Bjørn K. Wold, Anthony Matovu, Frøydis Jørve, Charles Kizza, Pamela Nabukhonzo, Estrellita Rauan, Randi Johannessen and Gunvor Iversen Moyo

Tracking Resource and Policy Impact in Uganda
Incorporating Millennium Development Goals & Indicators and Poverty Reduction Strategy Paper Monitoring Across Sectors

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Standardtegn i tabeller	Symbols in tables	Symbol
Tall kan ikke forekomme	Category not applicable	.
Oppgave mangler	Data not available	..
Oppgave mangler foreløpig	Data not yet available	...
Tall kan ikke offentliggjøres	Not for publication	:
Null	Nil	-
Mindre enn 0,5 av den brukte enheten	Less than 0.5 of unit employed	0
Mindre enn 0,05 av den brukte enheten	Less than 0.05 of unit employed	0,0
Foreløpig tall	Provisional or preliminary figure	*
Brudd i den loddrette serien	Break in the homogeneity of a vertical series	—
Brudd i den vannrette serien	Break in the homogeneity of a horizontal series	I
Desimalskilletegn	Decimal punctuation mark	,(.)

Abstract

Bjørn K. Wold, Anthony Matovu, Frøydis Jørve, Charles Kizza, Pamela Nabukhonzo, Estrellita Rauan, Randi Johannessen og Gunvor Iversen Moyo

Tracking Resource and Policy Impact in Uganda
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This report, prepared by Uganda Bureau of Statistics and Statistics Norway, demonstrates how the effects of allocations of resources in Uganda within the health, education and water and sanitation sectors might be monitored. The information presented aims at allowing the reader to follow resource allocation from policy decisions towards human welfare and poverty reduction. Using indicators from the Uganda Poverty Eradication Action Program and the Millennium Development goals, the report provides information for policy makers in Uganda and elsewhere.

Available data show different trends in the three sectors. Five main recommendations are presented: 1) Consider establishing a database and publish yearly reports for tracking resource and policy impact at the national level, 2) Co-ordinating definitions, indicators and the statistical system, 3) Strengthening capacity within line ministries to develop indicators for performance in all sectors, 4) Improving the system of data compilation on the district - and not only regional - level and 5) Improving the compilation of data on private expenditures.

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1. Summary and outline of the document

1.1. Summary

The objective of this report is to demonstrate how a system for basic and general data for policy discussions and decisions for social sectors and other poverty issues, covering the education, health, water and sanitation, smallholder agriculture and urban informal sectors, may be constructed and presented. This report in particular, prepared by Uganda Bureau of Statistics and Statistics Norway, is an attempt at monitoring the effects of allocations of resources in Uganda within the health, education and water and sanitation sectors. The information presented aims at allowing the reader to follow resource allocation from policy decisions towards human welfare and quality of life. Using indicators from the Uganda Poverty Eradication Action Program and the Millennium Development goals, the report provides information mainly for Norwegian development cooperation, but may also be of use to Ugandan policy makers. In other word, the objective is "Meeting the Data Challenge" from PARIS21[1] (2004) of providing and presenting statistical information meeting the users' needs.

On the national level, available data show different trends in the three sectors. In the health sector, output and outcome have not been systematically affected by changes in public resource allocation. This lack of relationship is alarming and should cause major concern for Ugandan policy makers. In the education sector, we find no reason to question the effects of resources allocated - although data gaps and the limited time frame make it problematic to judge whether there are significant relationships between the different monitoring steps. Within the water and sanitation sector, meanwhile, a clear relationship between input, output and outcome is found.

On the sub-national level, missing and inconsistent data make time series analysis impossible. Looking at all the three sectors, we conclude that Uganda is marked by a significant amount of regional inequality. Generally, and this particularly becomes visible on the outcome and impact levels, the Northern region is the poorest and least developed region. There is a rural-urban gap too, the urban areas generally being in a more favorable situation, except for the education sector. Finally, there are a gender differences, but here, the picture is more mixed: Girls tend to be of better health, while boys receive more schooling.

Comparing Uganda to Sub-Saharan Africa as a whole, we find that Uganda is doing well in terms of education, health and sanitation, while the water situation is worse off in Uganda.

The fact that the model does not seem to work for all the sectors brings up several questions: How have the official budgets been utilised? Seeing that the Northern region received the highest official health budget, why did it not produce the expected outcome? How much do NGOs really contribute in the different sectors? Also methodological issues - discussed in section 1.5 and in Appendix 4 - may have affected the findings.

Five main recommendations are presented: 1) Consider establishing a database and publish yearly reports for tracking resource and policy impact at the national level, 2) Co-ordinating definitions, indicators and the statistical system, 3) Strengthening capacity within line ministries to develop indicators for performance in all sectors, 4) Improving the system of data compilation on the district - and not only regional - level and 5) Improving the compilation of data on private expenditures.

1.2. Outline of the report

This document consists of three parts and seven chapters:

- **Summary and background information:** *Chapters 1-3* present a summary of the report, an introduction to Uganda's geography, population, politics and economy, and background information about the three sectors.
- **Statistical presentation**: *Chapters 4 and 5* present national and district level statistics for Uganda. Chapter 4 first presents selected indicators for each of the monitoring steps from input to output to outcome and impact over 12 years (1990-

[1] For this and other acronyms, refer to Appendix 1.

2002). Secondly, chapter 4 presents national statistics for each sector aimed at showing how a change at one level has or has not been followed by a change at the next level. *Chapter 5* presents district and regional level statistics for Uganda. Here, only the latest data are included. District indicators are presented by sector using bar graphs and maps. *Chapter 6* compares selected Uganda national level indicators to Sub-Saharan Africa. For the statistical presentation chapters, figures and tables are presented first, while the discussion by sector follows subsequently. In this section, line graphs have been chosen to trace the development of indicators for Uganda and Sub-Saharan Africa.

- **Conclusions and recommendations**: *Chapter 7* summarises empirical findings and, based on these findings, gives a number of recommendations.

2. Geography, population, political system and economy

2.1. Geography and population

The republic of Uganda is located within the Great Lakes region of Africa. The country is landlocked and shares borders with Kenya in the east, Tanzania and Rwanda in the south, the Democratic Republic of Congo in the west and Sudan in the north. The entire country lies 900 m above sea level (Government of Uganda, 2004), and over 18% of Uganda's total surface area of 241 038 square kilometres are under swamps and water bodies (UBOS, 2003). Uganda also has Africa's largest fresh water lake, Lake Victoria, which is also the source of the Great River Nile. There are tropical rain forests in the South and West, thickets and savannah woodlands in the Central, Eastern and Northern regions and semi-arid vegetation in the north-eastern part of the country (Tumushabe *et al.*, 1999).

For statistical purposes, the country may be divided into four statistical (not administrative) regions: Central, Eastern, Northern and Western, and 56 administrative districts. The Central district and the areas in the vicinity of Lake Victoria are the most densely populated areas, according to population figures for 2002 (figure 2.1).

Uganda's total population in 2002 was 24, 4 million, and was projected to reach 26.8 million by 2005 (Uganda Population and Housing Census 2002). The population is growing fast, at 3.4% in the period 1991-2001 (UBOS, 2003). The high growth rate can be attributed to the world's second highest total fertility rate (only outranked by Niger) - 6.9 children per woman - combined with a decline in infant and child mortality (UDHS 2000/01). The country has a young population; with more than 60% of its population under 18 years of age (UBOS, 2002). Despite Uganda being one of the first countries in Africa where the HIV/AIDS incidence has declined, recent prevalence estimates vary between 6,6% and 2,8% (UNAIDS 2003). Life expectancy at birth is currently 43 years (WDI 2004), and 14% of children below the age of 18 have lost at least one of their parents (UNHS 2002/2003).

Figure 2.1.   Population, 2002

Legend:
- 0-149 999
- 150 000-349 999
- 350 000-599 999
- 600 000-999 999
- 1 000 000 and more

For this and other tables, figures and graphs refer to Appendix 5 for data source
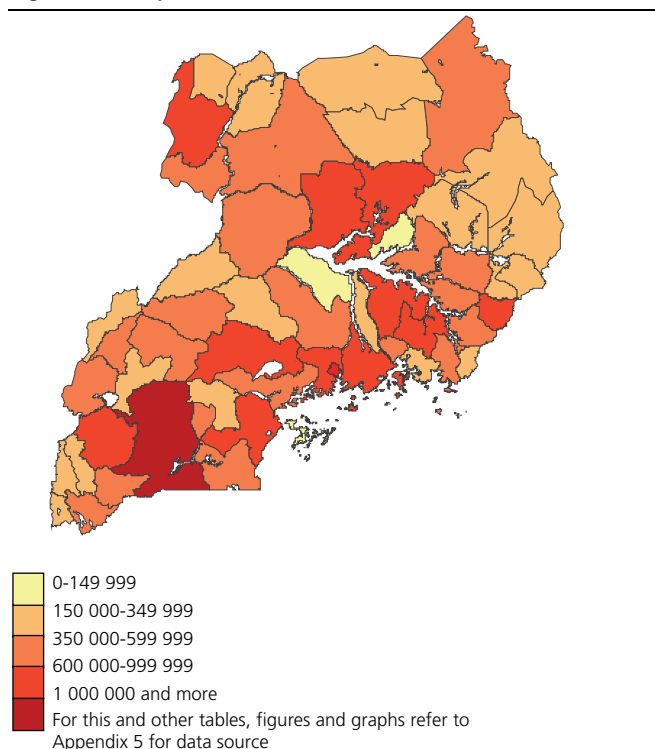
The population is made up of many ethnic groups, the largest of which is the Baganda (17%). Only 12% of the population live in urban areas (Uganda Population and Housing Census 2002). The unemployment rate is just over 3%, and highest in the urban areas (12%) and higher for women than for men, especially in the cities (UNHS 2002/2003). Luganda, Swahili and English are spoken, with Luganda as the most widely spoken language and Swahili and English as the official languages (Tumushabe *et al.*, 1999). The main religions are Roman Catholicism (41.9%), Church of Uganda (Protestant) (35.9%) and Islam (12.1%).

2.2. Politics

Uganda became part of the British Empire in 1893, and the colonial structure of government was to remain in place with very few modifications until 1953, when a central government was put in place (Government of

Uganda, 2004). In the process several political parties were formed, to a great extent reflecting the ethno-religious divides in the population. In 1962 the leader of the predominantly Protestant party Uganda National Congress (UNC), Apollo Milton Obote, became the first prime minister of an independent Uganda.

Since then, Uganda has had seven presidents and eight regimes. Uganda experienced animosity and rivalry through history due to different factors such as language, economic divides between pastoralists and agriculturalists, political divisions and uneven development in the colonial period. Despite Obote's talent for uniting the different groups in the country, these divides contributed to considerable political instability in the 1960s. One of Obote's generals, Idi Amin, deposed of Obote, and eight turbulent years of dictatorship followed, during which an estimated 300 000 people were killed. The second Obote regime, between 1980 and 1985, resulted in vast areas of devastation and great losses of human lives. In 1985 Obote fled for Zambia, allegedly taking much of national treasury with him, and was soon to be replaced by Museveni, a member of the National Resistance Movement (NRM). He took power in 1986, proclaiming a Ten-point Programme in an effort to introduce democracy, security, elimination of corruption and a healthy economy. NRM leaders brought their political opponents into office in an effort to unite Uganda under one government. Law and order was re-established in Uganda except in the North and Northeast, which still remains a turbulent area today. The decentralisation that started in 1986 when NRM came into power is now anchored in the 1995 Constitution and the 1997 Local Governments Act, the two most authoritative documents on Uganda's decentralisation policy and process. Museveni was re-elected for a five-year period in 2001.

2.3. Economy

2.3.1. Reforms, expenditure planning and decentralisation

The collapse of the institutional framework in Uganda was caused by political instability and civil strife. Even with the restoration of political stability 1986, the policy environment was still extremely fragile and highly centralised, and policymaking was reduced to ad-hoc responses to urgent problems, with little room for long-term policy analysis (Corkery, Land and Bossuyt, 1995).

Uganda had budget deficits in the 70s with the exception of 1977, when world coffee prices increased. During Amin's time, government borrowing from local banks increased from 50% to 70%. Even though income tax rates were raised to ensure higher revenue for local authorities to allow greater self-sufficiency in rendering public services, the budget deficit was still 1/3 of total spending. In 1990 expenditures for

defence were 39% of the budget, education received 14%, and foreign affairs and the health sector received 4 % each (U.S. Library of Congress, 2004).

Decentralisation
The National Resistance Movement (NRM) changed the constitution in 1995 and revised the local government act in 1997. With the local government act, the decentralisation[2] process started, with the districts supposed to plan, implement and manage public services, while the central ministries were supposed to formulate policies and regulations, set standards and provide technical support to the districts. Plans are underway to prepare the districts for the new role but full implementation is a challenge at this point because of the level of technical efficiency at the district level.

2.3.2. Economic conditions[3]
The country's national currency is Ugandan Shillings (USh), one US$ equals approximately USh 1.800. In 2001, Uganda ranked as number 147 on the Human Development Index. Economically the country is regarded as a success story: A pioneer of macro-economic stabilization and structural adjustment in Africa, its economic recovery since 1986 is remarkable (Uganda Embassy). However, corruption raises doubts about the continuation of strong growth. Uganda was the first country to access the HIPC initiative, something that decreased its debt burden. Figure 2.2 clearly illustrates why Uganda has earned its label of success: Between 1990 and 2003, the countries GDP per capita increased by more than 55%.

Agriculture is by far the most important sector, employing almost 80% of the work force (Uganda Population and Housing Census 2002), and although the number has been declining, the sector still contributes 40% to total GDP (UBOS, 2004). A vast majority of this is subsistence farming; in fact, subsistence farming was the main source of household income for 68% of Ugandan households in 2002 (Uganda Population and Housing Census 2002). Bananas and cereals account for 55% of all food crops (UBOS, 2004). Coffee dominates the quantities of cash crop exports, followed by tea and tobacco, although it is worth noting that all these three export goods decreased substantially between 2002 and 2003 (Ibid.) Moreover, agricultural products are an important resource in Uganda's manufacturing industry. All in all, this makes Uganda's economy very vulnerable to external shocks, such as floods or failed harvests.

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[2] The form of decentralization in Uganda is devolution i.e. responsibilities for overall implementation of projects and/or maintenance of operations on a sustainable basis are assigned to local governments as defined by Silverman (1992).

[3] Discussion of economic conditions are based on Economic Analysis Paper#1.1.2: "Evolution of Inequality in Uganda"

Figure 2.2.   GDP per capita (constant 2000$), 1990-2003

Year	GDP/cap
1990	877
1991	892
1992	903
1993	934
1994	966
1995	1 046
1996	1 109
1997	1 130
1998	1 152
1999	1 209
2000	1 265
2001	1 305
2002	1 350
2003	1 376

GDP/cap
GDP per capita, (constant 2000 $)
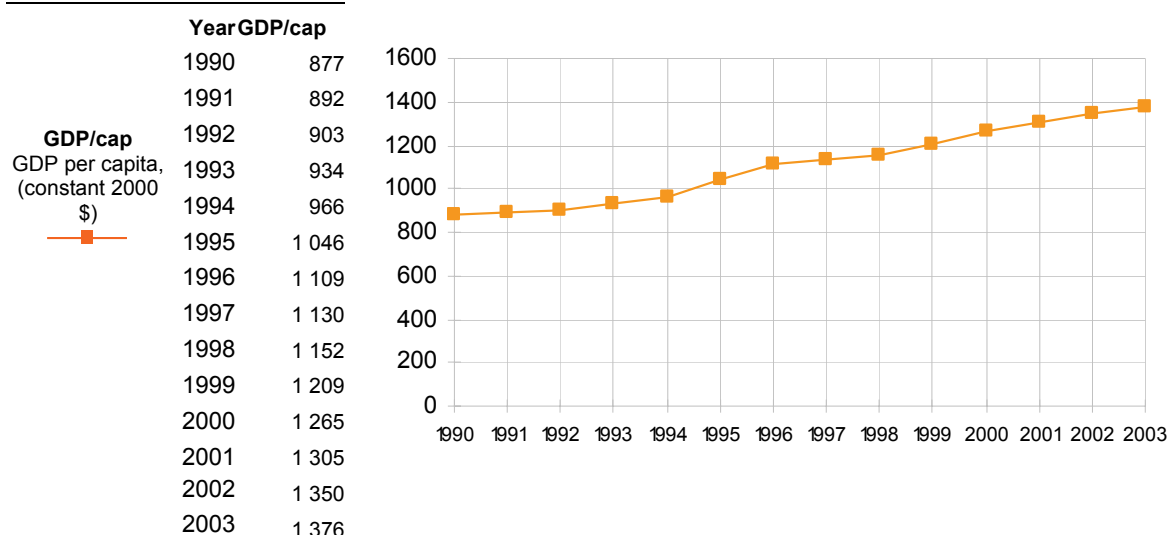
Figure 2.3.   Equity: Gini Coefficients for 1990-2002

Year	National	Rural	Urban
1990			
1991			
1992	0.364	0.326	0.395
1993			
1994			
1995			
1996			
1997	0.347	0.311	0.347
1998			
1999	0.395	0.332	0.426
2000			
2001			
2002	0.428	0.363	0.477
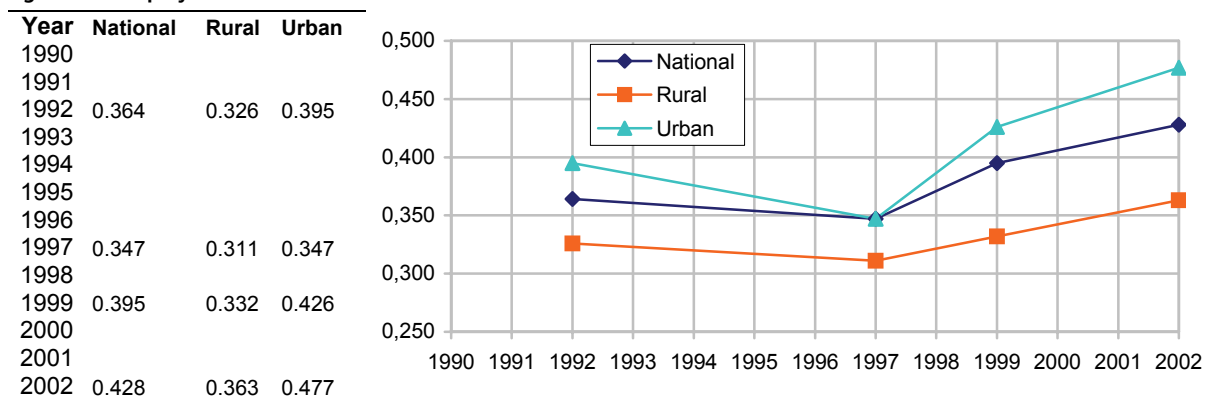
One measure for equity is the Gini coefficient, which is a number between 0 and 1. If the Gini coefficient is 0 in a given society, it means that everyone in the society earns the exact same amount. If the coefficient is exactly one, we have perfect inequality, meaning that 1 person in the society earns all the income. For comparison, Scandinavian countries typically have a Gini coefficient around 0.25, continental Europe 0.35, while for the USA the number is around 0.5, and for Brazil around 0.65.

Unfortunately, as figure 2.3 shows, the benefits of Uganda's gradual economic growth have not been distributed equally. The incidence of poverty declined steadily up to 2000, but this decline has, since 1997, been accompanied by growing inequalities on two levels: Nationally and between urban and rural areas.

A reasonable explanation for this seemingly paradoxical development is that the "richest" of the poor, i.e. those living just below the national poverty line, has benefited from a liberal economic policy and economic growth and become better off, now probably living just above this line. For the poorest of the poor, meanwhile, there is little proof that the situation has improved, at least not relative to the rest of the population.

3. Background information about the different sectors

3.1. Health

3.1.1. Ministry of Health goals
The ultimate goal of the Ministry of Health is to provide equal opportunity access to basic health care for all Ugandans, both in the districts and at the national level. Other objectives include training of personnel, developing health infrastructure, improving the referral system, and bettering the systems dealing with identification and control of epidemics. The immunisation programme is currently being revitalised. Over the past 14 years, efforts have been made to re-orient resources and services to primary health care. The National Health Policy and Health Sector Strategic Plan 2001-2005 emphasise health sector development in the context of the National Poverty Eradication Plan (Ministry of Health homepage).

3.1.2. Health sector infrastructure
There are 1 226 governmental health facilities in Uganda divided into three categories. Two facilities are national referral hospitals, with specialists and teaching capacity. Another ten are regional referral hospitals, which also have specialists in certain fields. The remaining are district/rural hospitals, manned by general doctors. The majority of doctors and health centres are located in the urban areas. In order to revitalise the immunisation system through an outreach programme, the government has provided motorcycles and bicycles for local health personnel. In addition to the public hospitals, there are more than 500 private health facilities.

Burungi et al. (1998) divide the considerable private sector into two sub-sectors: private-for-profit and private-for-non-profit (NGOs and missionary facilities). The private-for-profit facilities, in turn, are either formal or informal. The formal sector includes those who are licensed to practice and prescribe/sell drugs, as well as traditional healers/attendants, many of whom are untrained, who provide services particularly in rural communities (Jitta, 1998). The informal sector is a significant source of medication and includes unregistered private clinics, drug shops, market vendors, itinerant providers and home providers.

3.1.3. The health sector: Key features
In 1962 Uganda had one of the best public health care systems in Africa, providing high quality services free of charge both on the country and sub-country levels. During the civil war, 50% of doctors and 80% of pharmacists left the country (Hansen, 1995). Today the situation is characterised by a shortage of trained personnel and medical equipments (Deininger and Mpuga, 2004).

Around half the population live within one hour's walking of a health facility, but there are significant regional differences (Ministry of Health, 1996). Despite showing downward trends for several years, AIDS continues to be a major cause of excess mortality, along with malaria, measles, unsafe deliveries and cholera, to mention a few.

User fees were introduced in 1989 but abolished in 2001, something which improved access and outcomes (Deininger and Mpuga, 2004). However, one household expenditure survey has revealed that households spend far more on public health care than official data report. One explanation can be that due to inadequate salaries of health workers, these workers survive by charging informal fees (Burungi et al. 1998) and by stealing drugs and selling them to patients (Cockcroft, 1996). In 2002 Ugandan households rated health institutions, along with the police, the most corrupt sectors, and corruption is perceived to be an important factor in hindering service delivery (UBOS, 2003). Another related issue is that health personnel use their position in government clinics to attract patients to their private clinics. The low salaries also create difficulties in attracting qualified health workers (Ablo and Reinikka, 1998), as well as having a demoralising effect on the staff.

Only a narrow range of services are provided in the health units nearest to the users, as most doctors and nurses work in urban-based hospitals, while rural units are staffed mostly by nursing aides with no formal

qualifications and very limited training (Jitta, 1998). Vertical referral[4], which incurs costs of travelling to another town and additional costs related to hospital admission, is not a good system for the majority due to economic restraints (Jitta, 1998).

Quality of care is compromised by the fact that health personnel concentrate on the strictly medical aspects, while more or less ignoring things like preventive counselling and explanation. This situation is aggravated by the fact that overworked health workers tend to be rude, and that users are not used to asking questions and do not demand much from health care personnel (Jitta, 1998).

