rate (direct estimate) in Uganda, 1989-2001.

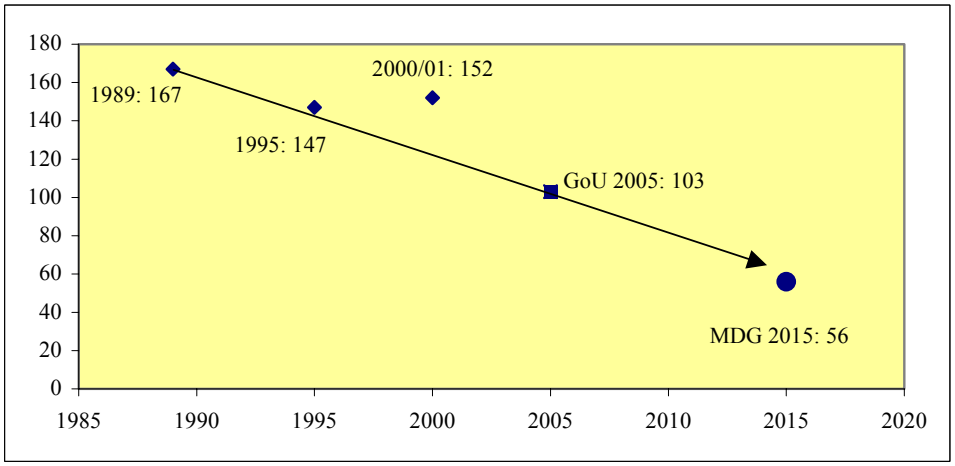


Source: UDHS (1995, 2000/01) and UN Uganda (2000).

Trends and targets

Child mortality is an important indicator of the successful implementation of the PEAP. This is so because the level of child mortality is affected by a broad range of government interventions, such as access to education, safe water, basic health care and provision of security and stability. Despite high economic growth and poverty reduction, infant (under-1) mortality has stagnated over the last decade. In fact, there has been almost no progress since 1970. While the lack of progress during the civil conflict is self-explanatory, the causes of the post-conflict stagnation are more complex, as discussed later in this section. With 88 infant deaths per 1,000 live births in 2001, Government missed the PEAP target of 78 deaths per 1,000 live births by 2002. The new PEAP target of 68 deaths per 1,000 live births by 2005 is ambitious, but can potentially be attained if serious policy action is taken. The MDG target of 31 deaths per 1,000 live births by 2015 is even more ambitious than the national target, and appears very ambitious in light of past trends.

Figure 5. Under-5 mortality rates (direct estimate) in Uganda, 1989-2001.



Source: UDHS (1995, 2000/01) and UN Uganda (2000).

The under-5 mortality rate has shown trends similar to infant mortality, increasing slightly from 147 to 152 deaths per 1,000 live births between 1995 and 2001. As illustrated in figure

5, the target of 103 deaths per 1,000 live births by 2005 is equivalent to the MDG target of 57 deaths per 1,000 live births, when converted into the same base year. Both targets looks unattainable by 2015 (MDG), and certainly by 2005 (PEAP). We therefore consider revising and setting a lower and more attainable target for under-5 mortality to avoid raising unrealistic expectations.

Infant mortality determinants[9]

The causes of infant mortality are multiple and complex. A recent study lists more than 40 different causes and groups them into three different categories (MFPED, 2003b): a) direct causes; b) proximate causes and c) distal causes. Some important causes directly responsible for infant mortality include malaria, diarrhoea, malnutrition, acute respiratory infection (ARI) and anaemia. Proximate causes are the underlying mechanisms that influence the disease process, such as age of the mother, educational status or access to safe water. Finally, distal causes are those responsible for the proximate causes, including government policies, security and stewardship. A few studies have attempted to rank the many different causes of infant mortality in Uganda in order to identify the most important ones. MFPED (2002c) used the combined 1995 and 2000/01 UDHS data to rank the proximate causes of infant mortality. Table 5 summarises the results:

Table 5. Risk factors associated with high infant mortality

High Risk	Medium Risk	Low Risk
High fertility, short birth spacing	Low immunisation	Low use of modern contraceptives
Single, divorced, widowed and separated mothers	Migration	Home deliveries
Teenage mothers	No access to safe water	
	Low education of mother	
	Residence in Northern region	

Source: MFPED (2002c).

High fertility/birth spacing, marital status and age of the mother are classified as high risk factors: women who have had 3 or more children during the last 5 years preceding the survey period are 170 percent more likely to experience the death of an infant within the first year after birth. In a similar vein, single mothers have a 79 percent higher risk in experiencing infant mortality than married mothers. Mothers who are either divorced, widowed or separated are equally at high risk. Teenage mothers, another high risk group, have a 50 percent higher risk of infant mortality compared to women of 35 years and above.

Medium risk factors include immunisation coverage, migration, source of drinking water, education of mother and regional residence. The immunisation variable can also be interpreted broadly in terms of access to health services rather than immunisation per se. Children born in clusters with immunisation coverage less than 30 percent had a 47 percent higher risk of infant mortality than children born in clusters with a coverage higher than 50 percent. Frequent migration was also associated with high infant mortality. This finding possibly relates to either internally displaced people and/or nomadic tribes, for instance in

[9] Although clinical causes of under-5 mortality differ somewhat from those of infant mortality, the proximate determinants are broadly similar. The subsequent analysis therefore also has high relevance for under-5 mortality.

Karamoja. Households using surface water (wells, springs and boreholes) had a 30 percent higher risk of infant mortality than those using piped or tapped water. Secondary education of the mother can also reduce the risk of infant mortality substantially. Infant mortality is highest in the Northern region, primarily due to high levels of insecurity and widespread poverty. Finally, use of contraceptives and place of delivery have the lowest associated risk factors, but remain important.

Explaining the infant mortality stagnation

The reason why infant mortality did not improve between 1995 and 2000 can then be explained by analysing the trend of the proximate causes over the same period taking into account their relative importance. These causes either improved, deteriorated or remained constant. The factors that remained constant between 1995 and 2000 include the total fertility rate, which at 6.9 children per woman is the third highest in the world. Ugandan mothers have a median birth interval of 29 months – the shortest in Sub-Saharan Africa - and around a quarter of them have a birth interval lower than the critical level of 24 months. High fertility and low birth spacing was calculated as the highest risk factor. Another constant high-risk factor is the proportion of widowed, separated and divorced women at around 12-13 percent. Finally, the proportion of supervised deliveries did not improve either. A few determinants deteriorated in the period under review. These include immunisation levels of children, which fell from 47 percent in 1995 to 37 percent in 2000. Similarly, the proportion of women fully covered from Tetanus Toxoid fell from 54 to 42 percent. This reflects a deterioration in the quality of health service delivery[10]. The 1995-2000 period also showed improvements in some key determinants of infant mortality, such as the educational attainment of women, access to safe water, number of teenage pregnancies, and some improvements in contraceptive prevalence. These improvements were commendable, but not sufficient to bring down infant mortality.

The explanation so far has focused exclusively on proximate determinants. This was determined by the desire to rank the multiple causes of infant mortality and highlight the most important ones. Mention must, however, also be made of especially the direct causes of infant deaths and those proximate determinants for which data was not available, such as the low status of women. The participatory poverty assessment highlighted that women's ability to provide good child care is constrained by the unequal division of roles and responsibilities and access to and control over resources (MFPED, 2003c). This is also reflected in the Uganda Demographic and Health Survey (2000/01) data. Infant mortality amongst women without household decision making power is 50 percent higher than for women with some decision making power.

In terms of the clinical causes, there are signs that the overall prevalence of malaria in Uganda has increased over the last five years, as discussed later in this paper. Diarrhoeal prevalence amongst infants aged 6-11 months also increased between 1995 and 2000 and an increasing number of cases of diarrhoea are not being treated appropriately in the household or in the clinic. Both malaria and diarrhoea have put an upward pressure on infant mortality. The importance of under-nutrition, both of the mother and the infant, must also be highlighted. The proportion of undernourished mothers has remained constant between 1995 and 2000 at around ten percent, while there have been slight improvements in infant nutrition. Nevertheless, a high proportion (23 percent) of infants between 6 and 11 months are stunted. Finally, although HIV/AIDS has made a contribution to mortality, its effect on

[10] Immunisation rates have increased since 2000, see MFPED (2003a)

infant and child mortality is not as large as generally believed and therefore cannot account for the level and trends in Ugandan infant mortality (MFPED, 2003b).

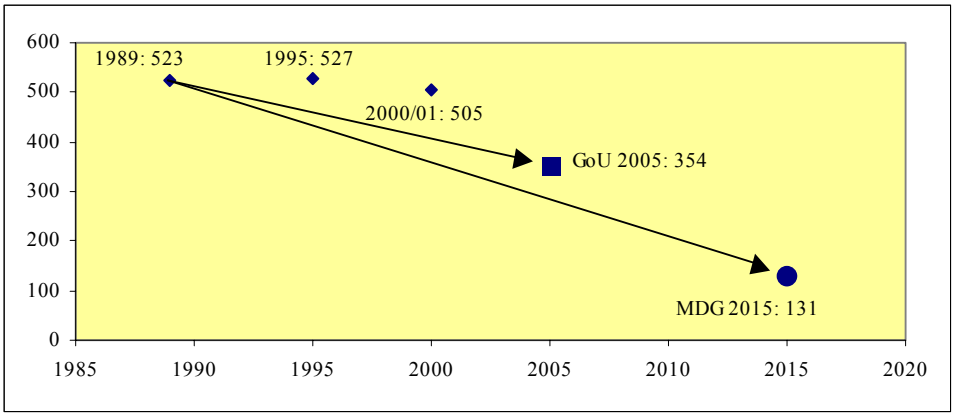
The infant mortality debate in Uganda over the past year has moved gradually away from establishing the causes of high infant mortality towards what needs to be done to reduce it. A Task Force on Infant and Maternal Mortality was set up in the end of 2002 by MFPED and it has recently published its policy recommendations. As these also relate to maternal mortality, we shall discuss the trends and causes of maternal health first, before highlighting the policy recommendations.

5. Improve maternal health

Trends and targets

There have been virtually no improvements in maternal health in Uganda over the last decade. Between 1989 and 2001, maternal mortality fell only slightly from 523 to 505 deaths per 100,000 live births[11]. Government therefore missed its target of 354 per 100,000 live births by 2000. This target has subsequently been postponed to 2005. The MDG target is substantially more ambitious than the government target at 131 deaths per 100,000 live births by 2015. Uganda has been listed as one of eight countries with the highest maternal mortality rate in the world.

Figure 6. Maternal mortality rate in Uganda, 1989-2001.



Source: UDHS (1988/89, 1995, 2000/01), UN Uganda (2000) and McGee (2000).

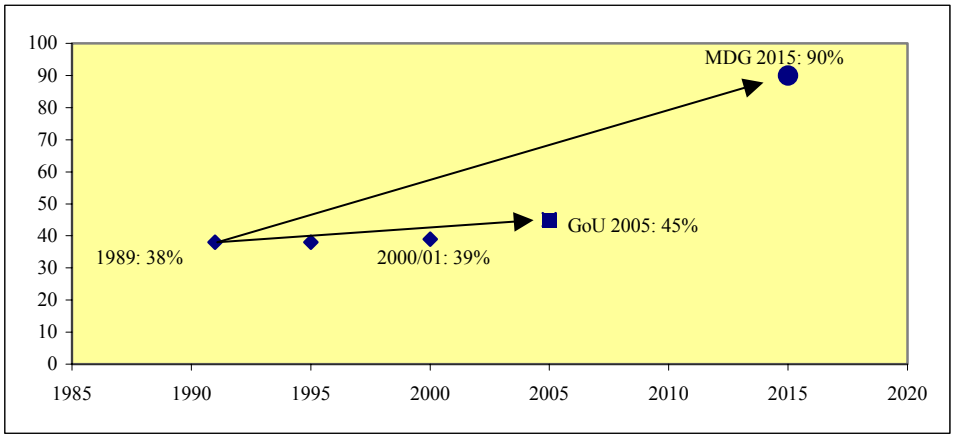
Determinants

Some of the most important direct causes of maternal mortality in Uganda are bleeding, infection, abortion, hypertension and obstructed labour. Why has maternal mortality stagnated? According to work by MoH, the answer is found in poor maternal nutrition, short birth intervals, early age at first birth, and lack of trained assistance at birth. The proportion of undernourished women has remained constant at around 10 percent over the last 5 years (MFPED, 2002c). As discussed earlier, the median birth interval is the lowest registered in Sub-Saharan Africa with no improvements over the last five years. Teenage pregnancies, on the other hand, have become less frequent, falling from 43 percent in 1995 to 31 percent in 2000 (UDHS, 2000/01). The proportion of births attended by a skilled health worker has remained constant over the last 10 years at 38-39 percent. The national target of 50 percent by 2000 was missed and a new target of 45 percent by 2005 has been set, which appears

[11] Given the large sampling errors inherent in estimating maternal mortality, this fall is statistically insignificant.

challenging, albeit realistic (MoH, 2002a). The MDG of 90 percent by 2015 (equivalent to 68 percent by 2005) is very challenging indeed.

Figure 7. Proportion of births supervised by skilled health worker, 1989-2001.



Source: UDHS (1988/89, 1995, 2000/01) and MoH (2002a).

How to reduce infant and maternal mortality

The Infant and Maternal Mortality Task Force Report makes two important observations: First, although high mortality is a health outcome, it is not solely the responsibility of the health sector and activities geared towards reduced mortality are essentially multi-sectoral. Secondly, high mortality is not due to lack of appropriate policies in Uganda, but rather due to inadequate policy implementation. It could also be added that in addition to being influenced by government policy, reduced infant and maternal mortality are broad outcomes of the development process itself, and therefore only partly through government policy.

Based on these observations two critical questions emerge: 1) What are the critical policy interventions to be taken in each sector? Drawing upon the recommendations of the Task Force and of MFPED this paper proceeds by highlighting a minimum number of key interventions which must be addressed is to improve infant and maternal mortality[12]:

First, the health sector should take actions to ensure 1) improved access to obstetric emergency health care facilities; 2) protection against malaria and its prompt and effective treatment; 3) appropriate diarrhoeal treatment of children in households; 4) increased immunisation coverage for mothers and children; 5) increased availability of modern contraceptives.

Secondly, central government should take actions to 1) improve nationwide security, especially in the northern region; 2) provide clear policies and guidelines at the national and sector levels; 3) give adequate financial support within existing budgetary and macroeconomic constraints and; 4) promote family planning with the objective of reducing fertility rates and widening birth intervals.

Thirdly, since mortality depends on access to safe water and sanitation and the educational level of women both the education sector and the water/sanitation sector must continue

[12] Interested readers are referred to the full list of recommendations in the Task Force Report itself.

existing efforts to expand access and improve quality. The specific challenges of these sectors are highlighted elsewhere in this paper.