3.2. Education

3.2.1. Ministry of Education and Sports goals

The goal of the Ministry of Education and Sports, which is in concordance with Millennium Development Goal 2, is to ensure that by 2015 all children have access to and complete free and compulsory education (Ministry of Education and Sports homepage). The Universal Primary Education (UPE), introduced in 1996, was an important stepping-stone to attain these goals. The UPE aims to increase the level of literacy through introducing five years of compulsory primary schooling for all. User fees were abolished in an attempt to provide basic education to all Ugandan children[5]. Girls, disabled children and children from ethnic minorities are special target groups. The vision of the ministry is "Quality Education and Sports for all", and its mission is "to provide for, support, guide, coordinate, regulate and promote quality education and sports to all persons in Uganda for national integration, individual and national development." Other objectives include ensuring early childhood care and raising literacy and numeracy rates.

3.2.2. Education sector infrastructure

Children start primary school at the age of six. Primary education lasts for seven years. Then follows four years of lower secondary school and two years of senior secondary education. There are also literacy programmes for young people and adults, called Non-Formal Education Programmes.

3.2.3. The education sector: Key features

The 1990s saw improvements on several levels within the education sector: Enrolment rates increased substantially, more teachers were employed, teachers' salaries increased, gender differences diminished, and the pupil/textbook ratio dropped. However, the completion rates at primary level are still low, with only half as many pupils in 5th as in 1st grade.

Education has implications for different aspect of the individual's life such as fertility, reproductive health, health seeking behaviour and employment. Although user fees were formally abolished in 1996, parents still had to cover costs of uniforms, meals and equipment, plus suffer the indirect costs in terms of lost earnings and help with agricultural and housework. Furthermore, each family is only allowed to register four children for free. The country did nevertheless experience an explosion in enrolment rates after 1996, but this was not accompanied by an equal increase in teaching force and resources (Moulton, 2002). In many instances, therefore, the teaching quality suffered, a fact that is reflected in large class sizes in the lower grades, many pupils per textbook, and poor equipment. Since 1997, however, the number of both teachers and schools has increased steadily, improving the quality of education.

Several studies have pointed to reasons for gender inequalities in Ugandan primary schooling. Because girls have more household responsibilities than boys, they not only have less time to study (Natukunda, 1997), parents are also more reluctant to send them to school in the first place (Barnett et al., 1995m Tumashabe et al., 1993).

A study by Ablo and Reinikka (1998) shows that although teachers' salaries have tripled in real terms between 1991-1995, absenteeism was a serious problem as teachers made a living outside their profession. Low salaries, high taxation, long service and extra responsibilities also cause motivation problems among teachers (Tumushabe *et al.* 2000).

3.3. The water and sanitation sector

3.3.1. Water and sanitation sector goals

The mandate of the Ministry of Water, Lands and Environment includes safeguarding land, water resources and environment in order to promote social and economic welfare and development. The ministry's mission is "to ensure the wise use of the country's natural resources by the present generation without compromising their availability for use by the future generations". One of the ministry functions is "water resources management covering hydrological and hydro-geological data, control of resources utilisation, control of water quality and development and management of water supplies" (source: Ministry of Water, Lands and Environment homepage).

3.3.2. Water and sanitation sector infrastructure

The Ministry of Water, Lands and Environment has the overall responsibility for initiating national policies and

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[4] Reversed referral (drug shops), horizontal referral (to other primary units) and alternatives to referral (home care, traditional remedies) were more common than vertical referral as planned by the government.

[5] The government of Uganda defines basic education as "the minimum package of learning, which should be made available to every individual to enable him/her to live a good life and be a useful citizen in society" (ROU, 1992).

setting standards and priorities for water resource management in the country. Under the Ministry there are two directorates, the Directorate for Water Development and the Directorate for Lands and Environment. The Ministry also supervises the National Water and Sewerage Corporation. The Ministry of Health, meanwhile, is responsible for hygiene promotion and household sanitation.

District local governments are responsible for mobilisation of people, financial resources, and skills development among the water users, for participating actively in planning for water source development and for monitoring implementation, operation and maintenance of facilities. The Municipal/urban council level plays a lead role in partnership with the water user groups/associations/authorities in operating, maintaining and managing urban supplies for domestic and industrial use. At the community level, the role of the Water and Sanitation Committees is active participation in the planning; financial contribution towards capital investment, monitoring implementation, and managing, operating and maintaining point water sources.

3.3.3. The water and sanitation sector: Key features

According to Minister of Health, Jim Muhwezi, 80% of Uganda's disease burden is a result of poor sanitation (Public Citizen). Even where latrines are available, they are often poorly maintained, and there is still widespread open defecation. In 2002, 20% of the rural households lacked toilet facilities. The overall level of hand-washing after defecation stands at under 10% (Water and Sanitation Program).

Diarrhoea diseases rank second among the five child killer diseases, and high rates of diarrhoea have been found to be associated with unprotected sources of water and lack of latrines (Bitature, 1996).

Women are recognised as playing a lead role in the prevention of various diseases related to water and sanitation. Not only can breastfeeding give infants protection against certain diseases (such as cryptosporidiosis parvum[6] (Tumwine, 2003)), but changes in everyday habits and the way in which household tasks are carried out, also help preventing diseases (Bwengy-Kahororo, 1996).

As part of Uganda's Poverty Reduction Program, the water sector has been partly privatised. This has had adverse effects for the poorest population: Many households have to draw water from polluted rivers, something that contributes to diseases. In urban slums, the price for water has been found to be several times higher than in affluent areas (Public Citizen).

Although the share of households with access to safe water and sanitation increased steadily between 1996 and 2000, sustainability of water sources presents a major problem. Without the necessary skills and/or resources for repair and maintenance, latrines and water pumps deteriorate quickly. According to the 2002 Census, 61% of households have access to safe water, the number being substantially higher in urban than rural areas (93% and 56% respectively).

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[6] Cryptosporidium parvum (*C. parvum*) is a parasite that causes intestinal infections usually referred to a cryptosporidiosis. Cryptosporidium is one of the most resistant parasites to water chemical treatments and responds somewhat to chlorine but only in high doses and at present there is no effective treatment for *C. parvum* (Tumvine, 2003).

4. Presentation of national level statistics for Uganda

4.1. Two introductory notes

4.1.1. Review of available data on the national level

Uganda national level data primarily come from the following surveys: The Uganda National Household Surveys (UNHS) carried out in 1992-93, 1993-94, 1994-95, 1995-96, 1997, 1999-2000 and 2002-2003, the Uganda Demographic and Health Survey (UDHS) carried out in 1989, 1995 and 2000 and the Population and Housing Census 2002. Data on public expenditures for the different sectors come from the Public Finance Statistics division at UBOS (Uganda Bureau of Statistics), which are based on budget documents from the various ministries. Lastly, data on the education sector were based on administrative registers from the Ministry of Education, especially the Educational Census, carried out on an annual basis since 2000. All expenditure data were adjusted using the consumer price index.

4.1.2. Impact: Monitoring poverty

Input: Resource allocation	⇨	**Output:** Service standard and	⇨	**Outcome:** Sector status and	⇨	**Impact:** Poverty reduction
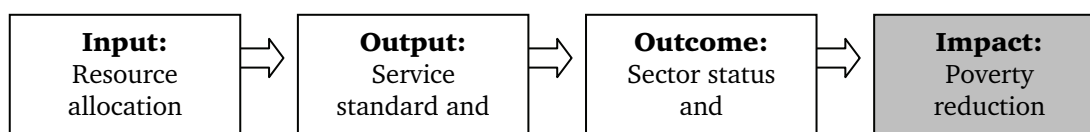
Before presenting statistics for the three sectors, we address the common goal, measured in terms of *poverty incidence* and *poverty gap*. These two indicators will then be used for all subsequent sectors.

The ultimate goals of all the efforts in social sector improvements are poverty reduction and human, social and economic development. Policies are designed in order to achieve improvements along some dimension of poverty or quality of life. Hence we would always like to compare the changes in sector outcome with one or more dimensions of overall objectives.

It is a challenge to monitor whether investments in the different sectors are followed by reduced poverty. Needless to say, aside from the fact that there is no single factor that can measure changes in a society's poverty situation, national poverty data are yet to be developed for most countries. This applies to Uganda as well. The United Nations Development Programme (UNDP) has a long history of measuring other end goal dimensions than economic growth. The Human Development index family based upon elements from the old Physical quality of life index was well established in the 1990s. It now comprises the traditional Human Development Index, the Gender Development Index and the Poverty Index. All these are composite indices comprising at least three dimensions. Given the need to retain a short list of indicators, we do not propose to include this HDI index family among those given first priority under the approach presented here. However, due to lacking and/or unsatisfactory data on poverty incidence, we will include HDI in chapters 5 and 6.

For this presentation, two poverty indicators are used: *poverty incidence* and the *poverty gap*, both of which are based on a national poverty line.
Poverty incidence, based on national poverty line (MDG indicator 1a): This is the percentage of the population living below the country-specific poverty line, measured in terms of household consumption expenditure, and based on data from the UNHS.[7]
Poverty gap, based on a national poverty line (MDG indicator 2): Poverty gap is defined as the average

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[7] Definition: Estimated percentage of population below the poverty line. Appleton (1998) uses 6252 Ugandan Shillings (1989 prices) per adult equivalent per month. Computed on the basis of price of an average food basket for the poor population and an adult male calorie consumption of 3000 calories per day + estimated consumption of non-food items.

distance to the poverty line for the population below the poverty line. The indicator is computed on the basis of the poverty incidence as presented above.

There is no one officially approved poverty line in Uganda - but an "empirical" poverty line has been constructed (Appleton, 1999) and is used by UBOS. This method focuses on the cost of meeting calorie needs as defined by FAO, given the food basket of the poorest part of the population and an allowance for non-food needs in the same proportion as among the poor. It should be noted that there is a normative element involved when defining a poverty line, first in choosing the calorie needs for a non-active person, a person with low activity level or for a person with heavy work such as farmers, second in deciding how to deal with costs for non-food necessities: Is the poverty line to be drawn at people with the means to *buy* exactly 3000 calories a day, or at those who actually have the means to *eat* 3000 calories a day in addition to the non-food costs from their income? In both respect, Uganda has chosen the higher levels for the poverty line. Due to these methodological complexities, attention should focus on the poverty line as a basis for comparison over time, across geographical areas and across socio-economic groups, rather than on the numerical value of any single poverty statistic.

However, this indicator has the advantages that it has a national coverage, it is available for most of the years covered in the study, and the data are of good quality.

According to UNDP, the national poverty line for Uganda equals PPP$1,47 per day, or PPP$1,7 including non-calorie requirements (UNDP 2004). This is considerably higher than the World Bank's international poverty line of PPP$1,08 a day, which would have yielded lower poverty estimates. The great advantage with the national poverty line is that this is based upon national information and national acceptance of how to construct a fair poverty line.

The poverty gap can be interpreted as the per capita cost of eradicating poverty, as a percentage of the poverty line, if the money could be targeted perfectly. Thus if the poverty gap is 20, as it was in 1993, and the poverty line is 6252 USh, then it would cost 1250 USh per Ugandan per month in order to eradicate poverty through selective transfers, compared to 625 USh in 2000 (see figure 4.1). The poverty gap gives an idea of the depth of poverty. However it is limited because it is insensitive to how consumption is distributed between the poor.

Figure 4.1.   Impact: Poverty indicators, 1990-2003

Year	PI	PG
1990		
1991		
1992		
1993	55	20
1994	51	17
1995	50	16
1996	50	16
1997	44	14
1998		
1999		
2000	34	10
2001		
2002	38	11
2003		

PI
Poverty incidence
(%)

PG
Poverty gap
(%)
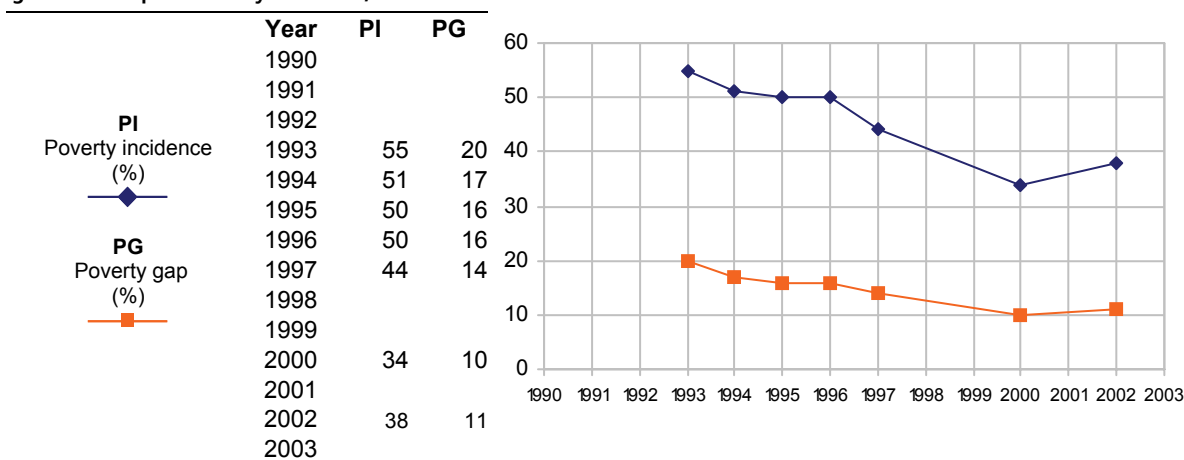
As figure 4.1 shows, both poverty indicators in Uganda showed improvement between 1993 and 2000. Since then, however, poverty has increased - and while the most recent estimates suggest that 38% of the Ugandan population are poor, this is considerably lower than during the first part of the last decade.

4.2. The monitoring steps for the health sector

4.2.1. Sector allocation

Input: Resource allocation	→	Output: Service standard and	→	Outcome: Sector status and	→	Impact: Poverty reduction
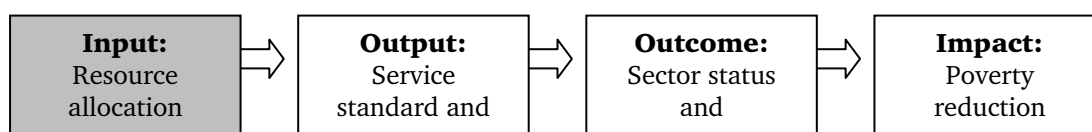
During the last decade, there has been an increasing interest in information on the share of resources

allocated to primary social service and/or to social sector expenditures in general. The 20/20 initiative at the UN Social Summit in Copenhagen in 1995 was instrumental in ensuring such a focus on resource allocation for (preventive) health and (primary) educational services (United Nations, 2004b). Still relatively little work has been undertaken to develop internationally acknowledged standards in this area and both targets and indicators are currently being discussed. The original focus was on expenditures i.e. any type of education and health expenditures. For the first monitoring step we choose to present two indicators:

Health expenditures as per cent of total public expenditures. This indicator shows the commitment of

the government to the health sector. For Uganda, public health expenditures equal the total sum of recurrent and development public expenditures for health.

Health expenditure per capita. This is an indicator of real resource allocation and tells us what to expect in terms of output. The previous indicator does not show the actual resources allocated, hence, it is not well designed for comparisons with the output. For that purpose we need an indicator of real resources, such as this one. Ugandan shillings were converted to constant 1995 prices.

Figure 4.2.a. Health input: Share of public expenditure spent on health (%), 1990-2003

Year	EXP
1990	4
1991	5
1992	5
1993	4
1994	5
1995	4
1996	4
1997	6
1998	5
1999	4
2000	5
2001	5
2002	5
2003	5

EXP Share of public expenditures spent on health (%)
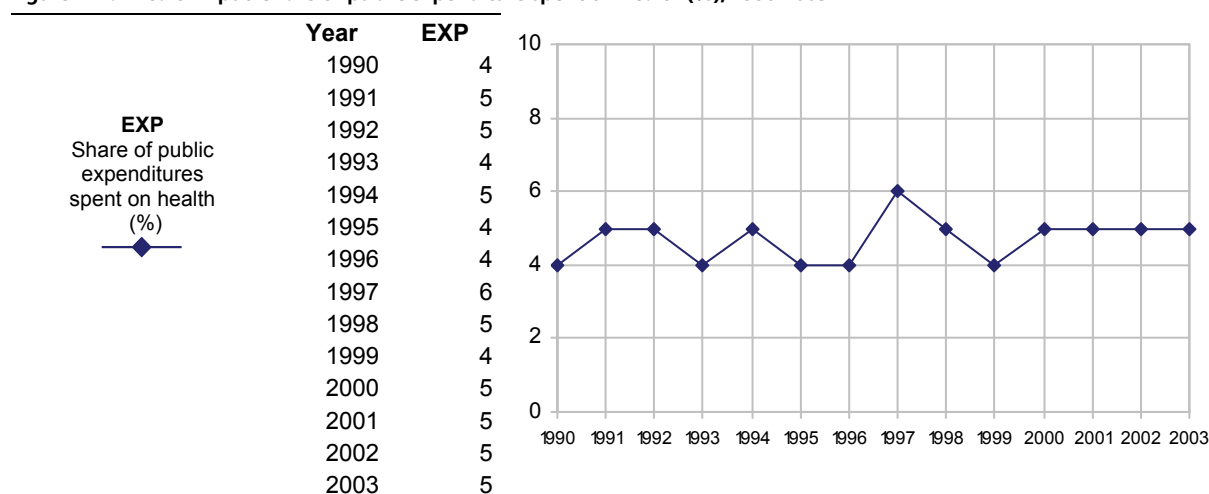
Figure 4.2.b. Health input: Public health expenditures per capita, 1995 USh, 1990-2003

Year	Exp/cap
1990	850
1991	977
1992	1 080
1993	1 175
1994	1 367
1995	1 293
1996	1 196
1997	1 648
1998	1 487
1999	1 486
2000	1 806
2001	1 969
2002	2 565
2003	3 198

Exp/ Cap Health expenditures per capita (1995 USh)
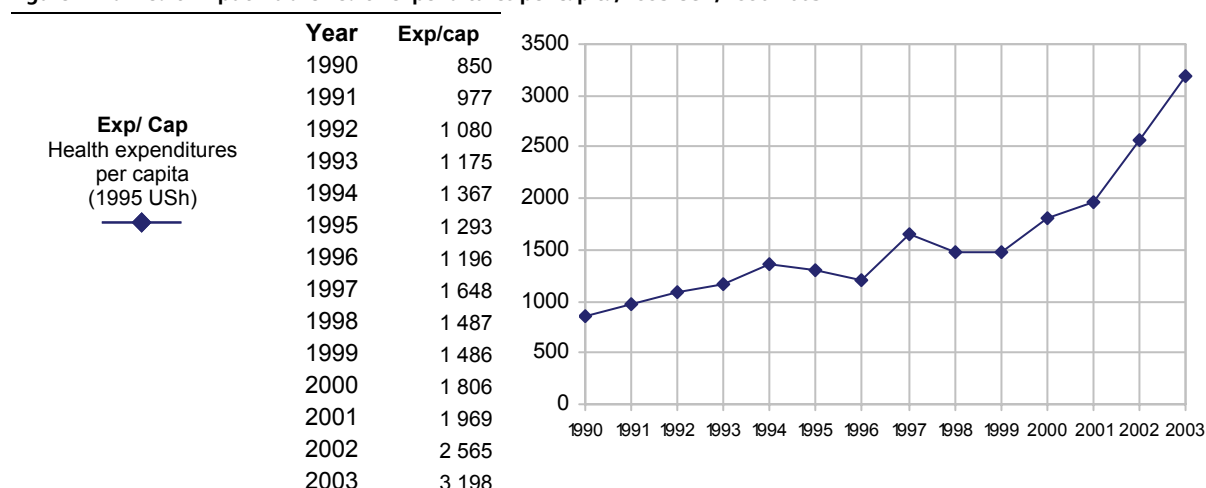
As these tables show, the share of public expenditures to health has remained fairly stable throughout the period, only fluctuating between 4 and 6 per cent. In real terms, however, there has been a massive increase of resources directed to the sector, the decline during the decentralisation in 1995/96 was not only turned around, but compensated and the health sector has been able to enjoy its share of the economic growth throughout this period.

4.2.2. Service standard and use

Input: Resource allocation	→	Output: Service standard and	→	Outcome: Sector status and	→	Impact: Poverty reduction
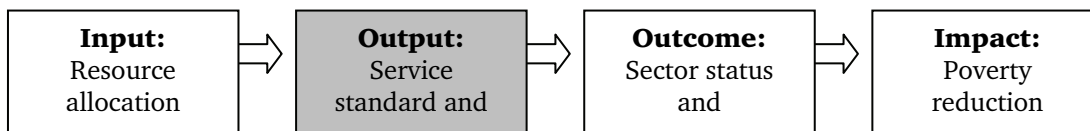
Figure 4.3 Health output: Total vaccination coverage, skilled birth attendance and contraceptive prevalence rate (%), 1990-2003

Year	VC	SBA	CPR
1990[1]	48	38	3
1991			
1992			
1993			
1994			
1995	47	38	7
1996			
1997			
1998			
1999			
2000	37	39	18
2001			
2002			
2003			

VC
Total vaccination coverage, children 12-23 months (%)

SBA
Skilled birth attendance (%)

CPR
Contraceptive prevalence rate (%)
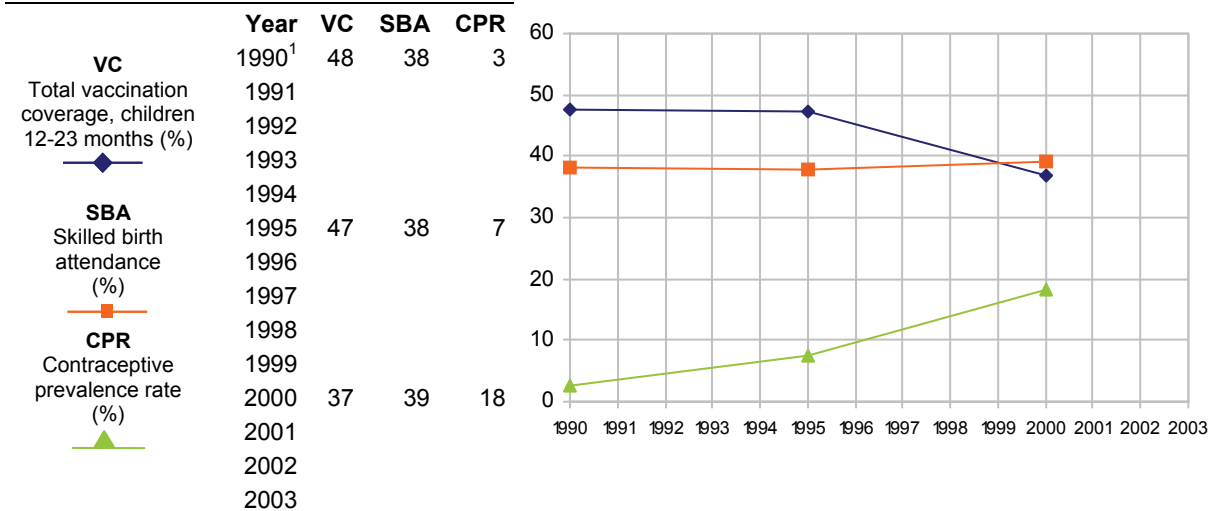
[1] 1990 numbers are taken from the 1988/1989 UDHS

For the second monitoring step, three output variables are presented: *total vaccination coverage* of children under 12 months, *births attended by skilled personnel* and *contraceptive prevalence rate*.

- *Total vaccination coverage, children 12-23 months[8]:* Share of children 12-23 months fully immunised. Being fully immunised is defined as having received 3 doses of polio, 3 doses of DPT, and being vaccinated against measles and BCG. Vaccination is a high priority area in preventive health and at the same time data are available on a regular basis.
- *Births attended by skilled personnel* (MDG indicator 17): Share of births attended by skilled personnel (doctor/nurse/midwife) in the 5 years preceding the survey.
- *Contraceptive prevalence rate* (MDG indicator 19c): The percentage of currently married 15-49-year-old women who are using a modern contraceptive method.

Figure 4.3 paints a mixed picture regarding output in the health sector. There has been no improvement in the share of births attended by skilled personnel, and in terms of vaccination coverage, the situation has deteriorated by more than 10 percentage points. One reason for this is clearly that the pull out of support from UNICEF coincided with the decentralisation process. But why the district health services have not

been able to recapture and in fact increase the vaccination rate is not only strange; it is a failure of the health service which should send a serious warning signal to the government, the donors and the society at large.

There are however also positive trends. The contraceptive prevalence rate, has been steadily increasing. This shows the success of Uganda's health policy related to the HIV and AIDS prevalence and also that the society is capable of achievements. Uganda was one of the first countries to face high HIV prevalence, but also the first country to acknowledge the need for broad based efforts and the increased contraceptive rate is a very positive trend, despite there still being a long way to go before safe sex is accepted as a need among the majority. Also, DHS data reveal that the most popular contraceptive methods are traditional methods, which are generally less safe than modern methods. However, the surveys also show that contraceptive use is far more frequent among unmarried than married women, and these are not included in the data above.

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[8] The indicator proposed in the Millennium Development Goals is "proportion of 1-year-old children immunized against measles" (indicator 15).

4.2.3. Sector outcome

Input: Resource allocation	→	**Output:** Service standard and	→	**Outcome:** Sector status and	→	**Impact:** Poverty reduction
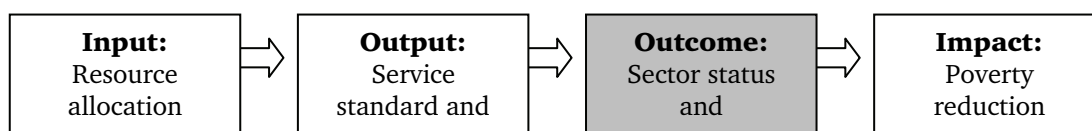
Three variables are presented as outcome indicators: *infant mortality rate, mortality rates for children aged 12-59 months*, and *prevalence of underweight children under 5 years of age*. Ideally, the maternal mortality ratio should have been included at this level (cf. MDG 5, target 6). Unfortunately, due to practical and methodological problems, there are presently no reliable data showing the trends in this area.

- *Infant mortality rate* (MDG indicator14): The probability of dying between birth and first birthday, expressed as a rate of death per 1000 live births for 5 years intervals preceding the survey.
- *Child mortality rate, 12-59 months[9]:* The probability of dying between the first and the fifth birthday as expressed as a rate of death per 1000 one-year-old children for 10 years intervals preceding the survey.
- *Prevalence of underweight children* (MDG indicator 4): The percentage of children under 5 with low weight for age.

Figure 4.4. Health outcome: Mortality rates and underweight children, 1990-2003

CMR
Child mortality rate, 12-59 months (per 1.000 1-yr old children)
◆

IMR
Infant mortality rate (per 1.000 live births)
■

Underweight
Prevalence of moderate underweight (%)
▲

Year	CMR	IMR	Under-weight
1990[1]	87	98	23
1991			
1992			
1993			
1994			
1995	72	81	26
1996			
1997			
1998			
1999			
2000	69	88	23
2001			
2002			
2003			
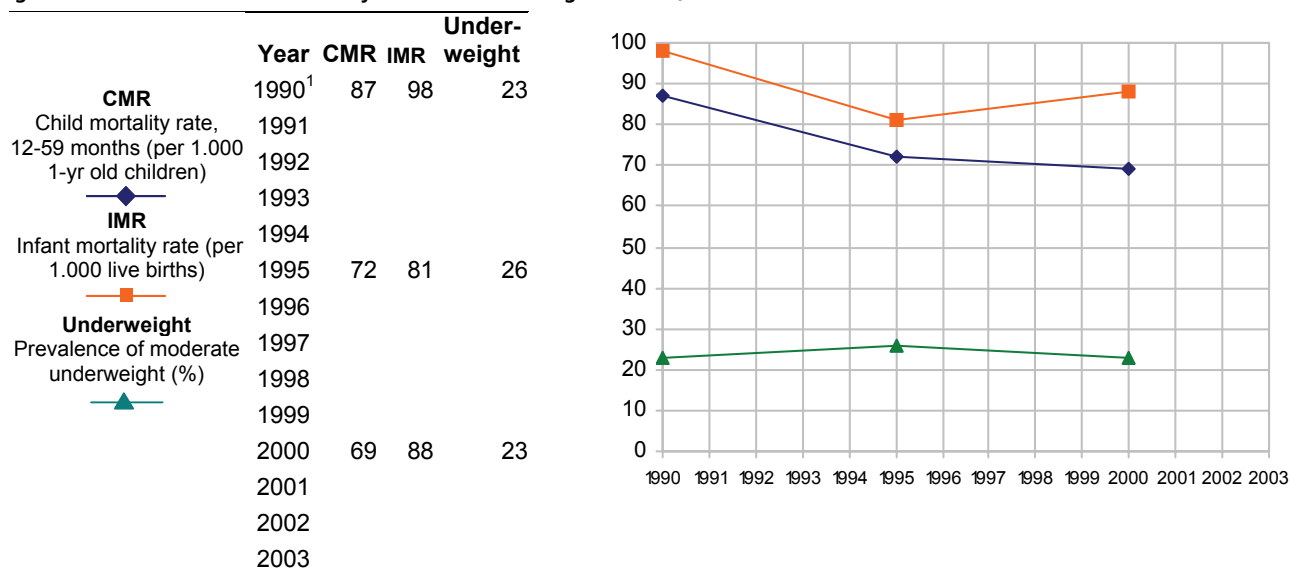
[1] 1990 data are taken from the 1988/1989 UDHS.

Figure 4.4 shows that mortality rates improved between 1990 and 1996, but then increased slightly. Explanatory factors may be the country's high total fertility rate and that incidences of diarrhoea and malaria have increased (Ministry of Finance, Planning and Economic Development, 2002). Prevalence of underweight children has remained almost unchanged over the period, with approximately ¼ of under-five children being underweight.

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[9] The indicator of child mortality proposed in the Millennium Development Goals is "under-five mortality", measured per 1.000 live births (indicator 13)

4.3. Health: Are changes at one level followed by changes at the next?

4.3.1. From resource allocation to service standard and use

Input: Resource allocation	⇨	**Output:** Service standard and	⇨	**Outcome:** Sector status and	⇨	**Impact:** Poverty reduction
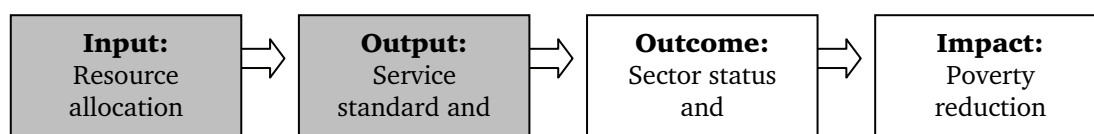
The first monitoring step is to investigate the relationship between input and service standard and use. For this relationship, it is expected that an increase in health expenditures per capita correspond to more health services delivered to the public.

Figure 4.5.a. Health: Input-output, 1990-2003

	Year	Exp/cap	VC	SBA
Exp / Cap: Health expenditures per capita (1995 Ush)	1990	850	48	38
	1991	977		
	1992	1080		
	1993	1175		
VC: Total vaccination coverage, children under 12 months (%)	1994	1367		
	1995	1293	47	38
	1996	1196		
	1997	1648		
	1998	1487		
	1999	1486		
SBA: Skilled birth attendance (%)	2000	1806	37	39
	2001	1969		
	2002	2565		
	2003	3198		
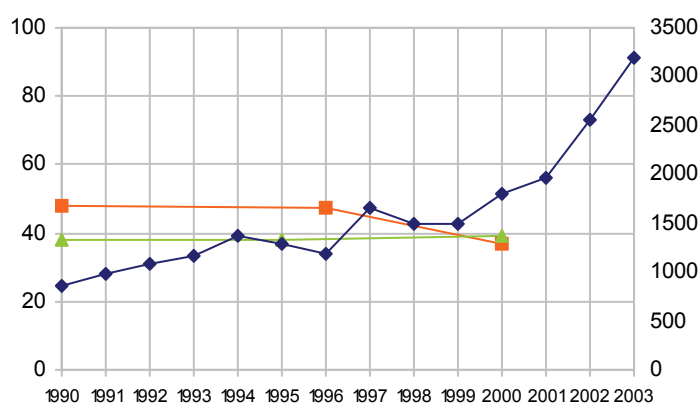
Figure 4.5.b. Health: Input-output, 1990-2003

	Year	Exp/cap	CPR
	1990	850	3
Exp / Cap: Health expenditures per capita (1995Ush)	1991	977	
	1992	1 080	
	1993	1 175	
	1994	1 367	
	1995	1 293	7
CPR: Contraceptive prevalence rate (%)	1996	1 196	
	1997	1 648	
	1998	1 487	
	1999	1 486	
	2000	1 806	18
	2001	1 969	
	2002	2 565	
	2003	3 198	
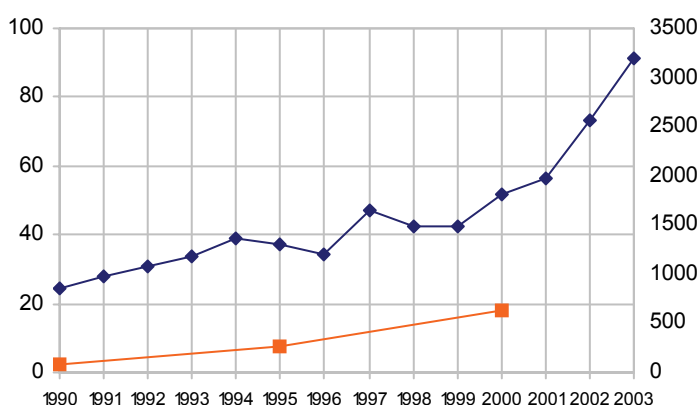
From figures 4.5a and 4.5b we can conclude that the increase in public spending on health has neither been followed by an increase in vaccination coverage, which has decreased by no less than 10 percentage points over the period, nor by an increase in skilled birth attendance, which has remained stable at just below 40%. The only output variable that has improved is the contraceptive prevalence rate, but this improvement started before the major increases in input took place. In other words, our expectations are not substantiated by the data. This raises the question of what the increased amount of money has been spent on - and whether or not it has been used efficiently. The need for a thorough evaluation of effectiveness of the health sector has seldom been more clearly demonstrated.

4.3.2 From service standard and use to outcome

Input: Resource allocation	→	**Output:** Service standard and	→	**Outcome:** Sector status and	→	**Impact:** Poverty reduction
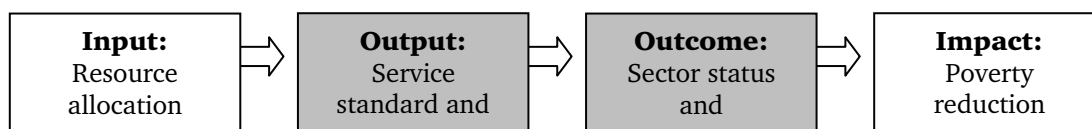
Our expectation is that the higher the output, the better the outcome. The most commonly recorded data for outcome is infant and child mortality. However, since infant mortality rate does not reflect the effect of vaccination, we focus first on vaccination coverage and the child mortality rate. Two additional caveats are, however, necessary here. First, immunisation cannot prevent many important causes of child mortality (e.g. malaria, diarrhoea, HIV/AIDS) (Ministry of Finance, Planning and Economic Development, 2002). Secondly, we should bear in mind that outcome may

be heavily impacted by improvements in other sectors (such as sanitation and education), as well as by external factors such as epidemics and wars.

Next, we examine the relationship between skilled birth attendance and infant mortality. A third graph, depicting skilled birth attendance and the *maternal mortality ratio* (MDG indicator 16) [10], has also been included, seeing as research has shown there is a clear relationship between these two indicators. Our data, however, come with a number of disclaimers (see discussion below) and should be interpreted with great caution.

Figure 4.6.a. Health: Output - outcome, 1990-2003

	Year	VC	CMR
VC: Total vaccination coverage, children under 12 months (%) ◆	1990	48	87
	1991		
	1992		
	1993		
	1994		
	1995		
CMR: Child mortality rate, 12-59 months (per 1.000 1-yr old children) ■	1996	47	72
	1997		
	1998		
	1999		
	2000	37	69
	2001		
	2002		
	2003		
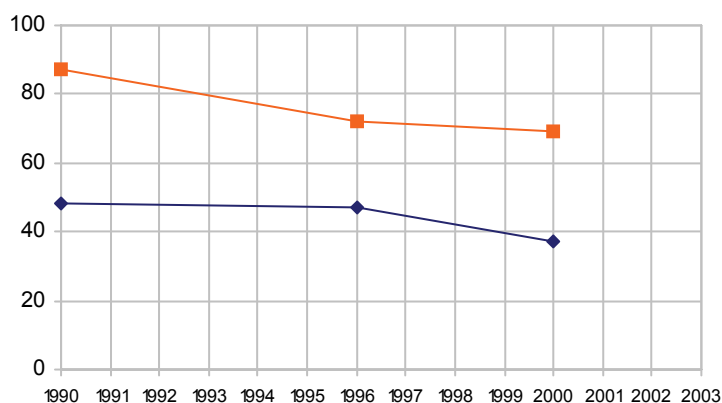
Figure 4.6.b. Health: Output - outcome, 1990-2003

	Year	SBA	IMR
SBA: Skilled birth attendance (%) ◆	1990	38	98
	1991		
	1992		
	1993		
	1994		
IMR: Infant mortality rate, 0-12 months (per 1.000 live births) ■	1995	38	81
	1996		
	1997		
	1998		
	1999		
	2000	39	88
	2001		
	2002		
	2003		

---
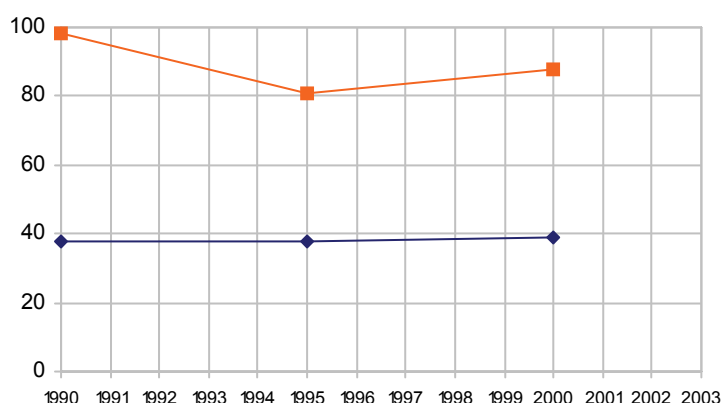
[10] Maternal mortality ratio is defined as the number of women who die during or within 2 months after delivery, per 100,000 live births. It is calculated by dividing the maternal mortality rate by the total fertility rate (Source: DHS)

Figure 4.6.c. Health: Output - outcome, 1990-2003[11]

Year	SBA	MMR
1990	38	
1991		
1992		
1993		600[12]
1994		
1995	38	506[13]
1996		
1997		
1998		
1999		
2000	39	505[17]
2001		
2002		
2003		

SBA: Skilled birth attendance (%)
—■—

MMR: Maternal mortality ratio, (per 100.000 live births)
—◆—
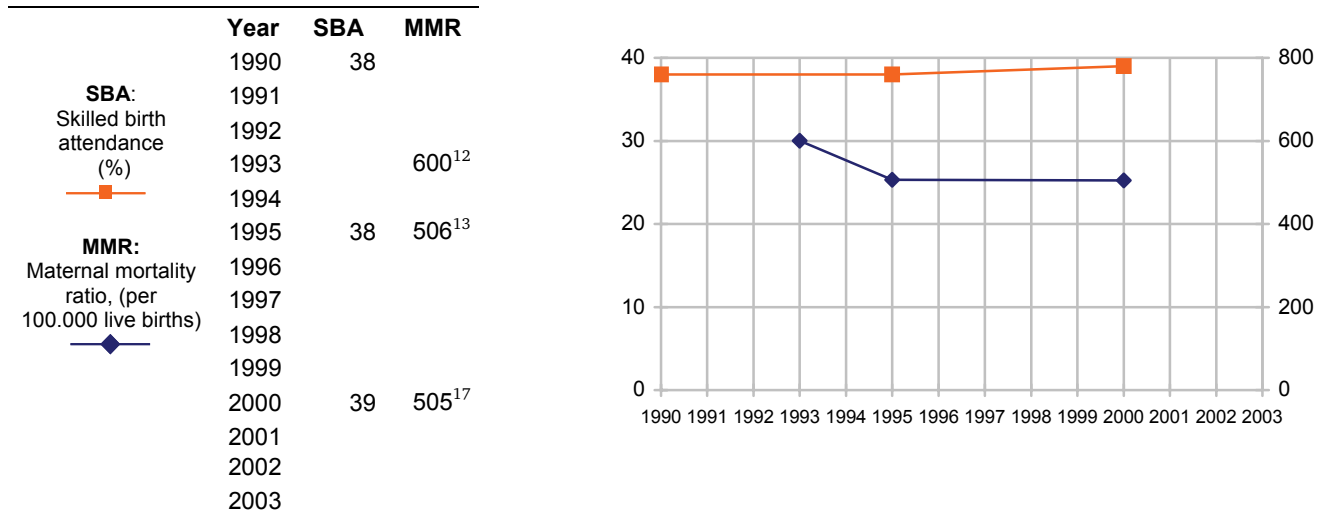
We see from figure 4.6a that in the first half of the period, child mortality rates improved, while immunisation coverage remained stable. After 1996, however, under-five mortality has been unchanged, despite the drop in immunisation coverage. There is reason to believe that there are other factors affecting the mortality rate. The infant mortality rate, too, decreased between 1990 and 1996, but then stagnated. Figure 4.6b reveals no strong relationship between skilled birth attendance and infant mortality. As mentioned above, we cannot draw any conclusions regarding trends or relationships on the basis of figure 4.6c. Although earlier research tells us that there is indeed a strong relationship between skilled birth attendance and maternal mortality, data on the latter is highly flawed. While DHS found that the maternal mortality ratio in Uganda is about 500 deaths per 100.000 live births, WHO estimates the real number to be closer to 900. The only conclusion we can make at the present is that there are massive measurement challenges in this field.

4.3.3. From outcome to poverty reduction

Input: Resource allocation	→	**Output:** Service standard and	→	**Outcome:** Sector status and	→	**Impact:** Poverty reduction
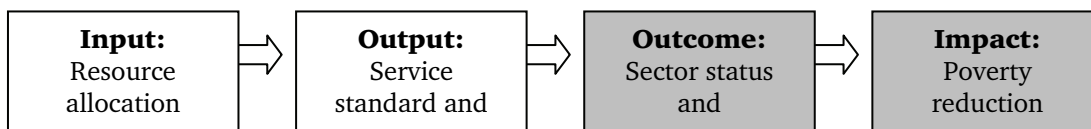
For this relationship we expect that improved health (lower child mortality) will have a positive impact on poverty incidence. There are two rationales for this expectation. First, since the main resource of the poor is their own labour, improved health can improve their working capacity. Another related reason is that for the working force, any deterioration in health can necessitate the use of additional resources and thereby aggravate poverty. Of course, this relationship is far more complex than this, among other things, it is reasonable to expect a circular causality: When poverty is reduced, health conditions will normally improve also. As both outcome indicators and both impact indicators follow more or less the same trend, we choose to only look at the relationship between child mortality and poverty incidence.

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[11] It should be noted that, in addition to the obvious data gaps, estimates of maternal mortality are highly unreliable due to mis-/underreporting and changes in methodology. This figure should therefore be interpreted as a suggestion for future analyses rather than an illustration of the actual trend between 1990-2002.

[12] Source: Ministry of Health (estimate)

[13] Source: UDHS (direct sisterhood method)

Figure 4.7.   Health: Outcome - impact, Uganda 1990-2003

	Year	CMR	PI
	1990	87	
	1991		
CMR:	1992		
Child mortality rate,	1993		55
12-59 months (per	1994		51
1.000 1-yr old	1995	72	50
children)	1996		50
◆	1997		44
PI:	1998		
Poverty incidence	1999		
(%)	2000	69	34
■	2001		
	2002		38
	2003		
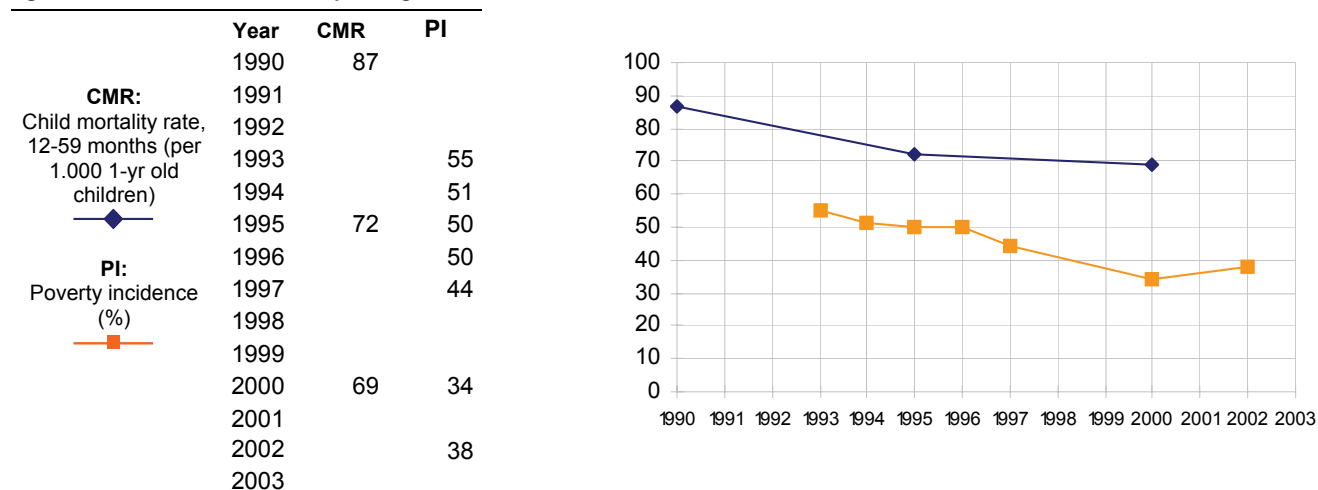
For this monitoring step, the expected relationship is present for the first part of the period, with improvements in both indicators. After 1996, however, poverty continued to decline despite near-stagnation in the child mortality rate, making it difficult to draw any conclusion about the relationship between these two indicators.

4.3.4. The health sector: Conclusions

We have found no strong relationships between the different monitoring steps in the health sector. The overall increase in input was paralleled by deterioration in one output indicator, stagnation in a second, and an improvement in a third. Two of the outcome indicators improved during the first half of the period, but have since stagnated or even worsened, while impact indicators have improved steadily throughout the period.

This lack of relationships raises several questions for consideration: Are the indicators chosen adequate to measure the overall development of the health sector? To what extent have private investments influenced the sector? And what other factors have been of importance? Knowing that most people would prefer to go to a private health clinic whenever they fall sick, but that only 8% can afford to do so (UBOS, 2003), there are obvious and important challenges to be faced within this sector.