In conclusion, mortality reduction is likely to require substantial resource investments in the social sectors. The single most important activity is probably *expanding access to obstetric emergency health care facilities*, which also happens to be one of the most expensive intervention.

6. Combat Malaria, HIV/AIDS and Other Diseases

Awareness about the detrimental impact on economic development of diseases such as malaria and HIV/AIDS has increased in recent years in the light of research undertaken under the auspices of the Commission on Macroeconomics and Health (e.g. Gallup and Sachs, 2001). The Global Funds aimed at tackling these diseases, which Uganda has now qualified for are also relatively recent. National poverty strategies, including the PEAP, are yet to adapt to these new insights and their consequences for policy making. This particular Millennium Development Goal therefore adds high value to discussions about poverty goals in Uganda, especially in the case of malaria.

Malaria

Trends and targets
Malaria is a major public health concern in Uganda, since it is the leading cause of morbidity and mortality. This disease particularly affects under-5s and pregnant women. There is some evidence that morbidity associated with malaria has increased since 1994. According to Ministry of Health (2001), the proportional morbidity for adults and children associated with malaria increased from 25% in 1995 to 37% in 2000. Anecdotal and participatory evidence also point to an increased frequency and severity of malaria episodes (MFPED, 2000).

Despite the overwhelming burden of disease[13] attributed to malaria and the strong link to poverty, PEAP monitoring efforts related to malaria have so far been relatively limited. There are no malaria indicators in the PMES list of poverty indicators, and only one out of the eighteen Health Sector indicators are related to malaria: *Malaria case fatality rate for under-5s* - estimated at 8 percent in 2000 against a sector target of 4 percent by 2004/5 (MoH, 2002a). Indicators on malaria treatment and prevention are partly available at the technical programme level, and it is proposed that they receive increased attention. The 2000/01 UDHS estimates that only 13 percent of all Ugandan households have a mosquito net and that only 8 percent of children under five usually sleep under one. Around a third of all Ugandan women take drugs against malaria during pregnancy.

Past and future determinants
An important reason for the increase in the frequency of malaria is increased drug resistance to cloroquine, which until recently was the first line of treatment for malaria patients. Consequently, the Ministry of Health has now changed the first line of treatment to Fansidar and Cloroquine, but this drug policy is yet to be fully implemented. There has also been some claims that climatic change has caused a higher prevalence rate especially in the higher, epidemic prone areas such as the south west causing more severe epidemics, but has so far not been empirically verified.

Government response in recent years has been promising in at least two different aspects. First, Uganda was one of the first countries to abolish taxes and tariffs on mosquito bednets in mid-2000, thereby making malaria protection better affordable to poor people. Secondly, earlier this year, Government introduced home-based management of fever which provides free, pre-packaged malaria treatment for children through community distributors only. This supports existing government interventions, such as prevention and control of malaria during

[13] To illustrate, malaria is estimated to cause 51% of all infant deaths (MFPED, 2002).

pregnancy, promotion of the use of insecticide-treated nets, and effective management of emergency and epidemic situations.

Future progress in combating malaria should build on those two policy initiatives. There are likely to be net benefits of such a policy in terms of reduced morbidity and mortality and higher productivity and income growth provided that households are found to be sufficiently price responsive. The results from UDHS 2000/01 indicate that better-off households are significantly more likely to possess a mosquito net and this suggests that high prices are an obstacle. Other obstacles, such as culture and tradition, are more difficult to overcome. In addition, Ministry of Health must work to implement the new drug policy, encourage presumptive treatment of pregnant women, ensure consistent drug supply and continue the home-based management initiative. In sum, future progress in this area depends partly on increased public spending but mostly on improvements in the health service provision. Scaling up the home-based management of fever will be expensive as the pre-packaged drugs have to be provided, distributors trained etc.

Table 6: How to combat malaria

Past determinants	Future determinants
Negative developments: • Increased drug resistance (cloroquine) • Limited use of mosquito nets Positive developments: • Tax and tariffs on bednets abolished→ • Home-based management introduced→	• Increase access to and use of mosquito nets • Scale-up home-base management initiative • Implement new drug policy (+fansidar) • Presumptive treatment of pregnant women • Ensure consistent drug supply

Note: → = Indicates relevance as a future determinant.

HIV/AIDS

Trends, targets and past determinants

Like in the case of many other Sub-Saharan African countries, HIV/AIDS is frustrating Uganda's development ambitions. From only two Ugandan AIDS cases in 1982, the epidemic grew to a cumulative 2 million HIV infections by the end of 2000 – around half of which have now died. It is estimated that HIV/AIDS and its consequences has had a direct impact on at least one in every ten households in the country, including the 884,000 HIV/AIDS orphans (UNAIDS, 2002). The protection, care and support for orphans and children in families made vulnerable by HIV/AIDS is a particular concern in Uganda. In these tragic circumstances, the national response has been uplifting. Committed and sustained political leadership, early intervention, a strong focus on prevention and a multi-sectoral approach has lead to the reduction in
prevalence rates that has made Uganda a model country for tackling the disease (Okware et al, 2001). These factors explain the substantial decline in HIV prevalence from around 20 percent in 1991 to 6.5 percent in 2001 (Ministry of Health, 2002b)[14]. The Millennium Development Goal for HIV/AIDS is a good illustration of how impressive our achievements have been in an international context. The international target is *to halt by 2015 and begun to reverse, the spread of HIV/AIDS*. We already achieved this target in 1996. The national target for antenatal HIV/AIDS prevalence of 5 percent by 2004/05 is a much more appropriate development goal – and within reach.

[14]The 1991 figure was previously reported at 30 percent, but the Ministry of Health has reduced this figure.

Irreversibility and future determinants

Past progress in reducing HIV/AIDS prevalence is to some extent reversible, as the recent increase in prevalence from 6.1 to 6.5 percent suggests, and it is therefore important that efforts continue in this direction. The spread of the virus depends almost exclusively on sexual and reproductive behaviour, which in turn is affected by awareness about the disease. While knowledge about AIDS in the country is universal, the level of awareness is not matched by the knowledge of ways to avoid contracting the virus, as the most recent UDHS reveals. To illustrate, 13.4 percent of all Ugandans knew of no programmatically important way to avoid HIV/AIDS. These individuals are likely to engage in risky behaviour which could bring-up prevalence rates again. Government will therefore continue its current information, education and communication campaign to ensure that the whole population knew both of the risk and how to reduce it. Use of condoms is one way of avoiding HIV/AIDS, but only 7 percent of women and 15 percent of men use a condom in the country. Ensuring adequate distribution of condoms throughout the country via health facilities and the private sector is therefore also a priority. This may not be sufficient to increase use, however, due to substantial cultural barriers as highlighted in the recent PPA (MFPED, 2003c). Finally, mother-to-child transmission could be effectively prevented through a scaling up of the PMTCT initiative and voluntary counselling and testing facilities. The UDHS reports that desire to be tested among both women and men is high.

Table 7: How to reduce HIV/AIDS prevalence

Past determinants	Future determinants
• Committed and sustained political leadership→ • Early intervention • Strong focus on prevention→ • Multi-sectoral approach→	• Continue IEC campaign • Adequate distribution of condoms • Prevent mother-to-child transmission

Note: → = Indicates relevance as a future determinant.