4.4. The monitoring steps for the education sector

4.4.1. Sector allocation
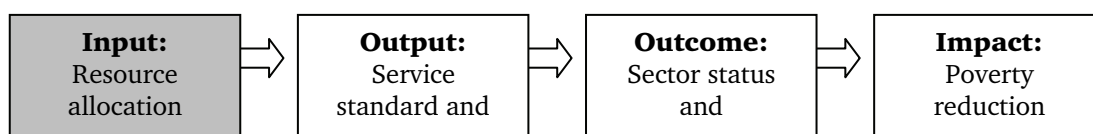
Similar to the previous section, we have chosen the following two indicators for input in the education sector:

- Public expenditure to education as a share of total public expenditures. This indicator shows the commitment of the government.
- Public expenditure on primary education per capita. The first indicator does not show the actual

resources allocated and is therefore not well designed for comparisons with the output. This indicator shows how much the real resource allocation in the sector constitutes. Uganda Shillings have been converted to constant 1995 prices.

Figure 4.8.a. Education input: Share of public expenditure spent on education (%), 1990-2003

Year	Edu Exp
1990	14
1991	13
1992	14
1993	12
1994	10
1995	11
1996	9
1997	11
1998	10
1999	12
2000	15
2001	12
2002	11
2003	10

Edu Exp:
Share of public expenditure spent on education (%)
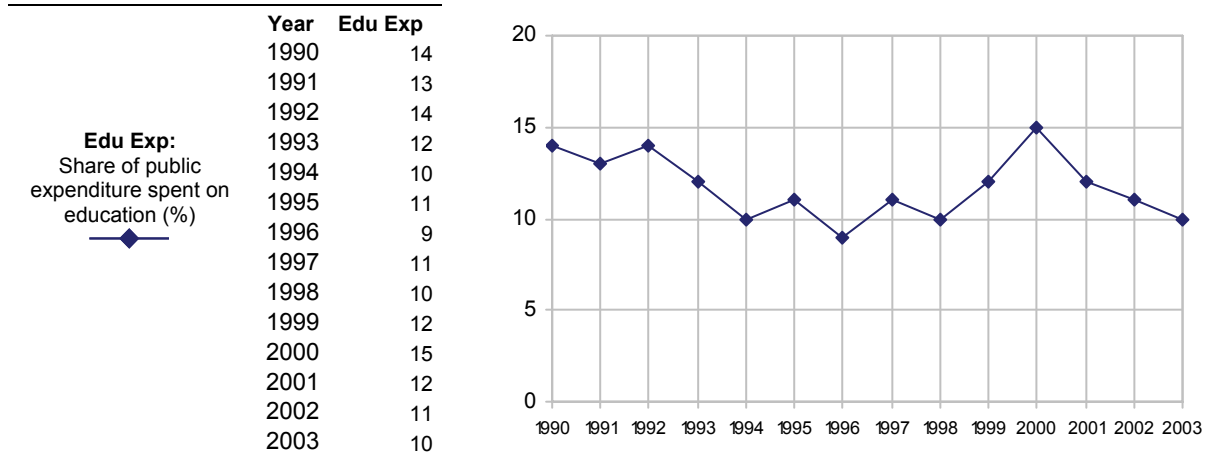
Figure 4.8.b. Education input: Public expenditure on primary education per capita, constant 1995 USh, 1990-2003

Year	Exp/cap
1990	2 657
1991	2 608
1992	3 097
1993	3131
1994	3 078
1995	3 377
1996	2 596
1997	3 042
1998	3 268
1999	4 968
2000	5 829
2001	5 264
2002	5 808
2003	4 666

Exp / Cap:
Public expenditure on primary education per capita
(constant 1995 USh)
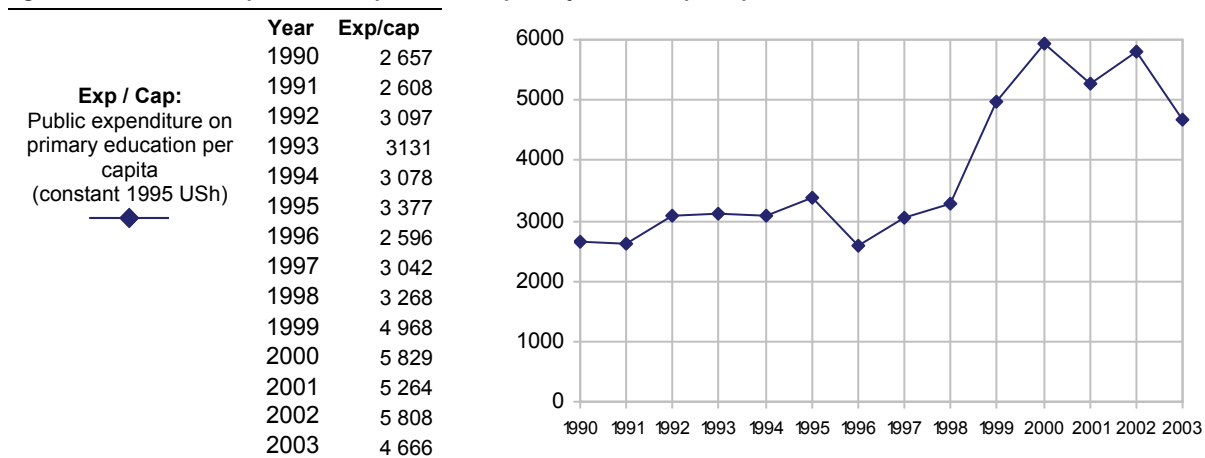
As these figures show there has been a continuous commitment to provide resources to the education sector, same as in the health sector. The allocation to the education sector has, however, been more volatile. The education reform was implemented in 1996 aiming both to decentralize and strengthen the educational sector. But in reality, the resource allocation fell and it took some years before the reform was really implemented, but then resources was not only increased, but an increased share reached the local schools and less remained in the central and district bureaucracy. The information campaign to publish the allocation for each school helped to ensure a pressure by parents and the local community that resources really reached each school and was used as intended for the local education. The commitment increased year by year to year 2000, but has since fallen back.

4.4.2. Service standard and use

Input: Resource allocation	→	**Output:** Service standard and	→	**Outcome:** Sector status & achievements	→	**Impact:** Poverty reduction
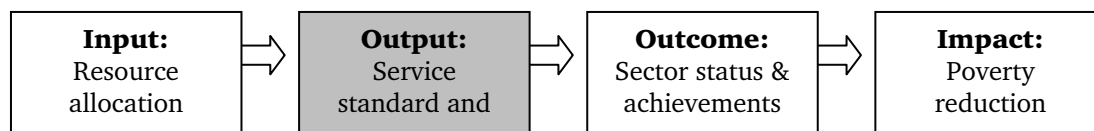
Within the education sector, school enrolment is the most important part of service provision in education. We have chosen three indicators to measure service standard and use:

- The *net enrolment rate* (MDG indicator 6) is the percentage of children in primary school ages attending primary school. Net enrolment varies by definition from 0 to 100 per cent, and indicates the proportion of children at school age (6-13) actually enrolled in school (NSO, 2002). But some pupils misstate their real age; therefore, children who are over-aged might well be included. This could theoretically press the indicator above 100.
- The *pupil-teacher ratio* is defined as the number of students per teacher.
- The *ratio of girls to boys at the primary level* expresses how many girls are enrolled in primary schools per 100 enrolled boys.

Figure 4.9.   Education output: Enrolment, pupil / teacher ratio, girl / boy ratio, 1990-2003

Year	P/T	NER	G/B
1990	28		
1991	32		
1992	27	61	
1993	27	67	
1994	31	66	
1995	35	67	
1996	62		86
1997	51	84	87
1998	60		90
1999	57		90
2000	59	84	93
2001	54		96
2002	53	86	98
2003	52		

P/T Pupil-teacher ratio (primary level)

NER - Net enrolment ratio (primary level, %)

G/B Ratio of girls to boys (primary level, %)
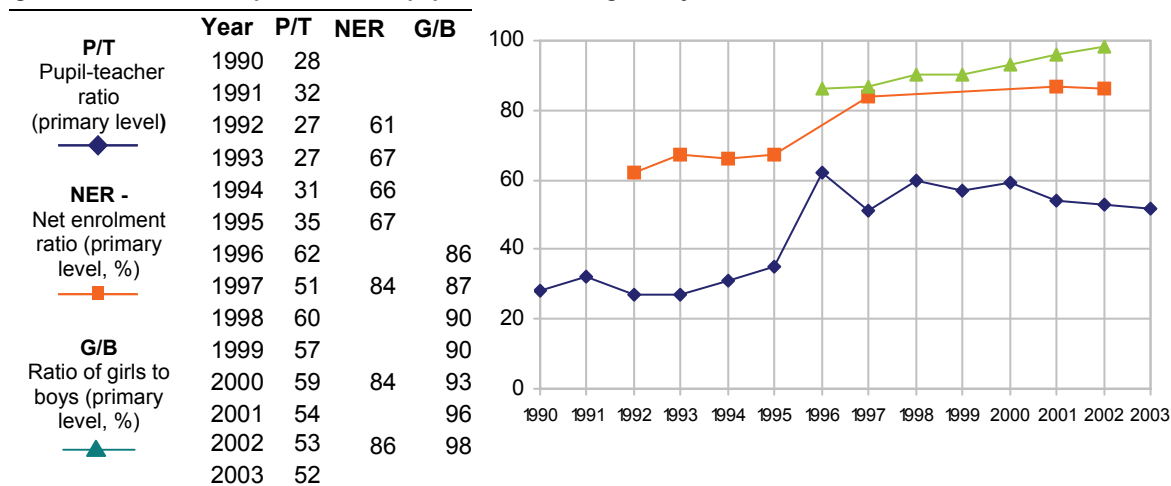
Figure 4.9 shows different trends for the different indicators. Enrolment rates increased steadily throughout the period, the biggest increase being between 1995 and 1997, when the rate went up by more than 15 percentage points. This influx was paralleled, not surprisingly, by a deterioration in terms of number of pupils per teacher, but this ratio has since improved. This indicates that investment in the sector was spent on hiring more teachers at the primary level.

The girl-boy ratio has improved steadily throughout the period, and today there are no sex differentials. The somewhat mixed picture painted by figure 4.12 is reflected in Ugandan people's perceptions about education: While 91% agree that UPE has increased the number of children in school, only 42% think that the quality of primary education is better now than before 1996 (UBOS, 2003).

4.4.3. Sector outcome

Input: Resource allocation	→	**Output:** Service standard and	→	**Outcome:** Sector status and	→	**Impact:** Poverty reduction
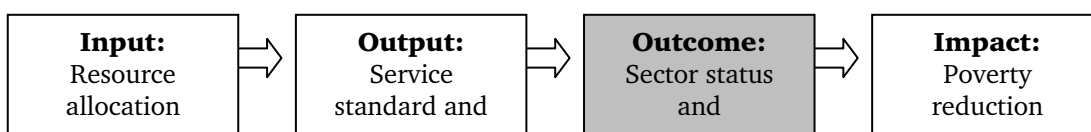
The main impact of school enrolment is a long-term reduction in illiteracy. This could be measured already in school age by the share of children enrolled in school in grade 1 who reach grade 5 or by the literacy level of adults - either young adults (15-24 years of age) or all adults. One might of course also monitor a higher aim such as the share of children enrolled in grade one who passes the primary school exam some years later.

For the MDGs, two literacy indicators are chosen. First the so-called completion rate, i.e. the share of each cohort who attend school long enough to ensure literacy, measured as the share who reaches grade five; second, the literacy rate among 15-24-year-olds. While the latter is measured by most surveys, the former requires a cohort approach by tracking the share of pupils at a given grade last year and record whether they continued in the next grade, repeated the grade or left school. Based upon administrative records, it is

however possible to monitor a proxy indicator, being the ratio of pupils in grade 5 versus pupils in grade 1 and the ratio registering or passing the primary school leaving exam. Hence in Uganda, the following indicators are monitored:

- *Completion ratio*: A proxy indicator for the cohort method monitoring the share of each cohort reaching at least grade 5 (MDG indicator 7a): The number of pupils enrolled in grade 5 divided by the number of pupils enrolled in grade 1. The ratio could be gross or net ratio, the latter excluding the repeaters in both grade 1 and 5.
- *Literacy rate, 15-24-year-olds* (MDG indicator 8): A literate person is defined as a person who can both read and write.
- The *ratio of literate women to literate men, 15-24-year-olds* (MDG indicator 10) is calculated by dividing the number of literate females by the number of literate males, multiplied by 100.

Figure 4.10. Education outcome: Proxy completion ratio - ratio of children enrolled in grade 5 / grade 1 (%), 1990-2003

Net P5/P1 Ratio of children enrolled in grade 5 divided by grade 1 excluding repeaters in both grades (%)	Year	Net P5 /P1	Gross P5/P1
	1990		
	1991		
	1992		
	1993		
	1994		
	1995		
	1996		41
Gross P5/P1 Ratio of children enrolled in grade 5 divided by grade 1 including repeaters in both grades (%)	1997		21
	1998		33
	1999		41
	2000	46	44
	2001	51	49
	2002	51	49
	2003	51	50
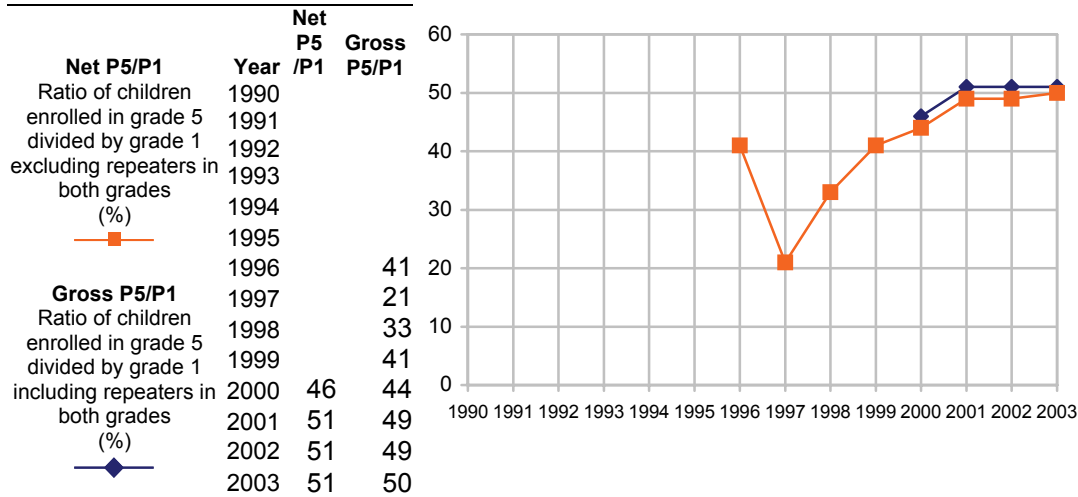
Figure 4.11. Education outcome: Literacy, 15-24-year-olds (%), 1990-2003

LR Literacy rate, 15-24 year-olds (%)	Year	LR	F/M Lit
	1990		
	1991		
	1992	75	83
	1993	76	84
	1994		
F/M Lit Ratio of literate females to males, 15-24 year-olds (%)	1995	72	82
	1996		
	1997	74	86
	1998		
	1999		82
	2000	77	
	2001		
	2002		
	2003		
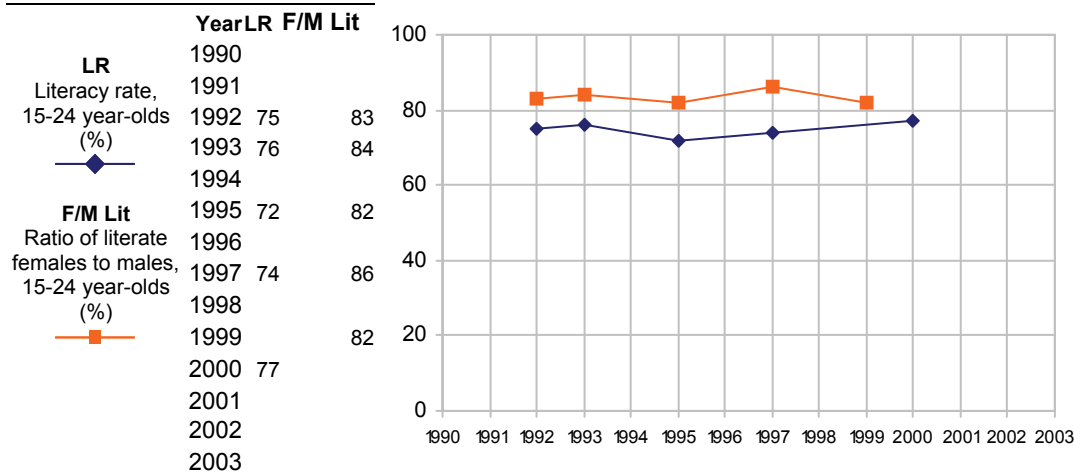
As figure 4.10 shows, the completion ratio dropped dramatically in 1997, due to the big influx of pupils starting grade 1. Since then, however, it quickly increased, and over the last 3 years, it has stabilised at around 50%. Figure 4.11 informs us that literacy rates have remained fairly stable. There are more illiterate women than men, which is hardly surprising, given that more boys than girls attend school.

4.5. Education: Are changes at one level followed by changes at the next?

4.5.1. From resource allocation to service standard and use
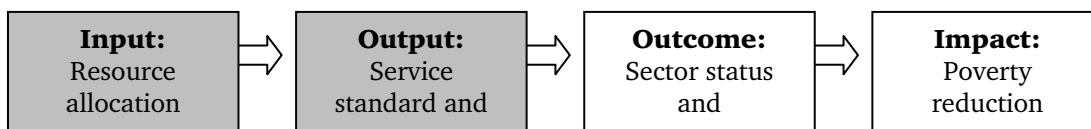
In exploring this relationship, we expect that resources allocated to the education sector will affect the scope and quality of services offered. The expectation is that increased investment in the education sector will correspond to an increase in net enrolment and a lower pupil-teacher ratio.

Figure 4.12. Education: Input - output, 1990-2003

Year	Exp/cap	NER	P/T
1990	2 657		28
1991	2 608		32
1992	3 097	62	27
1993	3 131	67	27
1994	3 078	66	31
1995	3 377	67	35
1996	2 596		62
1997	3 042	84	51
1998	3 268		60
1999	4 968		57
2000	5 829		59
2001	5 264	87	54
2002	5 808	86	53
2003			52

Exp / Cap:
Public expenditure on primary education per capita (constant 1995 USh)

NER
Net enrolment rate, primary level (%)

P/T
Pupil/ teacher ratio, primary level
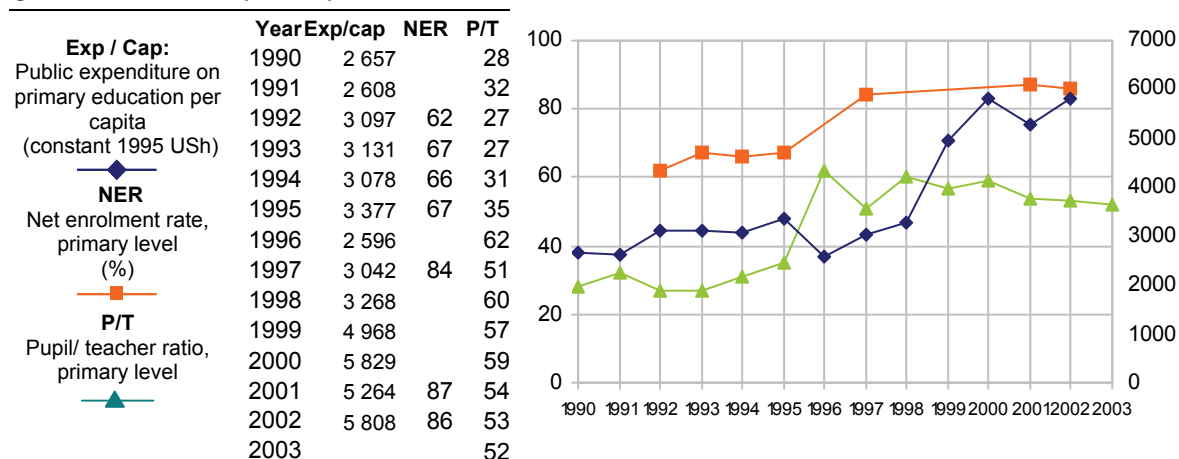
As we see from figure 4.12, there has been no direct relationship between input and output in Uganda during the period examined here. The promised increase in resources allocated to the sector did not fully materialise until 1998 onwards, while the net enrolment rate improved considerably already between 1996 and 1997. The pupil-teacher ratio, on the other hand, started improving parallel to the increase in the allocation of resources; something that might indicate that money was spent hiring more teachers.

4.5.2 From service standard and use to outcome

Input: Resource allocation	⇨	**Output:** Service standard and	⇨	**Outcome:** Sector status and	⇨	**Impact:** Poverty reduction
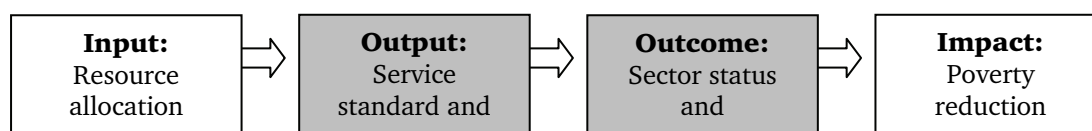
It is expected that high rates of *net enrolment* in primary school will correspond to high *literacy rates for 15-24- year-olds* in the long run. However, given our limited time frame, it would be unreasonable to expect a significant relationship. The pupils who were enrolled in 1996, for instance, will not have reached age 15 by 2002, and will therefore not influence our literacy rate.

Figure 4.13.a. Education: Output - outcome, 1990-2003

Year	NER	LR
1990		
1991		
1992	62	75
1993	67	76
1994	66	
1995	67	72
1996		
1997	84	74
1998		
1999		
2000		77
2001	87	
2002	86	
2003		

NER
Net enrolment rate (%)

LR
Literacy rate, 15-24 year-olds (%)
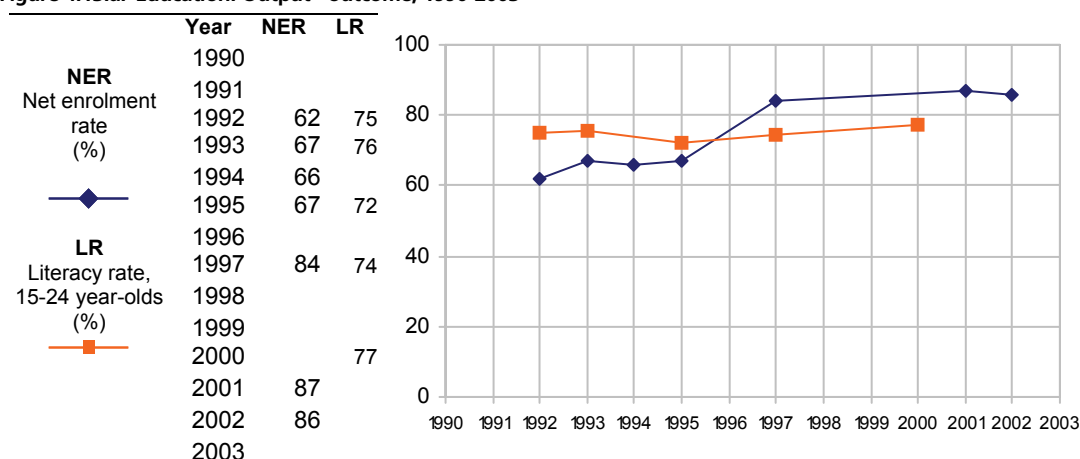
Figure 4.13.b. Education: Output - outcome, 1990-2003

Year	G/B	F/M Lit
1990		
1991		
1992		83
1993		84
1994		
1995		82
1996	86	
1997	87	86
1998	90	
1999	90	82
2000	93	
2001	96	
2002	98	
2003		

G/B
Ratio of girls to boys (primary level, %)

F/M Lit
Ratio of literate females to males (15-24 year-olds)
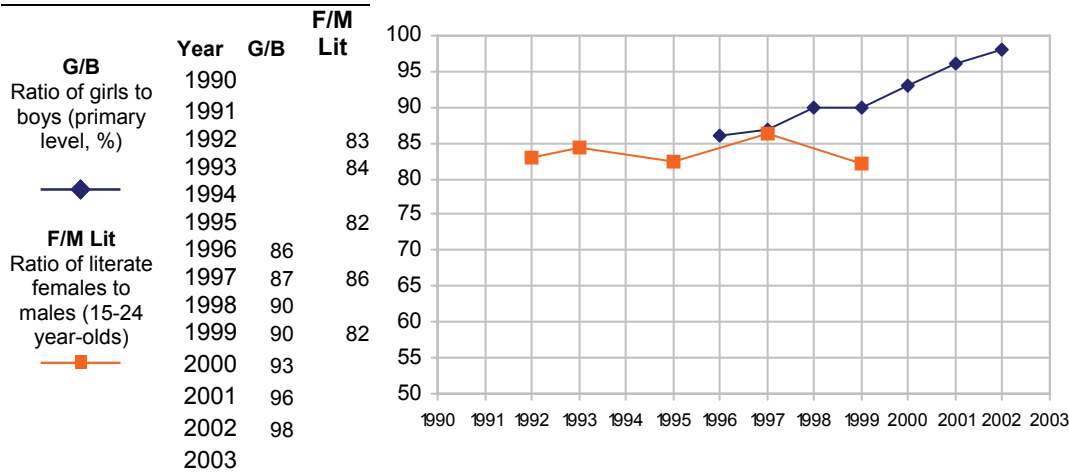
As expected, figure 4.13a reveals that there has been no strong relationship between net enrolment and literacy rate within this time frame. The government's aim is to increase literacy rates for both men and women to 85% by 2009/2010. Although there is some way to go before reaching that goal, the impact of the UPE has not yet fully materialised, and given the increase in enrolment rates in the mid-90s, it is reasonable to believe that literacy rates will continue to increase over the coming years. Likewise, following the increase in the ratio of girls to boys in primary schools (figure 4.13b), the female-to-male literacy ratio can be expected to increase over the years to come.

4.5.3. From outcome to poverty reduction

Input: Resource allocation	⇨	**Output:** Service standard and	⇨	**Outcome:** Sector status and	⇨	**Impact:** Poverty reduction
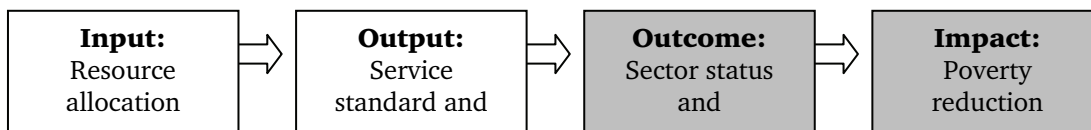
For this relationship, the outcome (*literacy rate*) is expected to have a direct relationship with the impact (*poverty incidence*). The expectation is that high literacy rates correspond to low poverty incidence; in other words, that there exists a negative relationship.

Figure 4.14. Education: Outcome - impact, 1990-2003

Year	LR	PI
1990		
1991		
1992	75	
1993	76	56
1994		51
1995	72	50
1996		49
1997	74	44
1998		
1999		
2000	77	35
2001		
2002		
2003		

LR
Literacy rate, 15-24 year-olds (%)

PI
National poverty incidence (% under national poverty line)
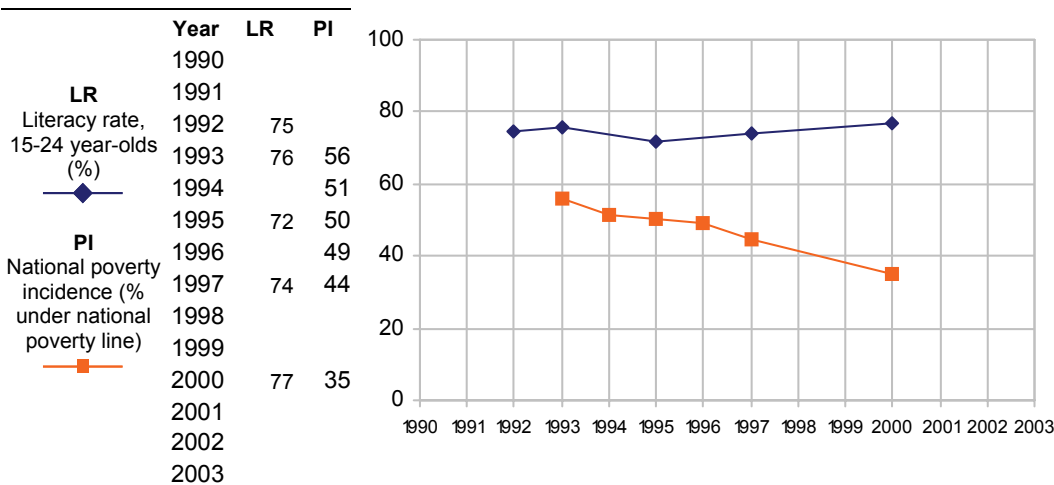
Figure 4.14 shows that both outcome and impact improved throughout the period, fitting with our expectations. The improvement in terms of impact is considerably larger than that on the outcome level, reflecting that many factors may contribute to poverty reduction.

4.5.4. Education: Conclusions

Input in this sector remained fairly stable until 1998, but has since increased substantially. One output indicator (the pupil-teacher ratio) suffered an overall deterioration over the period; another (the net enrolment rate) improved considerably. Two of the three outcome indicators improved, while one (the female-to-male literacy ratio) remained unchanged.

In summary, there have been improvements - if modest ones - on all steps in Uganda's education sector. Hence, while the available data does not allow us to conclude that there are direct, significant relationships between the different monitoring steps, contrary to the health sector, there seems to be no reason to question the effects of resources allocated for the education sector.

4.6. The water and sanitation sector

4.6.1. Sector allocation

Input: Resource allocation	→	Output: Service standard and	→	Outcome: Sector status and	→	Impact: Poverty reduction
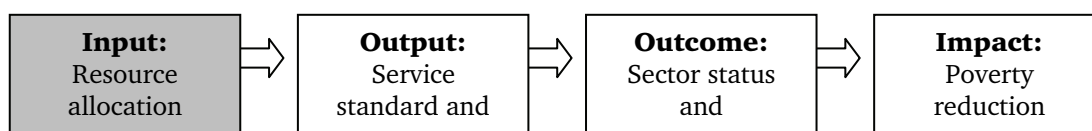
For the first monitoring step we present the same two indicators as in the previous sections:

- *Share of public expenditure spent on water and sanitation*. This indicator shows the commitment of the government to the water and sanitation sector.

- *Public expenditure for water and sanitation per capita*. This indicator is well designed for comparisons of real resource allocation.

Figure 4.15.a. Water and sanitation input: Share of public expenditure spent on water and sanitation, %, 1990-2003

Wat Exp
Share of public expenditure on water and sanitation (%)

Year	Wat Exp
1990	
1991	
1992	
1993	
1994	
1995	
1996	
1997	
1998	0.1
1999	0.1
2000	1.6
2001	2.1
2002	2.2
2003	2.3
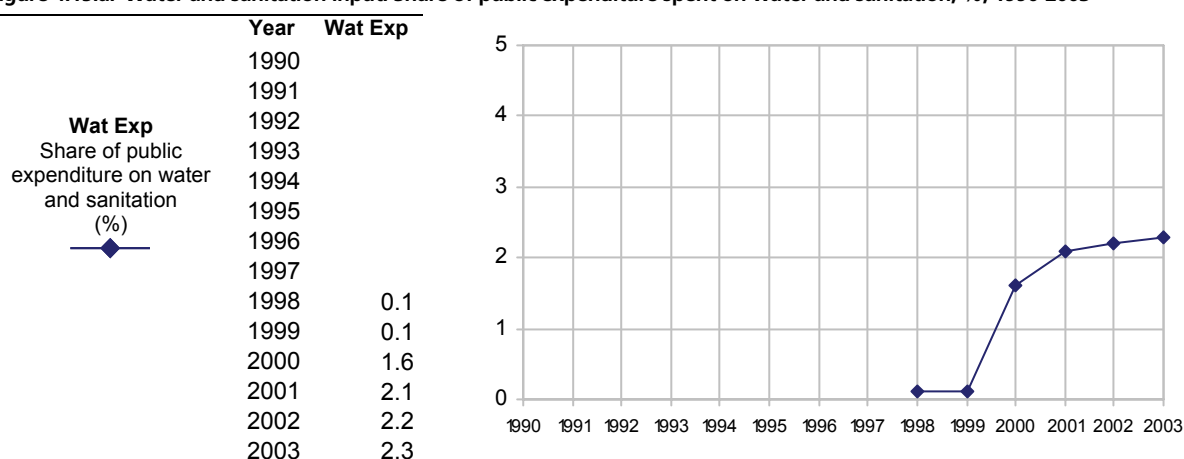
Figure 4.15.b Water and sanitation input: Public expenditure on water and sanitation (1997 USh) per capita, 1990-2003

Exp / Cap
Public expenditure on water and sanitation, per capita (1997 USh)

Year	Exp/Cap
1990	
1991	
1992	
1993	
1994	
1995	
1996	
1997	
1998	45
1999	51
2000	827
2001	1 149
2002	1 453
2003	1 528
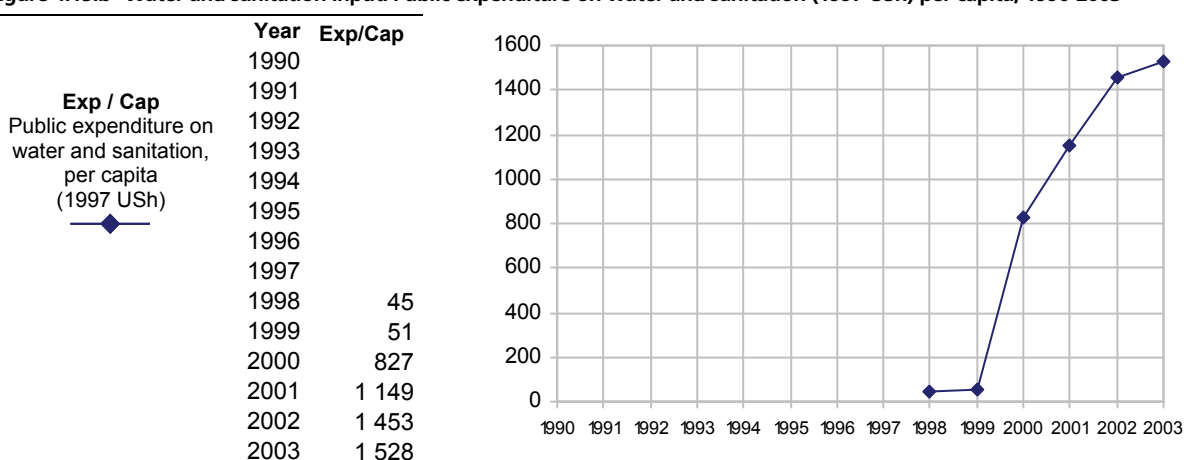
These series changed from 2000 to include the full development costs. Figure 4.15a shows a steadily increasing commitment from this year. On a per capita basis, the growth rate has been even larger showing almost a doubling from 2000 to 2003 (figure 4.15b). The level is, however, still quite low, at around USh 1500 per capita.

4.6.2. Service standard and use

Input: Resource allocation	⇒	Output: Service standard and	⇒	Outcome: Sector status and	⇒	Impact: Poverty reduction
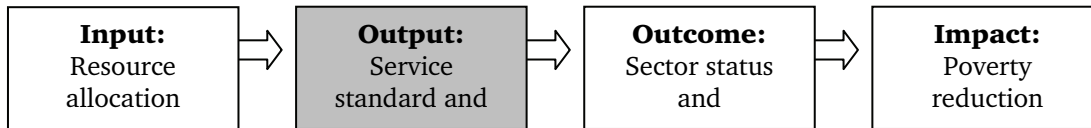
To measure output in the water and sanitation sector, two indicators are presented: *access to safe water* and *access to safe sanitation facilities*. Standard population censuses, health surveys and general household surveys usually collect information on a household's main source of water. It should be noted that while we have chosen to use the term "safe", many surveys operate with the word "improved". In reality, there is no practical difference between the two.

- *Access to safe water* (MDG indicator 30*)*: Percentage of households with access to safe water i.e. piped water, protected wells, springs or boreholes.
- *Access to safe sanitation facilities* (MDG indicator 31*)*: Percentage of households with access to safe sanitation.

Figure 4.16. Water and sanitation output: Access (%), Uganda 1990-2003

Year	Acc Wat	Acc San
1990		
1991		
1992		
1993		77
1994		
1995		
1996	50	84
1997		81
1998		
1999		
2000	57	85
2001		82
2002	68	87
2003		

Acc Wat Households with access to safe water[1] (%)

Acc San Households with access to safe sanitation (%)
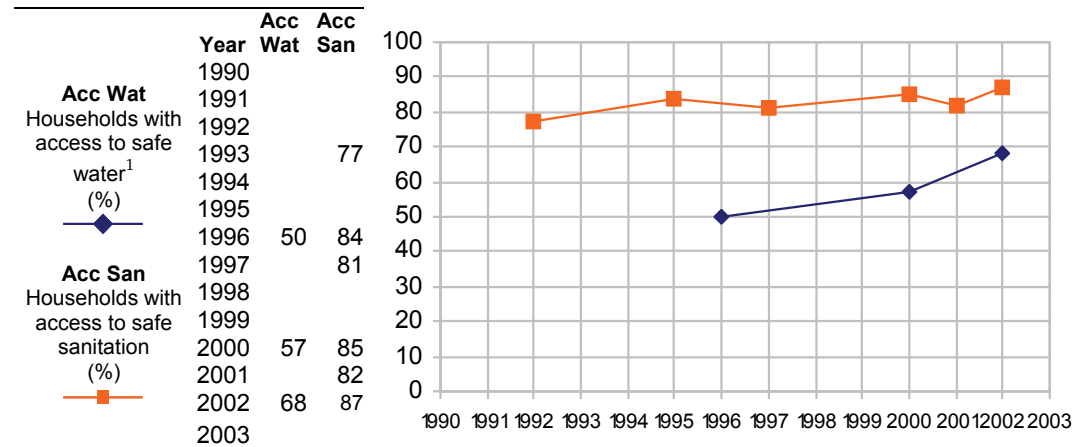
[1] It should be noted that figures on access to safe water vary widely, probably due to differences in definitions. These numbers are taken from UNHS; MoH, meanwhile, estimate the number for 2002 to be no higher than 47%.

Figure 4.16 reveals that more households have access to safe sanitation than to a safe water source. Furthermore, this period has witnessed improvements in both areas during the period. There are serious data gaps concerning access to safe water source, with data available only for three years.

4.6.3. Sector outcome

Input: Resource allocation	⇒	Output: Service standard and	⇒	Outcome: Sector status and	⇒	Impact: Poverty reduction
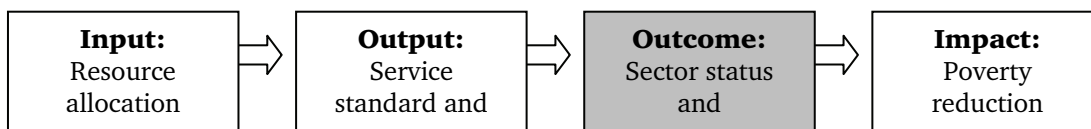
An improvement in water and sanitation services is expected to affect the outcome in the health sector, that is improved health in general and a decline in the incidence of diarrhoea in particular. The most important consequence of unsafe sanitation is the risk of contracting waterborne diseases, of which diarrhoea is the most prevalent. Research findings show that incidence of diarrhoea can measure the outcome for both water and sanitation improvement.

Unfortunately, there is no single, internationally agreed indicator for diarrhoea prevalence; both the age group and the time frame vary between different surveys, making it difficult to make comparisons over time.

- *Incidence of diarrhoea* is defined as children under five having contracted diarrhoea during the 2 weeks preceding the survey.

Figure 4.17. Water and sanitation outcome: Prevalence of diarrhoea, 1990-2002

Year	Diarrhoea
1990	
1991	
1992	
1993	
1994	
1995	24
1996	
1997	
1998	
1999	
2000	20
2001	
2002	
2003	

Diarrhoea
Prevalence of diarrhoea, children under 5 (%)
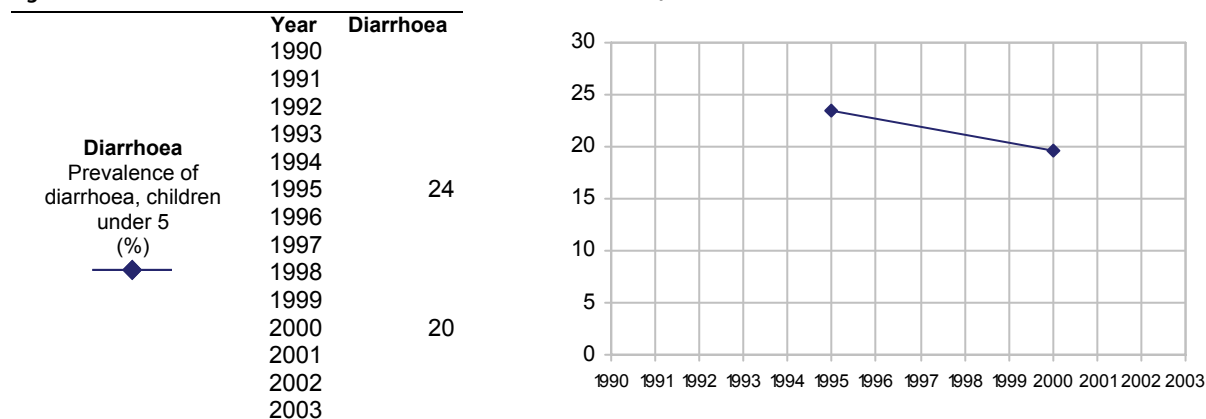
From the scarce data available presented in figure 4.17, we see that prevalence of diarrhoea decreased by five percentage points between 1989 and 1995, but since then, there has been little improvement.

4.7. Water and sanitation: Are changes at one level followed by changes at the next?

4.7.1. From resource allocation to service standard and use

Again, the expectation is that investment in the sector will produce more output; this time expressed as better access to safe water source and safe sanitation facilities.

Figure 4.18. Water and sanitation: Input - output, 1990-2003

Year	Exp/ CA[14]	Acc wat	Acc san
1990			
1991			
1992			77
1993			
1994			
1995			84
1996		50	
1997			81
1998	0.45		
1999	0.51		
2000	8.27	57	85
2001	11.49		82
2002	14.53	68	87
2003	15.28		

Exp/CA
Water supply expenditure per capita (PPP$)

Acc wat
Households with access to safe water (%)

Acc san
Households with access to safe sanitation (%)
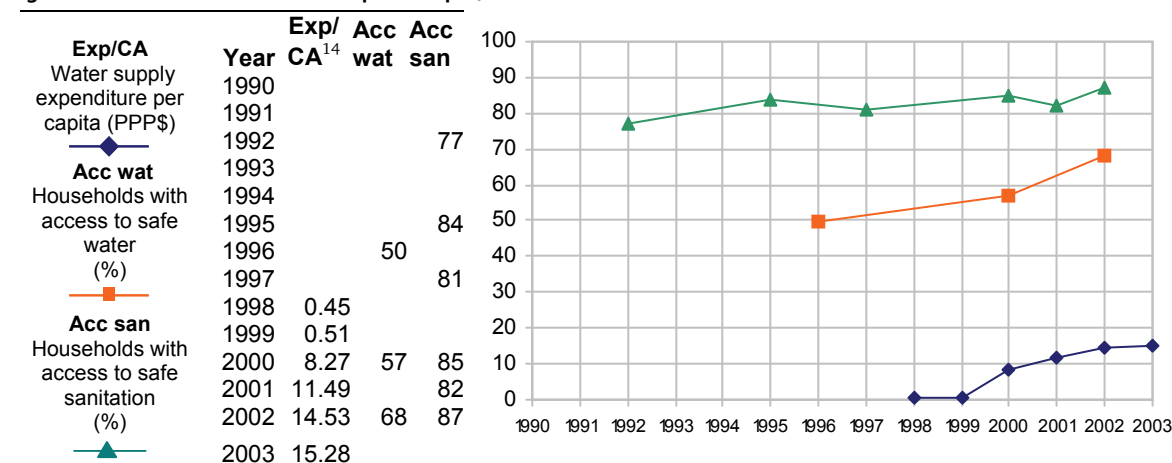
As figure 4.18 illustrates, it is problematic to judge whether there exists a positive relationship between input and output seeing as input data are only available for the last six years of the period, while output data are not available after 2000.

4.7.2. From service standard and use to outcome

| **Input:** Resource allocation | → | **Output:** Service standard and | → | **Outcome:** Sector status and | → | **Impact:** Poverty reduction |
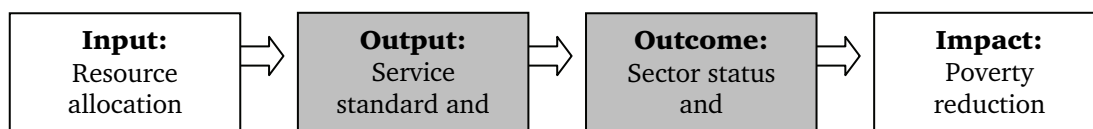
Output in the health sector, i.e. access to water and sanitation facilities is expected to affect the outcome, i.e. the incidence of diarrhoea.

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[14] For presentation purposes, these expenditure numbers are given in 100 USh.

Figure 4.19. Water and sanitation: Output - outcome, 1990-2003

	Year	Acc wat	Acc san	Diarr-hoea
Acc wat Households with access to safe water (%)	1990			
	1991			
	1992		77	
	1993			
Acc san Households with access to safe sanitation (%)	1994			
	1995		84	24
	1996	50		
	1997		81	
	1998			
Diarrhoea Prevalence of diarrhoea, children under 5 (%)	1999			
	2000	57	85	20
	2001		82	
	2002	68	87	
	2003			
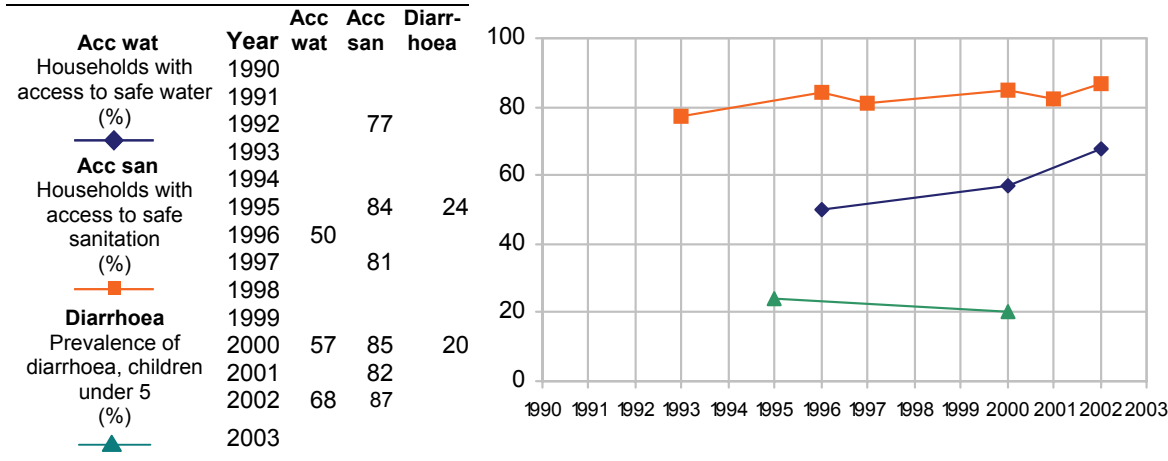
Figure 4.18 neither confirms nor disproves our expectations: while access to both water and sanitation improved over the period, outcome in terms of diarrhoea prevalence decreased throughout the period, although only very modestly after 1995. It is reasonable to believe that there is in fact a significant causal relationship between output and outcome, but more regular data are needed in order to positively confirm this relationship.