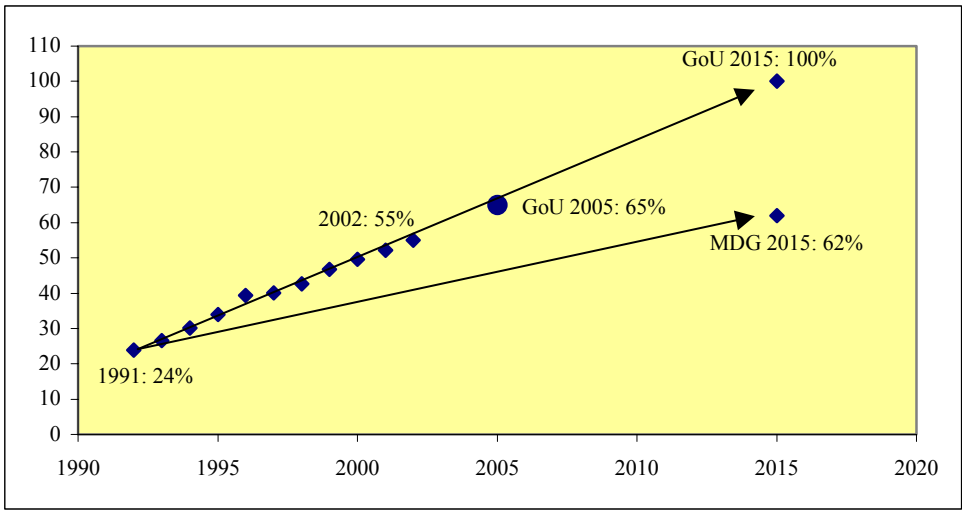
7. Ensure Access to Safe Water and Sanitation

Water

Trends and targets

Over the last decade, Government has made substantial progress in terms of increasing access to safe drinking water. Rural coverage increased from 24 percent in 1991/92 to 55 percent in 2001/02, while urban coverage increased from 60 to 62 percent between 2000 and 2001. This progress can be independently verified using census and household survey data[15]. As figure 8 illustrates, past performance in the rural sub-sector has been in line with the PEAP target of 65 percent coverage by 2005 and full coverage by 2015 with an effective use and functionality rate of 80 to 90 percent. The MDG for Uganda translates into a rural target of 62 percent by 2015, which is a much less ambitious, and therefore less relevant, goal. Lack of data for the 1990s prevented the calculation of the MDG for the urban sub-sector, but the PEAP target is 80 percent by 2005 and 100 percent by 2010.

Figure 8: Rural Access to Safe Water in Uganda, 1991-2001.



Source: DWD, Ministry of Water, Lands and Environment.

Determinants of past performance

Past progress in the rural water sub-sector has relied on, at least, four major factors: Cheap technology, central implementation, emphasis on hardware and a substantial increase in funding levels towards the end of the decade, as discussed below.

The expansion in safe water access in the beginning of the 1990s was principally based on simple, easy-to-implement and low-cost technologies, such as spring protection and shallower boreholes. The reliance on such technologies enabled the sector to expand coverage quickly despite limited resources. To illustrate, while spring protection contributed up to 62.4 percent of the total rural water sources provided in the first four fiscal years of the decade it contributed only 27.4 percent in the subsequent six fiscal years. Thus, the number of springs left to protect declined in the mid-1990s and, hence, safe water must now be

[15] A comparison between the 1991 Census and the 2000/01 UDHS, rural access increased from 18.6 percent to 55.8 percent, while urban access increased from 75.1 percent to 90.6 percent. These figures are not directly comparable to the administrative data due to differences in definitions and methodology.

provided through significantly more expensive activities, such as boreholes and gravity flow schemes, leading to an increase in the marginal cost of providing safe water.

Fortunately for the sector, the exhaustion of cheap options coincided with a substantial increase in funding levels. Participatory studies undertaken in 1997-98 by UPPAP had highlighted the importance of safe water to poor people and the sector was therefore included as a PEAP priority area. Total sector inputs subsequently tripled between 1997/98 and 2000/01 and although this was enough to maintain steady progress, it happened at input-output ratios substantially higher than in the beginning of the decade. This, again, prompted Government and donors to consider whether the additional investments in the sector were actually producing value-for-money. On balance, this led to a healthy debate in the sector, which has exposed further inefficiencies - beyond those caused by the necessary shift towards high-cost technology, as discussed below.

One past determinant to consider is the benefits of centralised vis-à-vis decentralised procurement. Clearly, a centrally based team of highly experienced engineers at DWD were capable of providing water sources much more efficiently in the past than 56 local governments are able to do today. The associated efficiency loss is likely to affect the sector in the short to medium term until districts gain sufficient technical experience and must be weighted against increased ownership and sustainability also achieved through decentralisation.

Finally, in the past, government and donor resources were spent more directly on tangible outputs, i.e. the provision of hardware (pumps and pipes). Today, a larger proportion of the resources are devoted to community planning processes, policy formulation and sector capacity building, although the tangible outcomes so far appear limited[16]. One argument in favour of this shift in policy towards a bottom-up approach is that it addresses better the problems of ownership, durability, frequency of breakdown, and quality of supply. However, a central policy question remains: to what extent will additional investments in software through decentralisation result in a net improvement in sustainable access? Since decentralisation is a relatively young policy, it is too early to tell, but sooner or later this question must be addressed.

Future determinants

As hinted in the previous discussion, the water sector has undergone a substantial number of reforms over the past decade, such as decentralisation, a sector wide approach to planning (SWAP) and privatisation of service delivery. This implies that the modus operandi of the past is markedly different from that of the future. In other words, past progress offers little guidance on how to achieve poverty goals in the future: Cheap options have run out and the new paradigm emphasises software provision and community involvement. In this environment, the water sector has found it difficult to deliver the expected outputs, and although this is partly justifiable in the short run, the current challenges must be addressed if the PEAP water goals are to be attained. Arguably, future progress relies on achieving the twin objectives of successful decentralisation and efficiency improvements.

The current inefficiencies in the water sector stem to a large extent from the process of decentralisation which, unfortunately, has led to a temporary loss of accountability and

[16] The recently completed PPA found little evidence of the impact of increased spending on community planning processes on the ground. To illustrate, only 3 out of 60 research sites had a functional Water Use Committee (MFPED, 2003c).

transparency of the use of public funds. This was recently pointed out in the Value-For-Money and technical audit in 55 districts, which highlighted that 'most of the works are shoddy, the quality of the constructed facilities is poor and unit cost for the constructed water and sanitation facilities is increasing. This could be due to wrong tender process and awards, weak construction supervision, inadequate monitoring and in some cases outright corruption and misappropriation of funds' (MWLE, 2002). Poor people seem to share this view of the situation on the ground (MFPED, 2003c). This has clearly caused concern among sector stakeholders but fortunately, Government has previously been successful in addressing such problems in other sectors: In the mid-1990s an education sector tracking study revealed that, on average, only 20 percent of the resources released by Government for non-salary uses in primary schools was actually reaching the schools. To address this problem, Government moved ahead with a public information strategy through which the Ministry of Finance, Planning and Economic Development published monthly transfers to districts in newspapers and broadcast them on radio, while the Ministry of Education required that transfers to primary schools be displayed on public notice boards at each school. This campaign was overwhelmingly successful and when the school survey was replicated in 1999 its results indicated that over 90 percent of the capitation grant was now received by the schools. Although the problem in the water sector is not that the money is not transferred to the right place, as the technical audit showed, there is clearly a need for more bottom-up accountability by informing people about how much money has been availed to various districts and which outputs are expected.

Are poverty targets realistic and attainable?