4.7.3. From outcome to poverty reduction
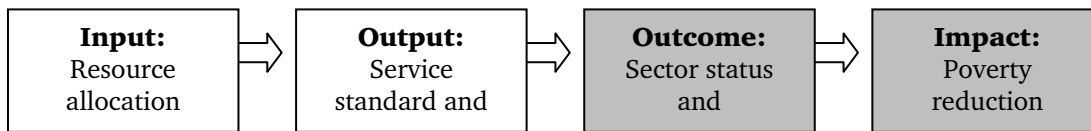
In this section, we explore whether improvements in the water and sanitation sector are followed by reduced poverty indicators, i.e. *poverty incidence* based on the national poverty line.

Figure 4.20. Water and sanitation: Outcome - impact, 1990-2003

	Year	Diarrhoea	PI
	1990		
Diarrhoea Prevalence of diarrhoea, children under 5 (%)	1991		
	1992		
	1993		55
	1994		51
	1995	24	50
	1996		50
PI National poverty incidence (%)	1997		44
	1998		
	1999		
	2000	20	34
	2001		
	2002		38
	2003		
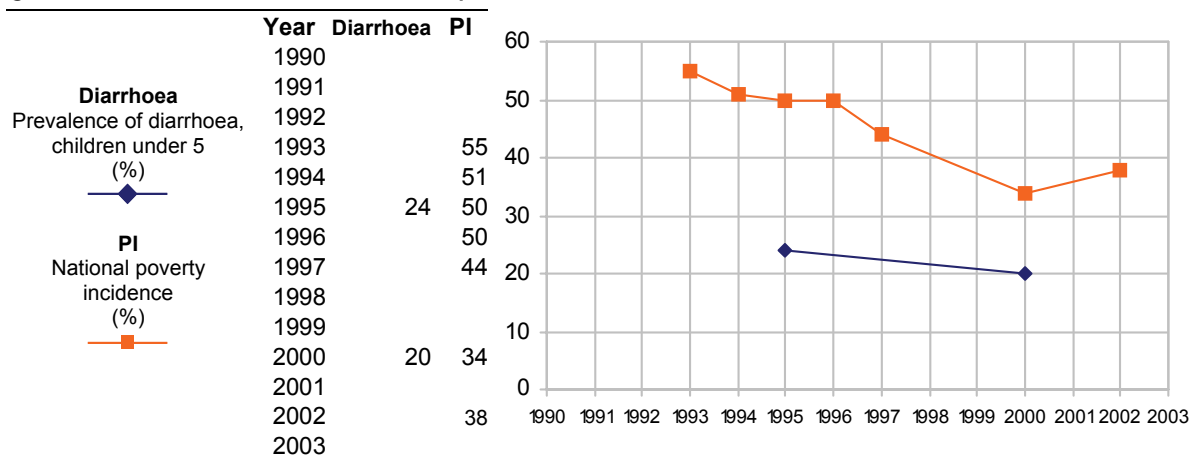
We see from figure 4.20 that the expected positive relationship between poverty and diarrhoea is present in Uganda, as both fell steadily throughout the period.

4.7.4. Water and sanitation: Conclusions
In Uganda's water and sanitation sector, there have been improvements in terms both of input, output, outcome and impact. In other words, in contrast to the previous two sectors, the water and sanitation sector behaved according to our expectations on all four monitoring steps, the possible expectation being the relationship between input and output, where data gaps make it difficult to draw conclusions.

4.8. The feedback step: Poverty reduction and economic development

| Input: Resource allocation | ⇒ | Output: Service standard and | ⇒ | Outcome: Sector status and | ⇒ | Impact: Poverty reduction |

Economic development
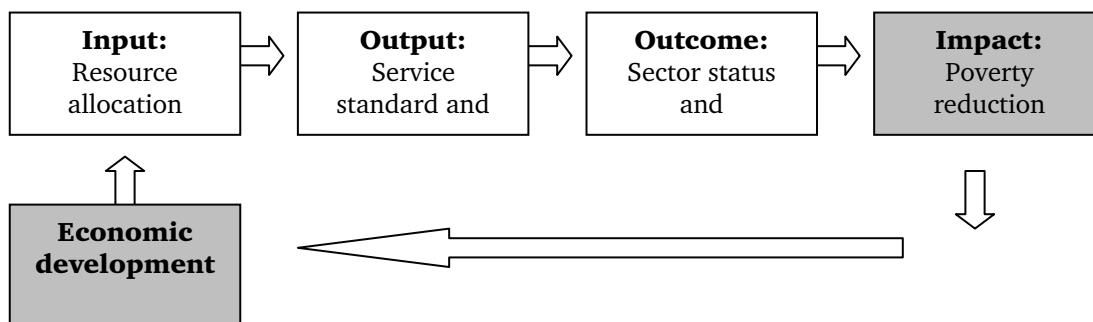
The desired impact of all inputs (investment in the different sectors) is poverty reduction with the goal of spreading the effects of investment. Our purpose with this section is to show how poverty change is distributed in the population. *Gross domestic product per capita* is the indicator chosen to reflect the economic development of Uganda. This indicator is based on the GDP total for the country in constant 1995 PPP$ divided by the total population. It should be

noted that any potential causal relationship between poverty incidence and GDP/capita can work in both directions: A decrease in poverty can induce improved economic output, and economic growth can alleviate the burden of poverty - what is often referred to as the 'trickle down-effect'. In any case, given our restricted time scope, this relationship should only be interpreted with great caution.

Figure 4.21. The feedback step: Economic development, 1990-2003

Year	PI	PG	GDP/cap
1990			877
1991			892
1992			903
1993	55	20	934
1994	51	17	966
1995	50	16	1 046
1996	50	16	1 109
1997	44	14	1 130
1998			1 152
1999			1 209
2000	34	10	1 265
2001			1 305
2002	38	11	1 350
2003			1 376

PI: National poverty incidence (%)

PG: Poverty gap, (%)

GDP/cap: GDP per capita, (constant 2000 $)
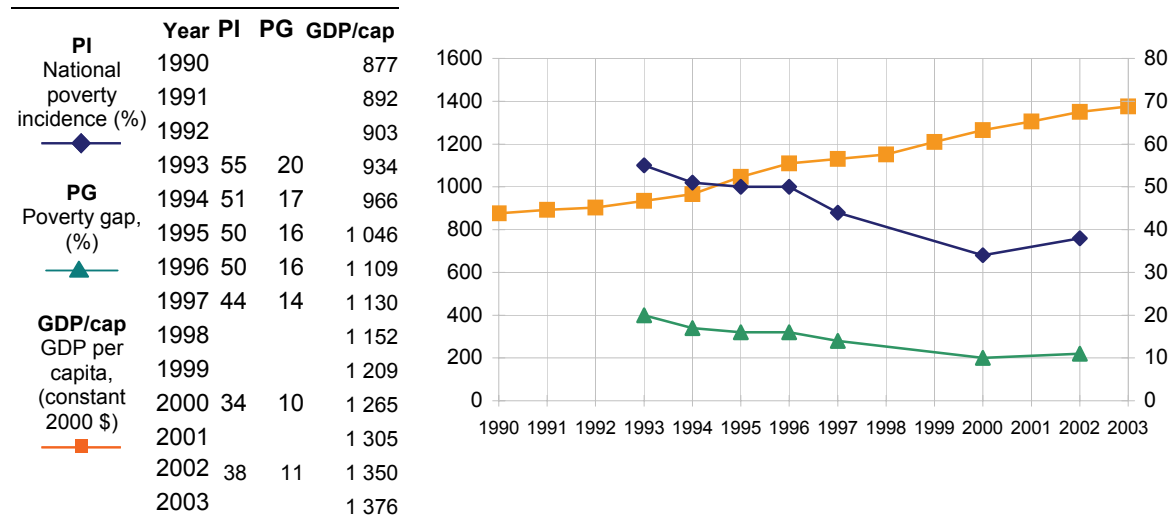
As noted in section 4.1.2, poverty decreased in Uganda over the period until 2000. GDP per capita increased throughout the period. However, poverty started to increase again after 2000, despite a sustained GDP per capita increase. From this observation, along with the fact that inequality has increased substantially over the same period (see section 2.3.2), we can conclude that

although there seems to be a certain empirical, negative relationship between poverty and economic development, this relationship is neither perfect nor causal; there is no guaranteeing that the benefits of economic growth is distributed equally among the poor.

5. Presentation of district level statistics for Uganda

5.1. Review of available data

With the decentralisation in the second half of the 1990s, the need for data at district level has grown accordingly. The central government needs to monitor information of resource allocation, sector outputs, sector outcomes and poverty and development impact across all districts. The new district authorities have a need both to monitor the situation in their own district and to learn about the situation in neighbouring district and other districts across the country. This has created a huge challenge for UBoS and the national statistical system. At the current stage, only the Population and Housing Census and administrative records for some sectors - such as public resource allocation, health and education - are compiling and publishing such information and still not always in a systematic manner. There is also a problem of relying solely on administrative information if the same institutions or even the same officers are both implementing public services and collecting information on performance. It might be too tempting to collect statistics for areas where the performance is good rather than in a statistical fashion. Uganda might learn something from a certain neighbouring country in Eastern/Southern Africa, where the ministry of agriculture presented statistics showing a better than average harvest when a famine was indeed evolving. That biased information led to a far too late action from the government and donors, added to the already large death toll and should not be allowed to repeat itself. Hence for any information on outcomes and impact, survey data are needed. But survey programs such as PASS for agriculture, UDHS for health and demography and UNHS across sectors are still not able to give district level statistics. At this stage survey information is only available on an ad hoc basis in some districts. Hence only Census information may provide statistical information of outcome and impact at district level.

For users who want to follow the trends over time there is also a technical challenge in presenting district level statistics caused by the change in number of districts over the last fifteen years, from 26 in 1990 to 56 in 2002. Some districts[15] only came into existence in 2000, others[16] in 2001. The reader will also learn that there are several data gaps, mostly from districts located in areas in the North and Northeast and some border districts near conflict zones (in the Western region).

Hence in this chapter, the focus is on the distributional statistics rather than trends. As far as data allows, district level statistics are presented, but in many cases data are only available at regional level.

5.2. Monitoring steps for the health sector by district

5.2.1. Sector allocation

Input: Resource allocation	**Output:** Service standard and	**Outcome:** Sector status and	**Impact:** Poverty reduction

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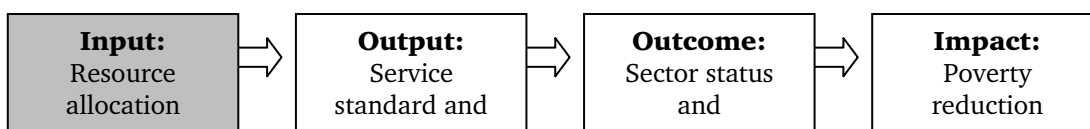
[15] Yumbe, Pader, Kaberamaido, Mayuge, Sironko, Kayunga, Wakiso, Kamwenge and Kyenjojo

[16] Nakapiripirit and Kanungu

As before, health recurrent expenditure per capita has been chosen for the first monitoring step at the district level, here measured in USh. Recurrent expenditures include all costs as salaries, expenses for drugs, material, and equipment; charges for services such as electric power and telephone; and maintenance costs etc needed to run and operate the health system from remote health stations to district offices. But investments such as construction of offices, clinics and staff houses are not included.

Figure 5.1.a. Health input: Recurrent expenses per capita, by district, USh, 2001
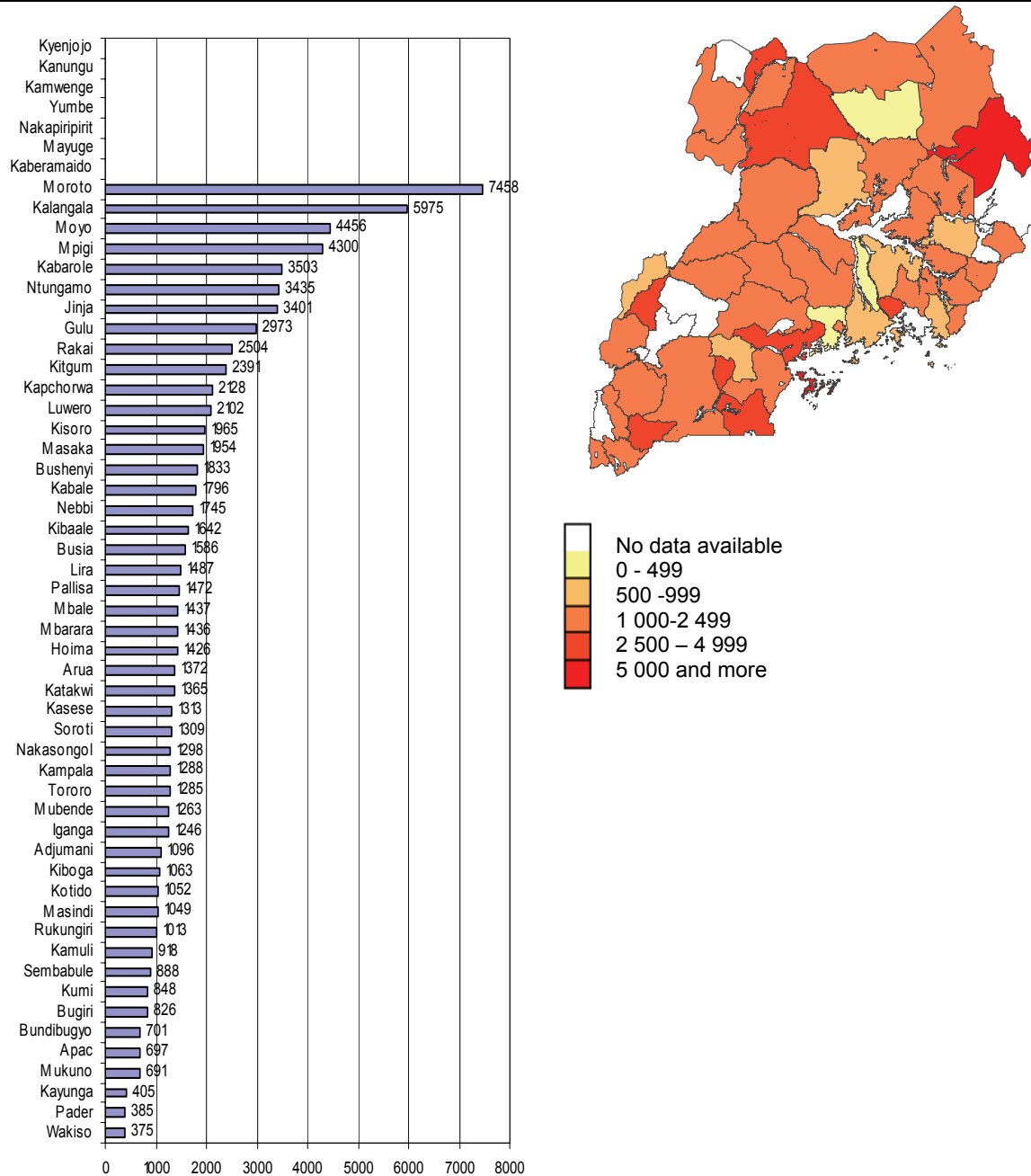
Figure 5.1.b. Health input: Recurrent expenses per capita, by region, USh, 2001
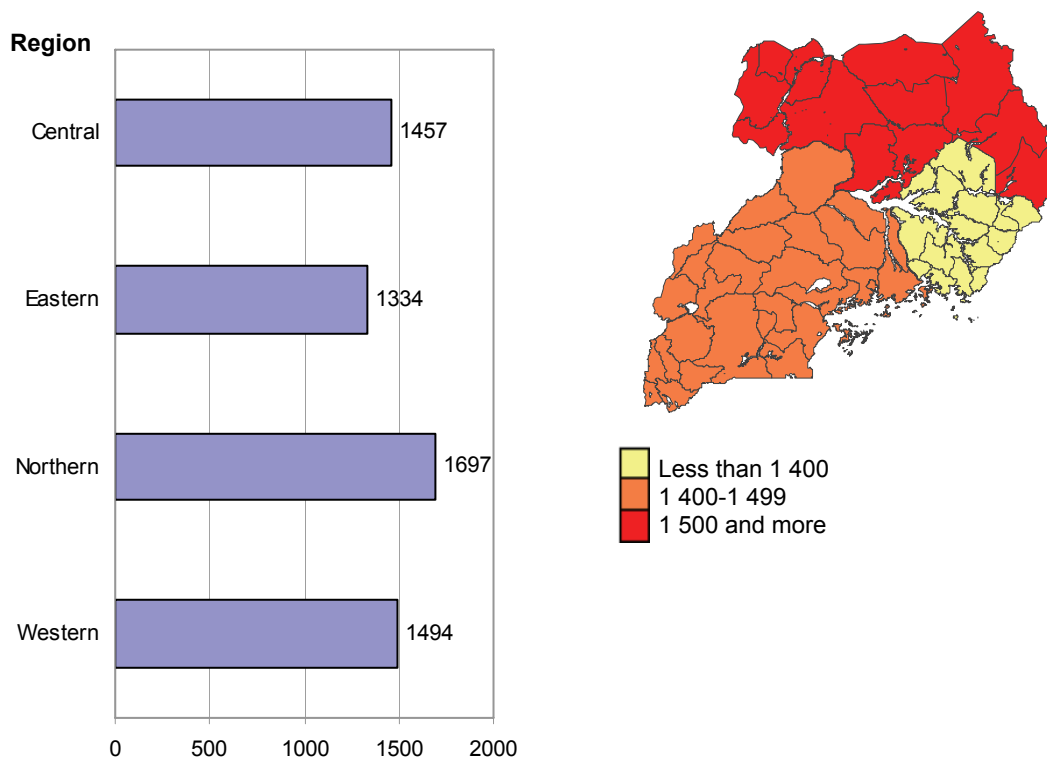
As figure 5.1.a shows, there are dramatic differences in the allocation of public health expenditure between the districts, ranging from 7458 USh - 25 PPP$ - per capita in Moroto in the East to a mere 375 USh - less than 1.5 PPP$ - in Wakiso in the Central region. The available data show that the Northern districts generally received more than the rest of the country, the biggest exception being Pader. On an aggregated regional level, however, the differences are much smaller, with the Eastern region spending the least on health (figure 5.1.b).

5.2.2 Service standard and use
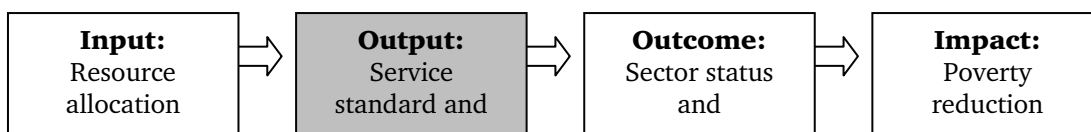
For the second monitoring step in the health sector, we present the same two indicators as on the national level: *total vaccination rate* and *births attended by skilled personnel*. No data are available at the district level; therefore we rely on regional data, and include a third, related indicator: *routine immunisation rates for measles*, based on administrative records and available on the district level.

Figure 5.2.a. Health output: Total vaccination coverage (%) by region, location of residence and sex, Uganda, 2000
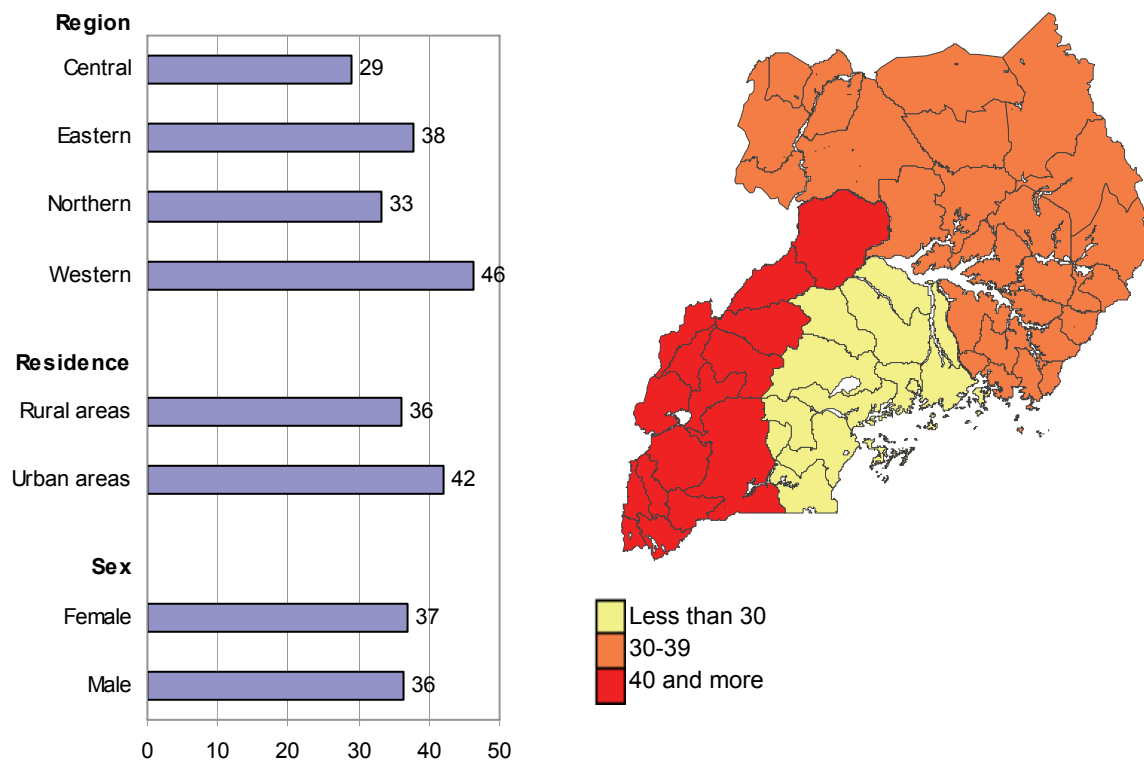
Figure 5.2.b. Health output: Routine immunisation rates[1] for measles (%), by district, Uganda, 2003
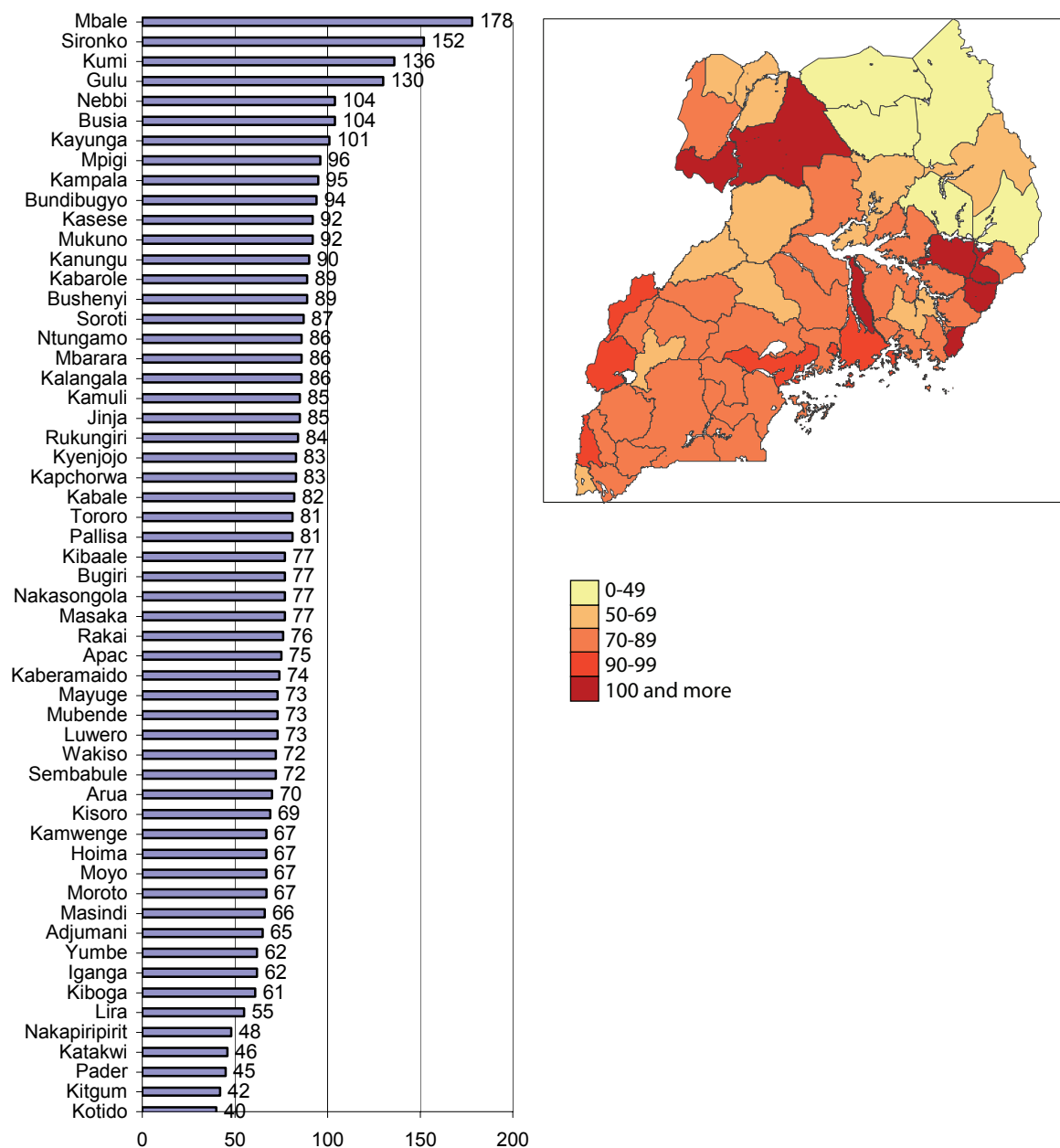
[1] Rates are gross-rates which are calculated as number of inoculations given divided by estimated number of children in district based upon estimates from the previous Census. If over age or under age children are vaccinated or some children are vaccinated twice, the rate will be too high. If there are more children in the target population group in a district than estimated the rate will again tend to be too high and possibly above 100 per cent.

Figure 5.3.   Output: Births attended by skilled personnel (%) by region and residence, Uganda, 2000.
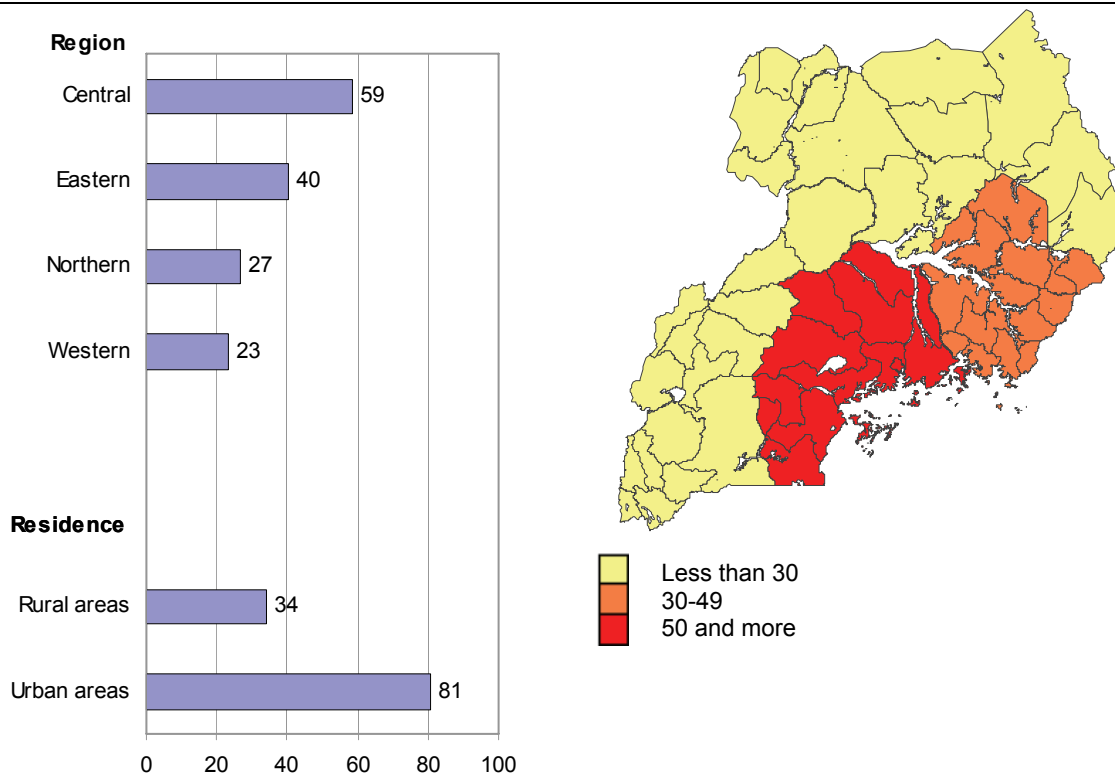
Figures for total vaccination coverage and skilled birth attendance show that health service standard is generally better in urban than rural areas. Total vaccination coverage is higher in urban than rural areas, but there is little difference between the sexes. The Western region had the highest coverage followed by the Eastern, Northern and then the Central region. Not surprisingly, a bigger share of births was attended by skilled personnel in the urban areas. Interestingly, the region with the highest vaccination coverage had the lowest percentage of births attended by skilled personnel and vice versa. The indicator "routine immunisation rates for measles" show that measles vaccination coverage is lowest in the north-eastern part of Uganda. It is problematic to comment on the districts with the highest rates: As figure 5.2b shows, 7 districts have numbers higher than 100% - which, of course, is theoretically impossible. Two possible explanations for this can be that a) some children get two or more injections due to lacking registration routines, and/or that b) children from neighbouring districts are vaccinated - something which would of course impact the number in those districts negatively.

5.2.3. Sector outcome
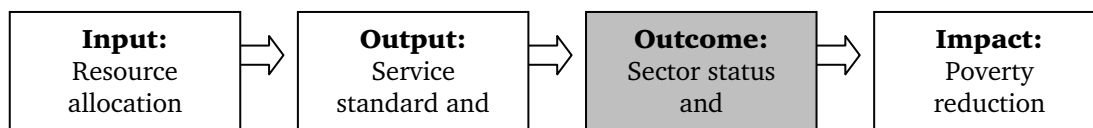
For the outcome level, we present three indicators:
- Infant mortality rate: as before
- Under-five mortality rate (MDG indicator13): Proportion of children dying between birth and 5th birthday, expressed per 1.000 live births.
- Moderate underweight: as before

Figure 5.4.   Health outcome: Infant mortality rate (per 1.000 live births) by region, residence and sex, Uganda, 2000
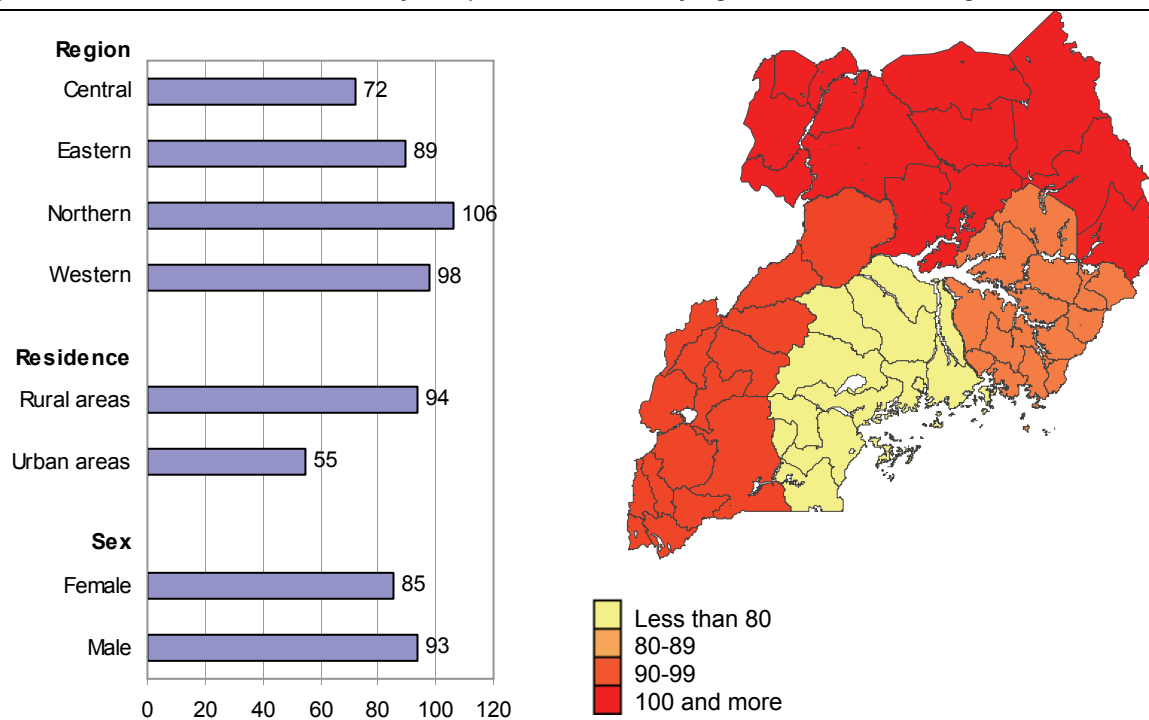
Figure 5.5.   Health outcome: Child mortality (children under 5, per 1.000 live births) by region, residence and sex, Uganda, 2000
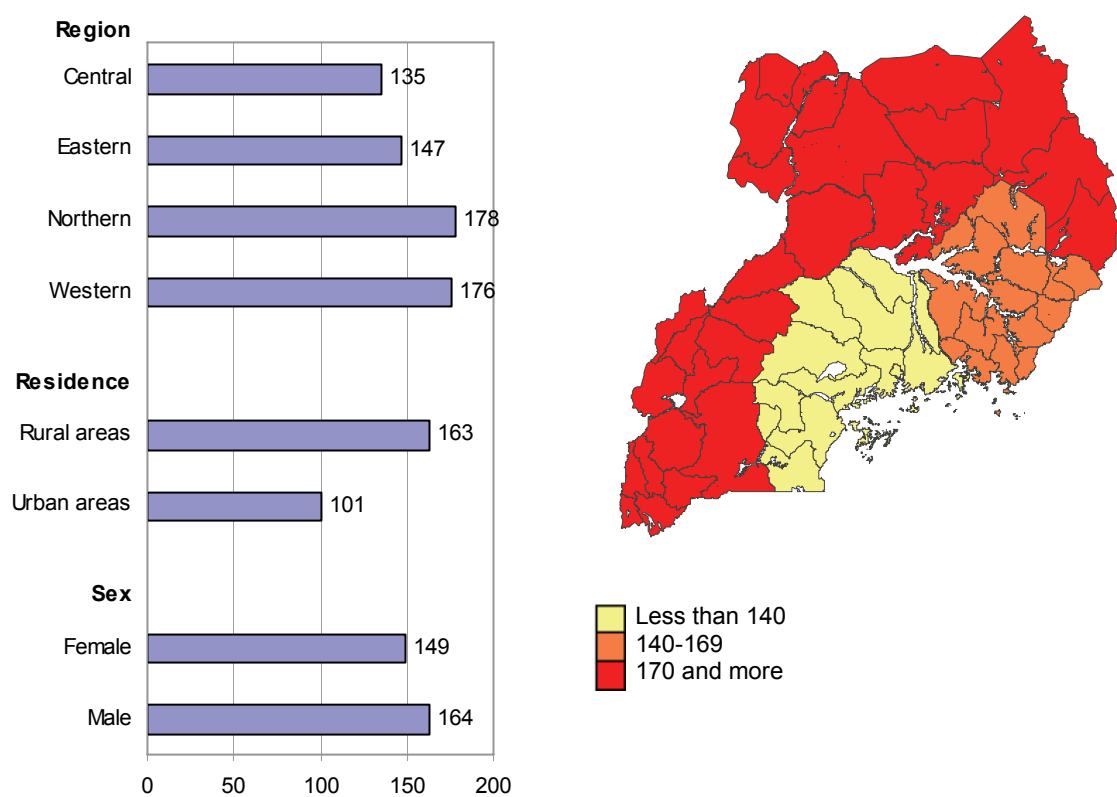
Figure 5.6.   Health outcome: Moderate underweight prevalence (children under 5, %) by region, residence and sex, Uganda, 2000
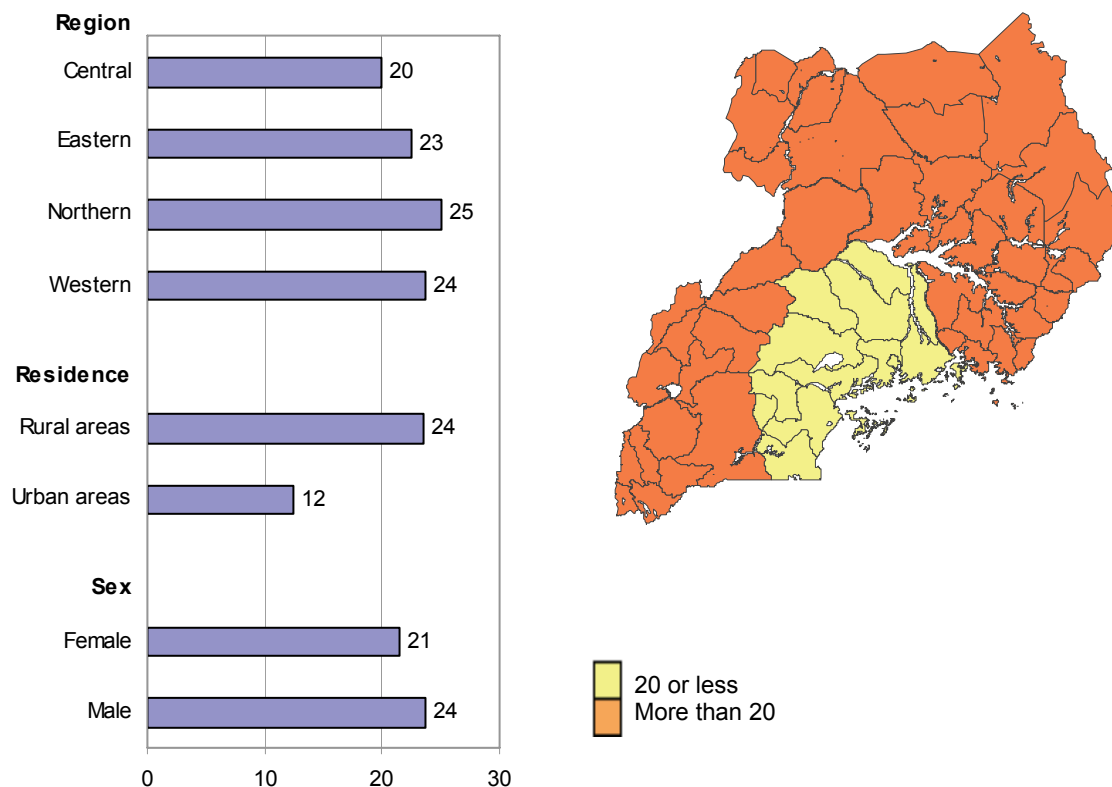
Figure 5.4 reveals that the infant mortality rate was considerably higher in rural than urban areas and more male than female babies died. The lowest infant mortality rate is found in the Central region - which is also the region with the highest birth attendance rate - but even here the rate is high (around 72 infants per 1000 births). Mortality rates for under-five children followed the same pattern for urban and rural, by sex and by region (figure 5.5). Underweight children were mainly located in the rural areas, with more males than females reported as being underweight (figure 5.6). The Central region comes out best for all outcome indicators, while the North has the worst conditions. Given the time frame of this study, it is perhaps not surprising that the situation is worst in the region with the largest resource allocations (the Northern region), as poor conditions were probably the reason the allocations were made in the first place, and the results in terms of better health will not be visible until after a certain amount of time.

5.2.4. Conclusions

Some of the conclusions we can draw from the data presented above, are as follows:

a. The Western and Central regions had more or less the same level of input into the health sector in 2000. However, the two regions differ greatly in terms of output. It may look like while the Western region has given a high priority to immunisation, the Central region has focused on skilled birth attendance.

b. As a possible consequence of this, the infant mortality rate is considerably lower in the Central than Western region. This confirms our expectation that there is a strong and relatively immediate relationship between skilled birth attendance and infant mortality. The high immunisation rate in the Central region, on the other hand, did not translate into a low child mortality rate, and neither would we have expected it to do so, seeing as the numbers are from a single year only, and the positive effects of vaccination are of a less immediate character. What is more, we noted in chapter four that there are many other variables influencing child mortality, weakening the relationship between vaccination and child mortality.

c. The gap between rural and urban areas is striking. All indicators show that people living in the cities live a healthier life than the rural population. The gap is particularly wide when it comes to skilled birth attendance.

When comparing the situation for the two sexes, an interesting pattern emerges. There is little difference in vaccination rates, but when it comes to outcome, girls do better than boys on all three points. This is worth noting, especially as one of the indicators of a high degree of patriarchy in a given society is that girls are unhealthier, more underweight and have higher mortality than boys. The opposite seemingly being the case in Uganda might be a sign that the society is placing a high value on girls relative to many other developing countries.

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5.3. Monitoring steps for the education sector by district

5.3.1. Sector allocation

Input: Resource allocation	→	**Output:** Service standard and	→	**Outcome:** Sector status and	→	**Impact:** Poverty reduction
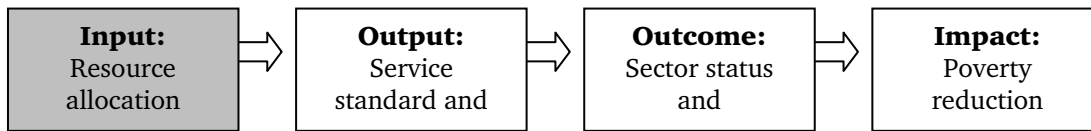
For the education sector, *recurrent expenditure per child* (5-14 years old) at the primary level has been chosen as an indicator of real resource allocation.

Figure 5.7.a. Education input: Public expenditure on primary education per child 5-14 years, by district, USh, Uganda, 2001

District	Value
Kyenjojo	
Kanungu	
Kamwenge	
Yumbe	
Nakapiripirit	
Sironko	
Mayuge	
Kaberamaido	
Kalangala	134199
Tororo	99743
Nakasongol	83350
Mpigi	82345
Kitgum	70451
Soroti	63019
Rukungiri	54143
Busia	49371
Kapchorwa	46165
Katakwi	43963
Ntungamo	39852
Rakai	39049
Kisoro	38350
Mbale	38059
Iganga	37379
Mukuno	37000
Luwero	36403
Bundibugyo	35592
Arua	35332
Moroto	34333
Bushenyi	34192
Masindi	33794
Gulu	32844
Kiboga	32500
Kabale	30983
Apac	30382
Masaka	29819
Hoima	28299
Moyo	26775
Nebbi	26044
Kibaale	25475
Kumi	24400
Kasese	24194
Mbarara	23940
Kamuli	23211
Pallisa	21776
Jinja	21070
Sembabule	20957
Mubende	19192
Kampala	18924
Lira	14463
Kabarole	8731
Kotido	7922
Adjumani	3954
Pader	2269
Kayunga	1649
Wakiso	1509
Bugiri	9

Legend:
- No data available
- 0-2 999
- 3 000-29 999
- 30 000-59 999
- 60 000-99 000
- 100 000 and more

Figure 5.7.b. Education input: Public expenditure on primary education per child 5-14 years, by region, USh, Uganda, 2001
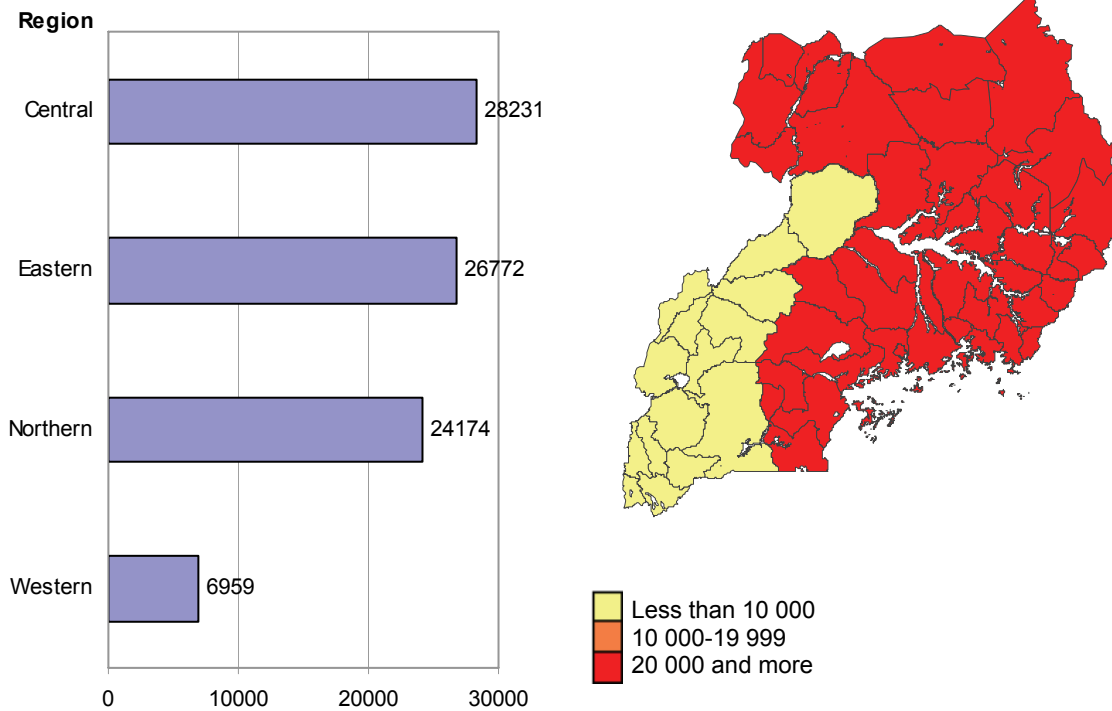
Figure 5.7a illustrates great variations in public expenditures per capita between the districts, ranging from 134,199 USh or around 429 PPP$ in the Kalangala district in the centre of the country, to 9 USh (0.03 PPP$) in Bugiri district in the east. Kayunga and Wakiso also have a low per capita expenditure on education, but this is most probably due to the fact that these districts were created in July 2001. Only 7

districts had a per capita expenditure on education of more than 50000 shillings - or around 173 PPP$.