Although addressing good governance could take the sector far towards achieving the PEAP targets, these targets are, in fact, based on investment plans which are currently only about half funded. The Water and Sanitation sector recently calculated that under current funding levels, it would only achieve 57.9 percent rural coverage by 2006/07 against 67.3 percent under the unconstrained investment plan (MWLE, 2002). Although the sector has an incentive to inflate such estimates in a bid for more resources, it is an inescapable fact that PEAP targets cannot be reached with current funding levels, which are unlikely to increase in the future. The Ministry of Water, Lands and Environment, in collaboration with Ministry of Finance, Planning and Economic Development, will develop a new and more realistic set of targets.

Table 8: How to achieve the PEAP water target

Past determinants	Future determinants
• Availability of cheap technologies	• Successful decentralisation
• Emphasis on hardware provision	• Improved quality of output
• Central implementation	• Use of bottom-up accountability
• Increased funding levels (1997-)→	• Population growth

Note: → = Indicates relevance as a future determinant.

Sanitation

Trends and targets

Sanitation and the associated environmental household behaviour is very poor in the country with detrimental consequences for health and productivity. Interestingly, this was not always so. Under colonial rule, the construction and use of household latrines was enforced by law and coverage rates averaged 90-95 percent in the late 1960s. But the years of political

turmoil that followed saw coverage drop steadily through in the early 1980s, followed by a gradual rise since 1986

According to UNHS (1999/00), 83 percent of the Ugandan population use a pit latrine and 2 percent a flush toilet, while 14 percent do not have access to any toilet facility. The 2001 Poverty Status Report, however, observes that many of the pit latrines 'may be extremely rudimentary' and cites that only 51 percent[17] of the rural households can be said to have access to safe excreta disposal. Performance monitoring of environmental sanitation is also hampered by the existence of conflicting targets in various sector plans. The Health Sector Strategic Plan 2000/01-2004/05 has a target of 'increasing safe waste disposal including human excreta in 60 percent of households and institutions in Uganda by end of 2004'. The Water Sector Strategic Plan, on the other hand aims 'to ensure sustainable access to safe water and sanitation facilities of 65 percent by 2005 in rural areas and 80 percent in urban areas'. The upcoming PEAP revision will address these inconsistencies and set clear targets for rural and urban areas. Lack of baseline data also prevented the calculation of the MDG for sanitation, which is to halve the proportion of people without access by 2015. We will therefore refrain from comparing trends with targets, but rather seek to highlight the main reasons why the current state of sanitation is so poor.

Key determinants of past stagnation

As a Government policy, it is the responsibility of the households themselves to provide their own sanitation facilities, especially in the rural areas[18]. While most households experienced an increase in incomes during the 1990s, the household surveys show that this money was not spent on improving household toilet facilities. Instead, many households spent the money on improving other parts of their dwelling, such as the roofs, floor and walls. The household data also shows that even better-off households often do not have adequate sanitary disposal facilities, thus highlighting a general lack of interest and demand for household sanitation (MFPED, 2002e).

Ensuring access to sanitation has also not received the same priority attention as has safe water provision. This despite the fact that the interventions are interdependent: Providing access to safe water is more than just providing the water point source. Household members must also observe necessary sanitary practices, such as using clean jerrycans, storing water properly in the home and washing hands regularly.

Co-ordinated government intervention is further hampered by the fact that the institutional responsibility is spread over three different sectors, namely health, education and water, and until recently, the roles of each institution remained unclear and inter-sectoral collaboration was basically non-existent. The sectors all highlight sanitation targets as a high priority in their respective policy documents, but in practice, sanitation is given a very low funding priority – partly because sanitation differs from the core function and expertise of each line ministry and partly because there are few resources directly ear-marked for sanitation.

Finally, lack of progress can be explained by the existence of a vicious circle: Limited evidence of best practice at the district level and fragmented funds hidden in conditional grants give districts very little incentive to address the problems. This, in turn, leads government to question the effectiveness of sanitation activities and tighten the allocation of

[17] Ministry of Health's interpretation based on the assessment of district health extension workers.

[18] Government only provides sanitation in public institutions, and for households in urban areas and rural growth centres.

resources even further. Lack of best practice, including knowledge about which inputs are most effective, is closely linked to the fact that behavioural change is a difficult and time-consuming process to induce, and outputs are therefore not easily measured. Exclusive focus on providing latrines also runs the danger of ignoring the more complex reality of environmental health, which amongst others include drainage, waste disposal, food hygiene and personal hygiene.

Is there a way out?
Most of the obstacles highlighted above need to be resolved to fulfil sector objectives, and there has been some progress in recent years. In 2001, the three line ministries involved finally signed a Memorandum of Understanding in order to clarify institutional roles and responsibilities. The Ministry of Health shall promote household sanitation. Ministry of Water, Lands and Environment shall provide public and institutional sanitation in small towns and rural growth centres (DWD) and formal sewerage (NWSC). Ministry of Education of Sports shall provide access to safe sanitation in educational institutions. Importantly, the Memorandum recognises a 'Water and Sanitation Sector' with goals for both water and sanitation.

While the Memorandum represents a step forward, several stakeholders have expressed concern that the allocation of responsibilities is not mirrored in the funding flows. To some extent, this can be resolved through budget reallocations, for instance within the Ministry of Health. Now when it has become clear that the Environmental Health Department (EHD) in the Ministry of Health is the lead agency in stimulating behavioural changes at the household level there is also an urgent need to strengthen the ability of this agency to fulfil its objective.

At a more fundamental level, there is a need to re-consider whether the current institutional arrangement as outlined in the Memorandum of Understanding is optimal and desirable in the long run. The current arrangement relies on a very optimistic assumption about the effectiveness of inter-ministerial and inter-departmental cooperation. The strong drive towards decentralisation also implies that all 56 district health, water and educational officials need to cooperate closely to ensure a successful outcome. The evidence suggests that this cooperation is not working satisfactorily, and this prompts a need to fundamentally re-think the interventions in the sector and propose new and viable institutional responsibilities, possibly limited to single rather than multiple agents at all levels. The question of who should take the lead in this process remains.

Table 9: How to achieve the PEAP sanitation target

Past determinants	Future determinants
• Collapse of by-law enforcement at household level • Lack of household demand→ • Lack of interest amongst government and donors→ • Lack of inter-sectoral collaboration→ • Fragmented and ineffective funding→ • Lack of best practice→ • Poor incentive structure→	Reform of existing modus operandi.

Note: Reversal of most past determinants serve as valid future determinants (→).

Budgetary and Macroeconomic Implications

The analysis thus far has focused on the attainability of each of the poverty goals individually. However what may appear achievable for any individual sector may be far less realistic when the combined demands of all sectors on scarce resources within the domestic economy are taken into consideration. Therefore this section takes a more holistic approach by examining the implications of attaining these goals collectively. In particular, what are the budgetary and macroeconomic implications of a strong drive towards poverty eradication which emphasises the provision of basic public services?

The three major constraints that emerge are a) scarcity of resources; b) lack of absorptive capacity and; c) the risk of crowding out private sector activities. The latter is especially important, because without rapid and broad based economic growth, which requires increased private investment, it will not be possible to generate the increases in per capita income necessary to eradicate mass poverty. Consequently, it will be counterproductive for poverty reduction if too rapid an increase in public expenditures were to impede private sector led growth.

The extent to which these constraints are binding will vary from sector to sector, and also over time. A key insight is that there is often more than one binding constraint at any one time, implying for instance, that more resources are not always sufficient to solve the problems.

The resource constraint

The pursuance of PEAP and MDG goals inevitably exerts an increased pressure for public spending on social sectors, such as health, education and water and sanitation. A substantial number of interventions are necessary if we are to meet all the poverty goals. Although several of the proposed activities are overlapping, and some relatively inexpensive, it is inevitable that there are overwhelming resource implications of attempting to attain all of them simultaneously. In practice, this would be unaffordable in the medium to long term as the costing exercises of the PEAP and the MDGs have demonstrated: Full implementation of the PEAP would require an additional 63 percent of current government spending, while attaining the MDGs would be far more expensive (MFPED, 2001b and EPRC, 2002) [19]. As a consequence of the scarcity of resources the social sectors remain heavily under-funded. This begs the question of whether more aid would be sufficient to ensure attainability of poverty goals.

Absorptive capacity

The poverty-reducing effect of increased social investments also depends crucially on the absorptive capacity at the national, sector and district levels. Therefore, even if we had sufficient financial resources, there are other challenges such as lack of qualified human resources, such as teachers, doctors, engineers to implement the spending programmes. In the presence of a capacity constraint, additional spending financed by external assistance will therefore merely lead to an increase in unit costs and salaries rather than an increase in PEAP-related activities. The unit costs of public services and public construction have

[19] MDG attainment would *inter alia* require a 100% increase in UPE funding above current levels by 2015 and an increase in expenditure towards the minimum health care package by more than 213% between 2001 and 2015.

already increased rapidly since 1997/98, implying that demand from the public sector has outstripped supply capacities in the economy.

Crowding-out

Higher government spending with constant domestic revenues increases the fiscal deficit. Since about half of all government spending is financed by external assistance, it is important to be aware of how this impacts the rest of the economy. As argued here, more aid can potentially have adverse macroeconomic consequences.

Donor budget support, in the form of grants and loans, is transferred to Government's consolidated fund account in Bank of Uganda and the money is then made available to the Treasury in shillings. All public expenditure incurred by Government has the effect of increasing the overall money supply in the economy. To avoid inflationary pressure, Bank of Uganda has to sell financial assets (such as Treasury Bills) or foreign exchange to the private sector to mop up excess liquidity. Such sterilisation may impede private sector growth through the so-called crowding-out effect. This happens because Government, through issuance of Treasury Bills, competes with investors for scarce private savings and this leads to higher interest rates, reduced bank lending to the private sector , and therefore, lower private investment.

The crowding out effect also emerges as Bank of Uganda sells foreign currency on the foreign exchange markets. This increases the supply, mainly of US dollars, and causes the real exchange rate to appreciate. Higher real exchange rate can lead to slower export performance because the shilling value of exports fall, thereby constraining the growth of the tradable sector, while increasing growth in the non-tradable sector. Overall economic growth may decline if the fall in the tradable sector activity is substantial. Lower economic activity, again, slows down the progress in some of the poverty goals, notably the reduction in headcount poverty, particularly if the poor are mainly involved in the tradables sector. Total government revenues, which finance the other half of government expenditure, also decrease under reduced economic activity. Finally, an increased fiscal deficit financed through external borrowing increases Uganda's external debt, perhaps towards unsustainable levels unless the grant element of donor aid is sufficiently large.

Productivity gains and crowding-in

It is certainly not inevitable, however, that increased aid will result in crowding out effects, particularly in the medium- to long-run. One important reason why appreciation of the real exchange rate may not cause lower economic growth is that firms may respond to lower prices by increasing productivity. There is some evidence that Ugandan firms during the mid-1990s responded to the real exchange rate appreciation caused by the coffee boom by reducing their costs or increasing their productivity. In addition, increased government spending can generate productivity gains both in households and businesses. Successful social sector interventions boost human resource capabilities through improved health and educational attainment. This may take time, though, as human capital must first be built in the public service through training for example of more nurses, doctors and teachers. Other interventions, such as agricultural extension services, will have a relatively faster impact.

Trade-offs

Although the relative importance of the various affects discussed above has not been estimated, it is clear that there are important trade-offs in attempts to meet Uganda's goals. First, there may be a conflict between economic growth and spending on social sectors.

Increased public spending to achieve UPE, reduce mortality or expand access to water and sanitation can crowd out the private sector by reducing international competitiveness, restricting bank lending to the private sector, slowing government revenue collection growth and increasing external debt. Even if the increased government spending may have positive impacts over the medium term, the negative impacts in the short term could jeopardise attainment of the positive impact. Secondly, sustained efforts to achieve very costly social sector goals may through their macroeconomic and budgetary consequences make it more difficult to attain other goals, notably headcount poverty reduction. Attempts to attain certain goals, such as UPE, will also limit Uganda's ability to attain other goals, such as reduced mortality, because of the scarcity of overall resources.

The need for cross-cutting reforms
Arguably, the current situation in the country is one where all three constraints are binding simultaneously, but to a varying extent from sector to sector: The financial demands from social sector investment plans far outstrip existing resource availability. Simply increasing donor inflows to cover these gaps in funding is not the answer as the aid-financed fiscal deficit may lead to further crowding out of the productive sector. Even if the crowding out effect was not binding, additional donor inflows would sometimes not achieve its poverty-reducing objective due to the absorptive capacity constraints faced by many sectors.

The implications for successful attainment of the PEAP targets and MDGs therefore relies critically, on the ability to increase the efficiency and effectiveness of existing government spending, and improving Government's domestic revenue mobilisation. This can be achieved through successful Government implementation of a number of cross-cutting reforms, which includes reforms for civil service, fiscal decentralisation, procurement, financial management and measures to increase transparency, civil society participation, and fight against corruption. These reforms are necessary to address government-wide constraints related to cost effectiveness and value-for-money.

Conclusion: Implications for PEAP Revision

This paper concludes by highlighting a number of important aspects of poverty monitoring and policy issues which should be considered in the upcoming PEAP revision exercise:

Integrate the Millennium Development Goals in the revised PEAP
- Set national targets for the Millennium Development Goals most relevant to Uganda. Currently, PEAP goals have not been set for:
    - Proportion of people suffering from hunger.
    - Sex ratios in primary and secondary education.
    - Post-primary education (enrolment and completion).
    - Malaria and other major diseases.
    - Improving the lives of slum dwellers.

- Compare the set of monitoring indicators expressed in the MDGs with those of the PEAP/PMES and include those which appear relevant to Uganda, such as:
    - P4 completion rates in primary education.
    - HIV/AIDS orphans.

- Prevalence and deaths associated with malaria and tuberculosis.
- Malaria treatment and prevention.

- Take full account of the commitment of the Education Sector to MDGs in terms of:
  - Monitoring indicators and targets used under MDGs, which now automatically translate into national PEAP targets.

Revision of existing PEAP targets

- Existing PEAP targets must be revised in light of past performance, current policies, resource availability and overall national priorities. This paper has highlighted a number of PEAP targets, which could be re-considered:
  - Under-five mortality target.
  - Maternal mortality target.
  - Safe water coverage target.
  - Sanitation: Set new and detailed national targets and improve data quality.

Other targets and indicators

- Consider the desirability of setting a national target for fertility and population growth as these two factors have an important impact on almost all of the poverty goals, including income poverty reduction, attainability of UPE, child and maternal mortality, and safe water and sanitation.

- Despite the importance of gender equity, the PEAP has few monitoring indicators and targets. The 2000/01 UDHS data set includes a useful and successful attempt to construct quantifiable gender empowerment indicators at the household level. The PEAP will be enriched by including some of these household-based indicators. To ensure the availability of trend data, the next UDHS should cover similar areas.

Policy Related Issues

- Develop and integrate new strategy for economic growth in PEAP.
- Increase the emphasis of PEAP on combating infant and maternal mortality.
- Highlight the economic consequences of malaria and investigate policy options.
- Re-emphasise the purpose and importance of having the family planning policy.
- Substantially increase current policy focus on household sanitation.

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Appendix A: The Millennium Development Goals

Goal 1 Eradicate extreme poverty and hunger

- Halve, between 1990 and 2015, the proportion of people whose income is less than $1 a day.
- Halve, between 1990 and 2015, the proportion of people who suffer from hunger.

Goal 2 Achieve universal primary education

- Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.

Goal 3 Promote gender equality and empower women

- Eliminate gender disparity in primary and secondary education preferably by 2005 and in all levels of education no later than 2015.

Goal 4 Reduce child mortality

- Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate.

Goal 5 Improve maternal health

- Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio.

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

- Have halted by 2015 and begun to reverse the spread of HIV/AIDS.
- Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.

Goal 7 Ensure environmental sustainability

- Integrate the principles of sustainable development into country policies and program and reverse the loss of environmental resources.
- Halve, by 2015, the proportion of people without sustainable access to safe drinking water.
- Have achieved, by 2020, a significant improvement in the lives of at least 100 million slum dwellers.

Goal 8 Develop a global partnership for development

- Develop further an open, rule-based, predictable, non-discriminatory trading and financial system (includes a commitment to good governance, development, and poverty reduction—both nationally and internationally).

Source: http://www.developmentgoals.org

Appendix Table B1: Comparison of PEAP Goals and Millennium Development Goals

MDG	PEAP Goals	PEAP Goal more (+) or less (-) ambitious than MDG
1. Eradicate poverty and hunger	– Reduce the incidence of poverty to 10% by 2017.	+
2. Universal Primary Education	– Increase the net primary school enrolment to 98% by 2003. – Increase P7 net enrolment rate to 20% by 2003. – Increase adult literacy to 85% by 2005.	+ NC NC
3. Promote gender equality	– Increase female enrolment in tertiary education to 40% of total by 2003. – Increase the proportion of women among decision makers.	- NC
4. Reduce child mortality	– Reduce the infant mortality rate to 68 per 1,000 live births by 2005. – Reduce the under-5 mortality rate to 103 per 1,000 live births by 2005. – Increase the DPT3 immunisation coverage to 60% by 2004/05.	- = NC
5. Improve maternal health	– Reduce the maternal mortality rate to 354 per 100,000 live births by 2005. – Increase the proportion of births attended by skilled health personnel to 45% by 2004/05.	- -
6. Combat HIV/AIDS, malaria and other diseases	– Reduce the antenatal HIV/AIDS prevalence rate to 5% by 2004/05. – Increase the contraceptive prevalence rate to 30% by 2005.	+ NC
7. Ensure environmental sustainability	– Ensure that 65% of the rural population have access to clean and safe drinking water in 2005 and 100% in 2015. – Ensure that 80% of the urban population have access to clean and safe drinking water in 2005 and 100% in 2015. – Ensure that 60% of the population have access to improved sanitation by 2004.	+ + NC
PEAP Goals not directly related to the MDGs		
Economic growth and structural transformation	– Achieve 7% economic growth p.a. – Achieve 5% inflation p.a. – Maintain gross foreign exchange reserves equivalent to 5 months of imports. – Increase total tax revenues to GDP. – Increase total enrolment in tertiary education to 50,000 by 2003. – Achieve an improvement in tertiary completion rates by 30%.	
Increase the ability of the poor to raise their incomes	– Increase the rural electrification rate to 12% by 2010. – Increase the number of polytechnic schools to 850 by 2003. – Train 100,000 people in polytechnics by 2003.	
Improve the quality of life of the poor	**Primary Education** – Increase pupil-teacher ratio to 45:1 by 2004. – Increase pupil-textbook ratio to 3:1 by 2004. – Increase pupil-classroom ratio to 82:1 by 2004. **Secondary Education** – Ensure a transition rate from primary to secondary education of 65% by 2003. – Increase pupil-teacher ratio to 30% by 2003. **Health Sector** – Achieve an outpatient department utilisation rate of 0.47 per capita by 2004. – Ensure that 46% of all approved positions in the health sector are filled with by a trained health worker by 2004.	

Note: (+) PEAP most ambitious (-) PEAP least ambitious, (=) similar targets, (NC) not comparable.
Source: Compiled on the basis of MFPED (2001b, 2002a,b).

Appendix Table B2. Comparison of MDG Targets and PEAP Targets.

MDG Indicator	Current Status	PEAP	MDG
Headcount poverty	35% (1999/00)	14% (2015) 10% (2017)	28% (2015)
Net Primary Enrolment Rate	77% (1999/00)	98% (2003)	100% (2015)
Gender Equality in Education: Tertiary Enrolment	54% (1998/99)	67% (2003)	100% (2005 or 2015)
Infant mortality rate (per 1,000 live births) direct estimate	88 (2000/01)	 68 (2005)	31 (2015) 53 (2005)
Under 5 mortality rate (per 1,000 live births) direct estimate	152 (2000/01)	 103 (2005)	56 (2015) 99 (2005)
Maternal mortality rate (per 100,000 live births)	505 (2000/01)	 354 (2005)	131 (2015) 282 (2005)
Births attended by skilled personnel	39% (2000/01)	 45% (2004/05)	90% (2015) 68% (2005)
Antenatal HIV/AIDS prevalence	6.1% (2000)	5% (2004/05)	Halted by 2015 and begun to reverse
Access to safe drinking water (Rural)	53% (2001)	65% (2005) 100% (2015)	62% (2015)
Access to safe drinking water (Urban)	62% (2001)	80% (2005) 100% (2010)	-

Source: Compiled on the basis of MFPED (2001a, 2002b), UNHS (1999/00), UDHS (2000/01), UN Uganda (2000), McGee (2000), Paris21 (2000), Deininger (2001).

Appendix Table B3. Millennium Development Goals – Uganda Country Profile[20]

	1989	1992	1995	1997	2000
Goal 1. Eradicate extreme poverty and hunger					
1. Headcount poverty (%)	-	55.7	49.1	44.4	35.2
2. Poverty gap ratio (%)	-	20.3	16.4	13.7	10.5
3. Share of poorest quintile in national consumption (%)	-	9.4	-	10.1	9.3
4. Under-weight children (weight-for-age)	23.0	-	25.5	-	22.5
5. Headcount food poverty (%)	-	35.5	-	24.8	17.6
Goal 2. Achieve UPE					
6. Net primary enrolment (%)	-	62.3	-	83.8	76.5
7. Completion of P4 (%)	-	-	-	-	-
8. Literacy rate of 15-24 year olds (%)	70.2	-	74.8	-	78.8
Goal 3. Promote gender equality and empower women					
9a. Ratio of girls to boys, primary enrolment (%)	-	0.93	-	0.97	0.99
9b. Ratio of girls to boys, secondary enrolment (%)	-	-	0.67	-	0.79
9c. Ratio of girls to boys, tertiary enrolment (%)	-	-	-	-	-
10. Ratio of literate females to males (15-24 year olds) (%)	75.7	-	80.3	-	84.3
11. Women in non-agricultural wage employment (%)	-	-	-	-	21.2
12. Proportion of female MPs (%)	12.2	-	17.9	-	19.0
Goal 4. Reduce child mortality					
13. Infant mortality rate per 1,000 live births (direct)	92	-	81.3	-	88.4
14. Under-5 mortality rate per 1,000 live births (direct)	167	-	147	-	152
15. Measles immunisation (under-1) (%)	-	-	45.2	-	42.3
Goal 5. Improve maternal health					
16. Maternal mortality rate (per 100,000 live births)	523	-	527	-	505
17. Births supervised by trained personnel (%)	-	38.0	37.8	-	39.0
Goal 6. Combat HIV/AIDS, malaria and other diseases					
18. Antenatal HIV/AIDS prevalence (%)	-	20	14	-	6.1
19. Contraceptive prevalence rate (%)	5	-	15	-	23
20. HIV/AIDS orphans (thousand)	-	-	-	-	884
21. Prevalence and death rates associated with malaria	-	-	-	-	-
22. Population using malaria prevention and treatment	-	-	-	-	-
23. Incidence of TB (per 100,000 people)	-	-	-	-	343.0
24. Proportion of TB cases detected under DOTS (%)	-	-	-	-	59
Goal 7. Ensure environmental sustainability					
25. Land area covered by forest (%)	25.9	-	-	-	21.3
26. Land area protected (%)	-	-	9.6	-	9.6
27. GDP per unit of energy use	-	-	-	-	-
28. Carbon dioxide emissions (PPP$ per kg oil equiv.)	0.0	-	0.0	-	0.1
29a. Access to improved water source, rural (%)	-	26.6	39.4	42.6	52
29b. Access to improved water source, urban (%)	-	-	-	-	62
30. Access to improve sanitation, rural (%)	-	-	-	-	51
31. Access to secure tenure (%)	-	-	-	-	-

Source [relevant indicator in brackets]: Compiled on the basis of Appleton (2001): [1, 2, 3 and 5]. UDHS (1988/89, 1995, 2000/01): [4, 11, 13, 14, 15, 16 and 19]. Deininger (2001): [6, 9a]. World Bank (2002b): [9b]. MGLSD and UBOS (2000): [12]. MoH (2002b): [18]. World Bank Development Indicators: [8, 10, 12, 20, 23, 24 and 26]. UNAIDS (2002): [20]. MFPED (2001a): [30]. MFPED (2002b): [29a and 29b].

[20] This table presents an update of the table currently available at the World Bank Uganda homepage.

Appendix C. Simulation of Economic Growth and Poverty Reduction

The purpose of this appendix is to detail the methodology applied to derive the growth and poverty simulations listed in table 1 of the paper. The results are based on Keefer (2000) who develops four different regression models using international cross-sectional data in the period 1960-1997. The models focus on four important classes of government policy of particular relevance to Uganda: 1) Government policy with respect to monetary and financial sector policy; 2) government spending and education; 3) openness to trade and; 4) institutional development. The regressions are estimated using ordinary least squares (OLS) and decadal averages of variables, except for initial income. Table B.1 presents the results.

In this paper we simulate the potential impact of various policy interventions, reforms and exogenous shocks on future economic growth. We ask how much faster Uganda would grow if it closed the gap with the rest of Sub-Saharan Africa[21]. We simulate the growth effect by using one of the four regression models depending on the policy variable in question. While the regression models presented in table B.2 are based on international averages for all variables, we use Ugandan averages for the relevant exogenous variables in the model. The growth effect is calculated in two steps: First, we predict the average annual per capita growth rate using the Ugandan average values for 1990-97. Secondly, we replace the Ugandan values for the policy variable with Sub-Saharan values and observe how much per capita growth rate this generates. The simulated growth effect is the difference between the two results.

To estimate the impact on headcount poverty, we make use of the data set developed by Appleton (2001). Poverty is defined as the proportion of households with a monthly expenditure per adult equivalent lower than the poverty line. Poverty is linked with growth in the simulation by assuming that all households grow by the same rate[22] as simulated in the regression models until the year 2017. Given this growth in household expenditure we re-estimate the poverty level.

The approach is best illustrated using an example. What would happen to per capita GDP growth if Uganda could achieve the same level of secondary education as the average for Sub-Saharan Africa? To answer this question, we use regression model number 2. We replace the international values for the variables *Initial per capita income*, *years of secondary education (log)* and *government consumption to GDP*. The model predicts an annual per capita growth rate of 1.7 percent for Uganda. The value of the education variable is then changed to the Sub-Saharan African average, which then produces a growth rate of 2.1 percent p.a. The growth effect of increasing secondary education to Sub-Saharan African levels is therefore +0.4 percent p.a. In the baseline scenario, we assumed a per capita growth rate of 2.0 percent, yielding a poverty level of 16.0 percent by 2017. With higher secondary education per capita growth would increase to 2.4 percent and poverty could be reduced to 13.4% by 2017. As it is clear from the above example, the coefficients that have determined growth in the past, are assumed to be constant and linear in the future.

[21] Keefer (2000) examines the case where Uganda closes the gap with the rest of the world.
[22] A more sophisticated model would have allowed urban households to grow faster than rural households, and distinguished between households working in agriculture, industry and services.

Table C1.1. Regression Results – Model 1 and 2.

	Model 1 Black market premium and financial depth		Model 2 Government spending and education	
	Mean	Estimate	Mean	Estimate
Intercept		0.0281020		0.0369320
Per capita GDP at beginning of period (log)	7.1922671	-0.0014200	7.1922671	-0.0009320
Black market premium (log)	0.2408449	-0.0094210		
Annual growth in terms of trade	-0.0030695	0.0676620		
Liabilities of financial sector / GDP	0.4305718	0.0124890		
Years of secondary education (log)			-0.4377043	0.0037380
(Export + imports) / GDP				
Government consumption / GDP			0.1561717	-0.0414720
ICRG property and contract rights				
Dummy	3.0000000	0.0000000	3.0000000	0.0000000
Dummy year 1	0.2345416	0.0155120	0.2345416	0.0155680
Dummy year 2	0.2334755	0.0113250	0.2334755	0.0132880
Dummy year 3	0.2388060	-0.0071070	0.2388060	-0.0080610
Dummy year 4	0.2931770	0.0000000	0.2931770	0.0000000
Dummy, Latin America	0.2365887	-0.0112650	0.2365887	-0.0177100
Dummy, Sub-Saharan Africa	0.2833563	-0.0201150	0.2833563	-0.0196630
Adjusted R^2		0.32		0.28
N		334		337

Source: Author's calculations on the basis of data set developed by Keefer (2000).

Table C1.2. Regression Results – Model 2 and 3.

	Model 3 Openness and terms of trade		Model 4 Rule of law and security of property rights	
	Mean	Estimate	Mean	Estimate
Intercept		0.0268780		0.0426850
Per capita GDP at beginning of period (log)	7.1922671	-0.0017300	7.1922671	-0.0114030
Black market premium (log)			0.2408449	-0.0006450
Annual growth in terms of trade	-0.0030695	0.0902080		
Liabilities of financial sector / GDP			0.4305718	-0.0081950
Years of secondary education (log)			-0.4377043	0.0004520
(Export + imports) / GDP	77.2030843	0.0001410	77.2030843	0.000107
Government consumption / GDP			0.1561717	-0.053642
ICRG property and contract rights			5.0534524	0.0123310
Dummy	3.0000000	0.0000000	3.0000000	0.0000000
Dummy year 1	0.2345416	0.0000000	0.2345416	0.0000000
Dummy year 2	0.2334755	0.0138200	0.2334755	0.0000000
Dummy year 3	0.2388060	-0.0056200	0.2388060	0.0048710
Dummy year 4	0.2931770	0.0000000	0.2931770	0.0000000
Dummy, Latin America	0.2365887	-0.0144240	0.2365887	-0.0115460
Dummy, Sub-Saharan Africa	0.2833563	-0.0263360	0.2833563	-0.0280830
Adjusted R^2		0.33		0.39
N		308		160

Source: Author's calculations on the basis of data set developed by Keefer (2000).