On the average, at the regional level, there is very little difference between the Central, Eastern and Northern regions, while the Western region has considerably lower education expenditure per capita (figure 5.7b).

5.3.2. Service standard and use
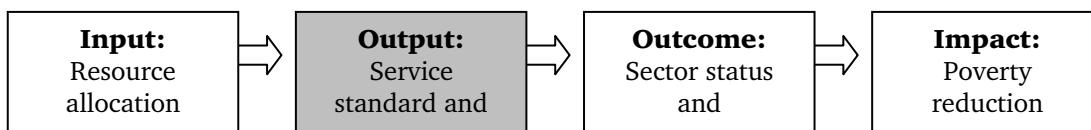
School enrolment is the most important indicator of service provision in education. In Uganda, there is no district data on *net enrolment rate* (NER), thus only regional data are presented. As in chapter 4, we also present the girl-boy ratio and the pupil-teacher ratio, the latter being available on the district level. To give a fuller picture of the district level, we include two additional indicators:

- *Access to primary school: The* percentage of children living within 1 km of a primary school.
- *Repeaters:* The percentage of pupils attending the same grade as the previous year.

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Figure 5.8.   Education output: Net enrolment rate (primary, %) by region, residence and sex, Uganda, 2002
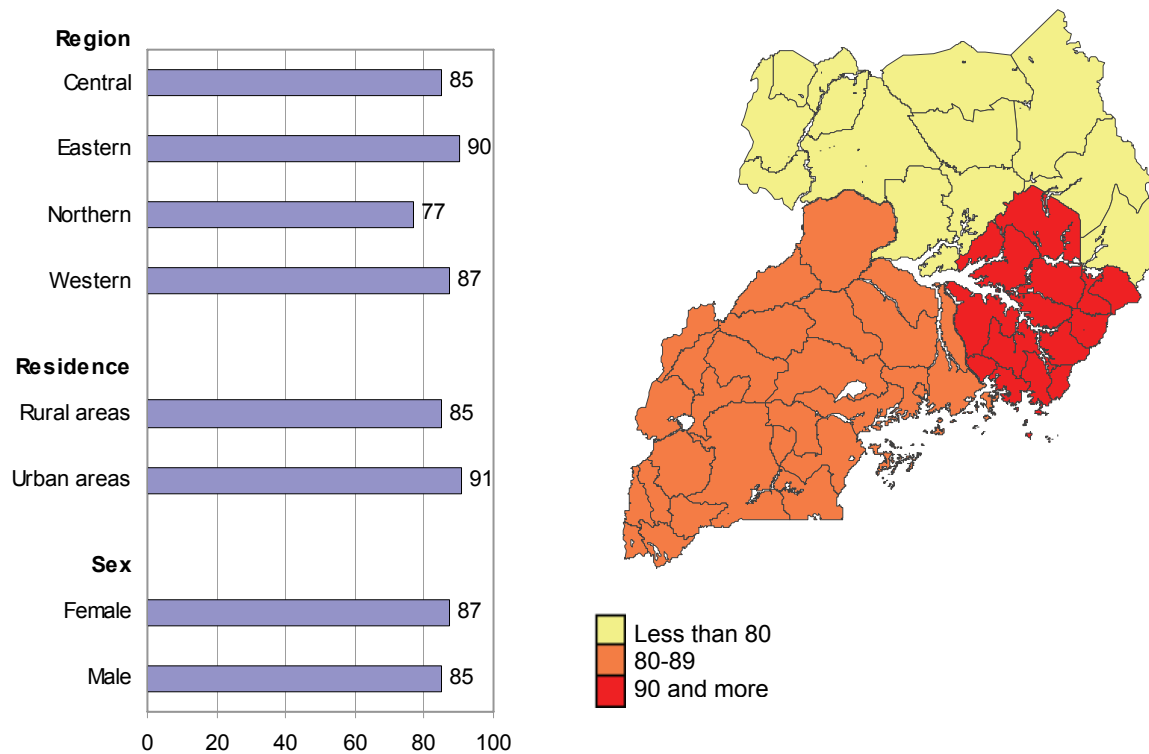
Figure 5.9.   Education output: Girl/boy ratio (primary, %) by region and residence, Uganda, 2001
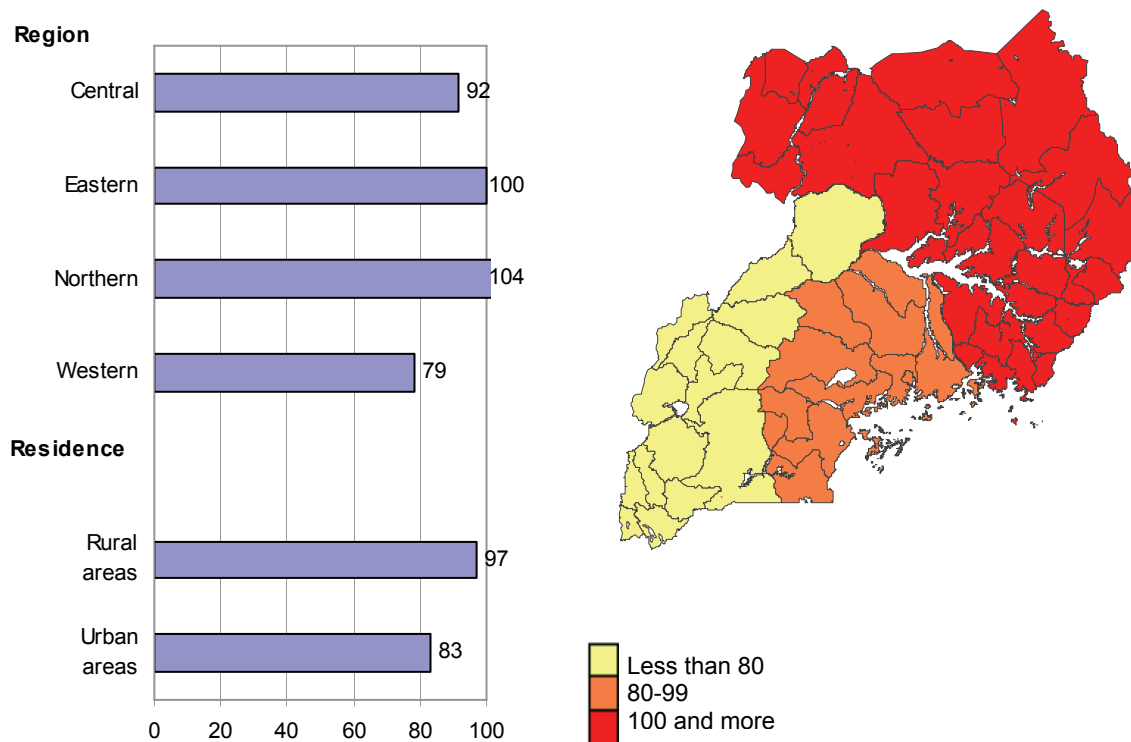
Figure 5.10. Education output: Pupil/teacher ratio by district, Uganda, 2003

District	Value
Iganga	
Kampala	29
Wakiso	34
Rakai	38
Mukuno	40
Kalangala	40
Kabale	43
Masaka	44
Rukungiri	45
Moroto	45
Mbarara	46
Kanungu	46
Luwero	46
Kapchorwa	47
Bundibugyo	49
Kiboga	49
Nakasongol	50
Kibaale	51
Kabarole	51
Hoima	51
Moyo	51
Sembabule	51
Mubende	51
Mpigi	51
Kisoro	52
Kamwenge	52
Jinja	52
Masindi	53
Katakwi	53
Ntungamo	54
Adjumani	54
Kayunga	54
Kasese	55
Bushenyi	55
Bugiri	55
Lira	56
Kaberamai	56
Mayuge	57
Mbale	58
Kumi	58
Gulu	60
Arua	60
Soroti	60
Sironko	60
Kyenjojo	61
Kamuli	61
Busia	61
Tororo	62
Yumbe	63
Pallisa	63
Kitgum	68
Nakapiripirit	69
Nebbi	70
Apac	70
Kotido	75
Pader	80

Legend:
No data available
Less than 30
30-49
50-59
60-69
70 and more

Figure 5.11. Education output: Repeaters (%) by district, Uganda, 2001
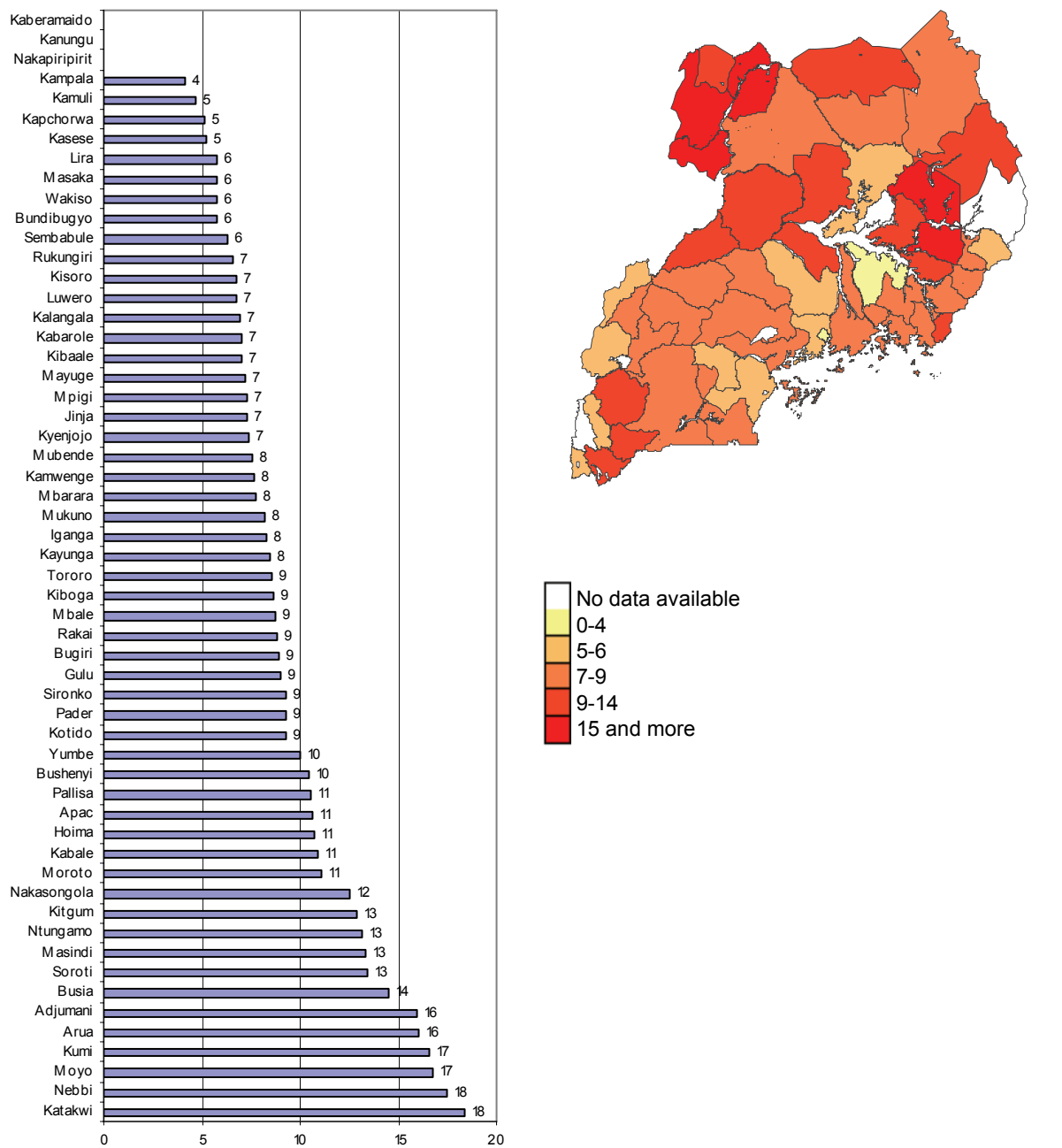
Figure 5.12. Education output: Access to primary school within 1 km (%), by region and residence, Uganda, 2001
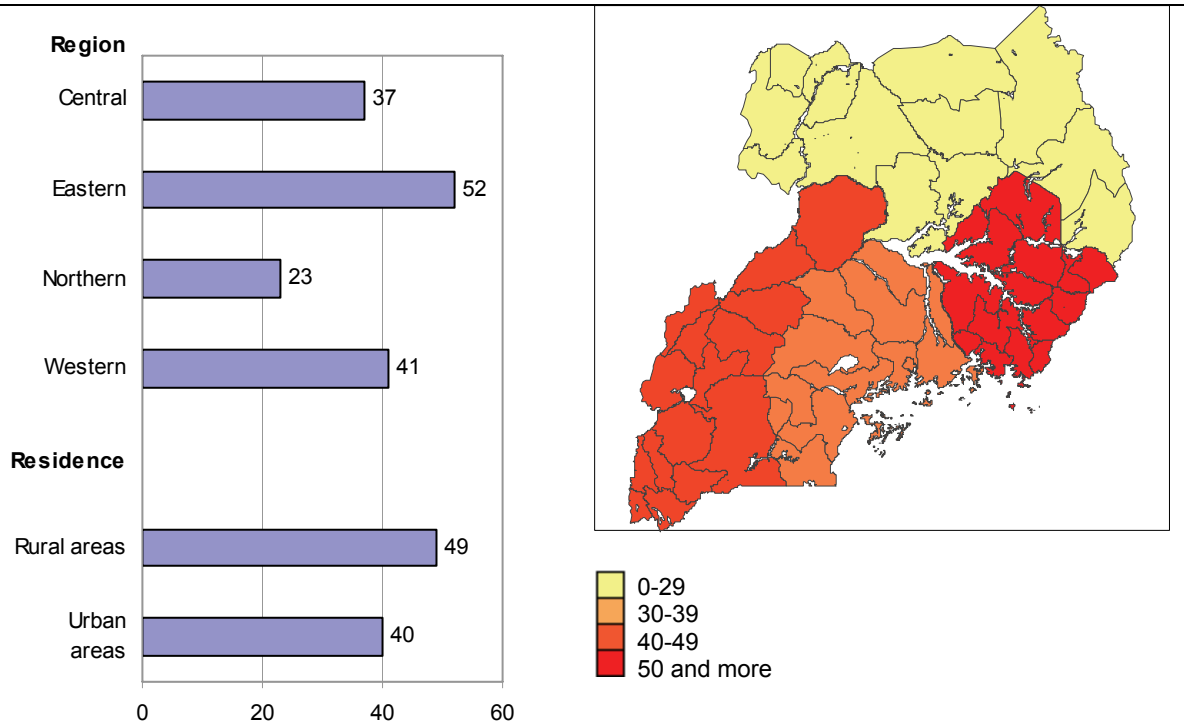
The *net enrolment rate* is almost the same for three of the regions (ranging from 85 to 90%) with the Northern area at the bottom at 77% (figure 5.8). The *girl/boy ratio,* meanwhile, is best in the Northern region, while the Western region has the greatest disparage between the sexes (figure 5.9). It is interesting that the more females are enrolled in the rural than in the urban areas. As for access to a primary school within less than one kilometre, the Northern area pupils enjoy the least access, while in the eastern part of Uganda more children have a primary school nearby their home (figure 5.11). Another notable fact is that rural areas have more schools in close proximity compared to the urban areas.

Looking at the district level, a clear pattern appears: Districts in the North and Northeast are clustered at the bottom of the ranking lists, while districts in the Central and Eastern regions are at the top - this is true for both output indicators.

5.3.3. Sector outcome

| Input: Resource allocation | → | Output: Service standard and | → | Outcome: Sector status and | → | Impact: Poverty reduction |
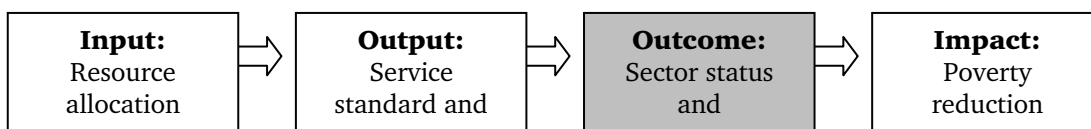
The main expected outcome in the education sector is a long-term increase in literacy. The *literacy data* available for Uganda is by region for 15-24-year-olds. As in chapter four, we present the ratio of literate females to males, also available on the regional level only. Also in concordance with chapter 4, we present the *primary completion rate*, but in this chapter, we rely on administrative data showing the proportion of 15-17-year-olds having passed the primary leaving examination after the 7th grade, as this is the only information available on the district level.

Figure 5.13. Education outcome: Proxy completion rate[1] by district, Uganda, 2002

Legend:
- Less than 20
- 20-59
- 60-79
- 80-99
- 100 and more
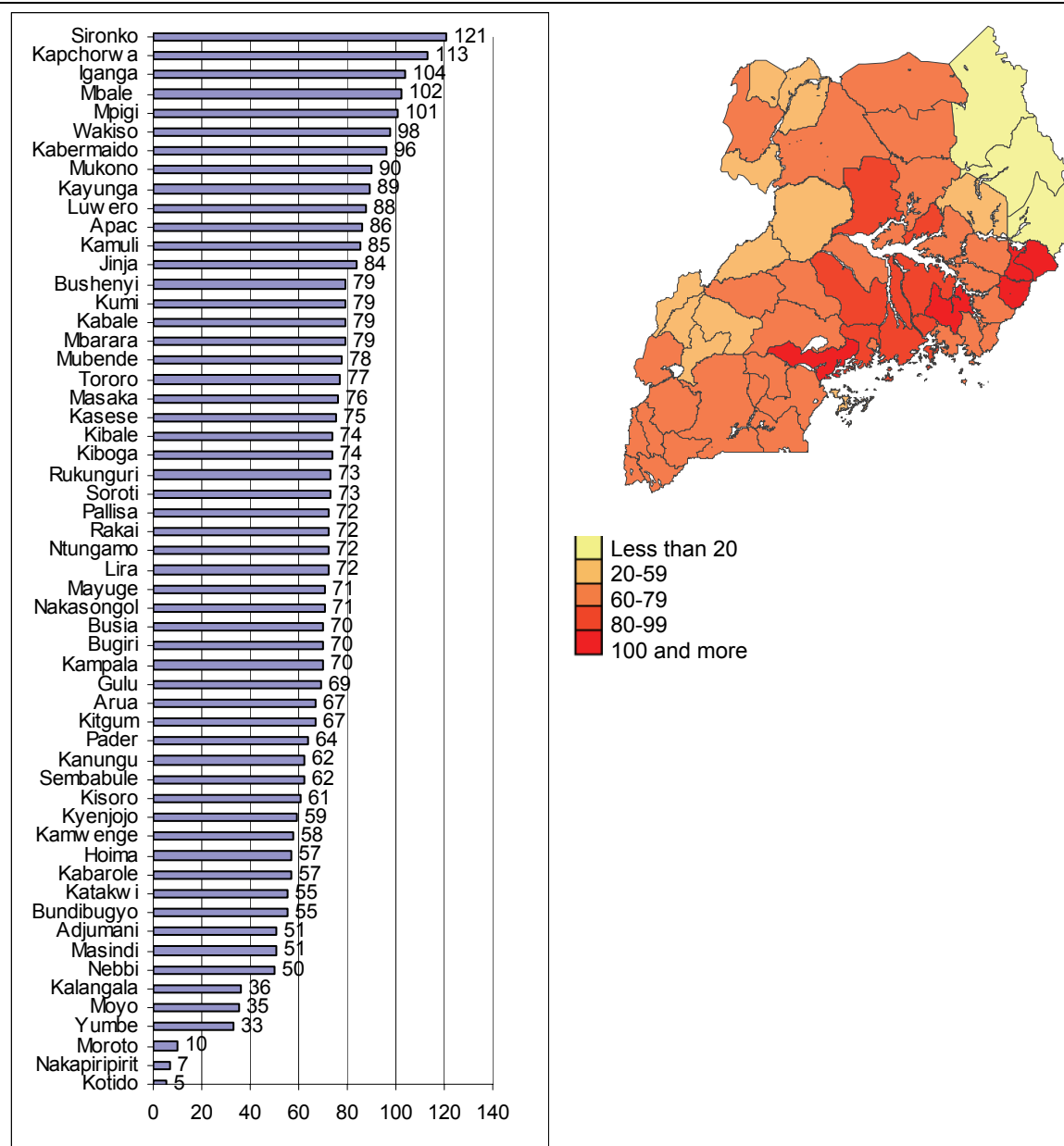
[1] Several methodological issues are involved in calculating this rate - leading to highly discrepant results. UNHS 2002, for instance, found the completion rate to be within the range of 23-45% in the four regions.

Figure 5.14. Education outcome: Literacy rate (15-24 years,%) by region, residence and sex, Uganda, 2000
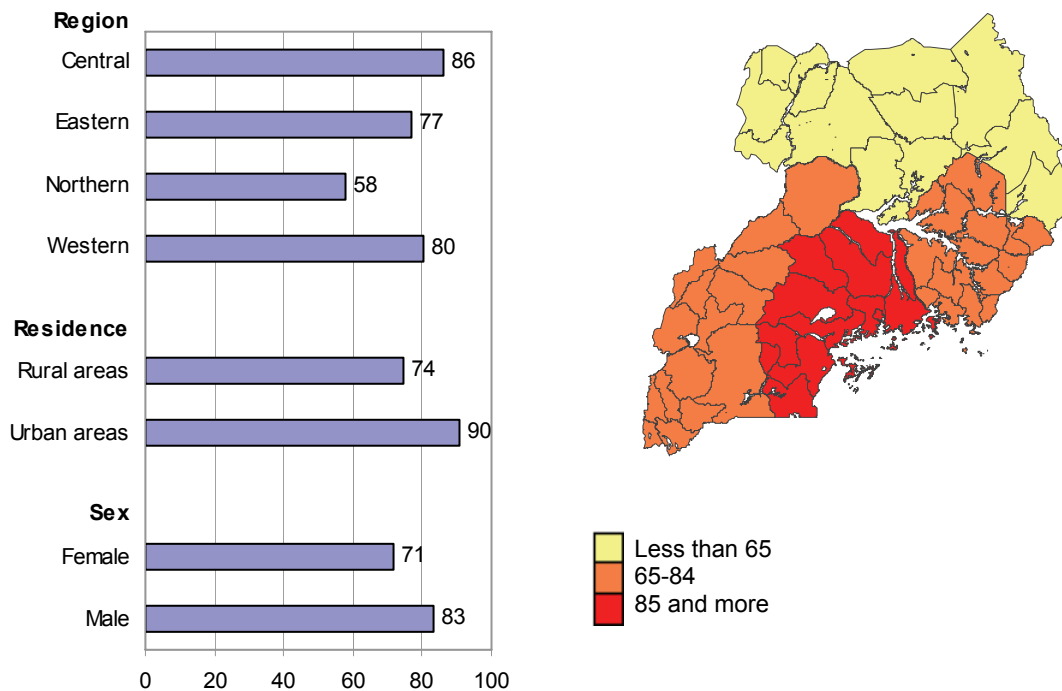
Figure 5.15. Education outcome: Ratio of literate females to males, by region and residence, Uganda, 2000
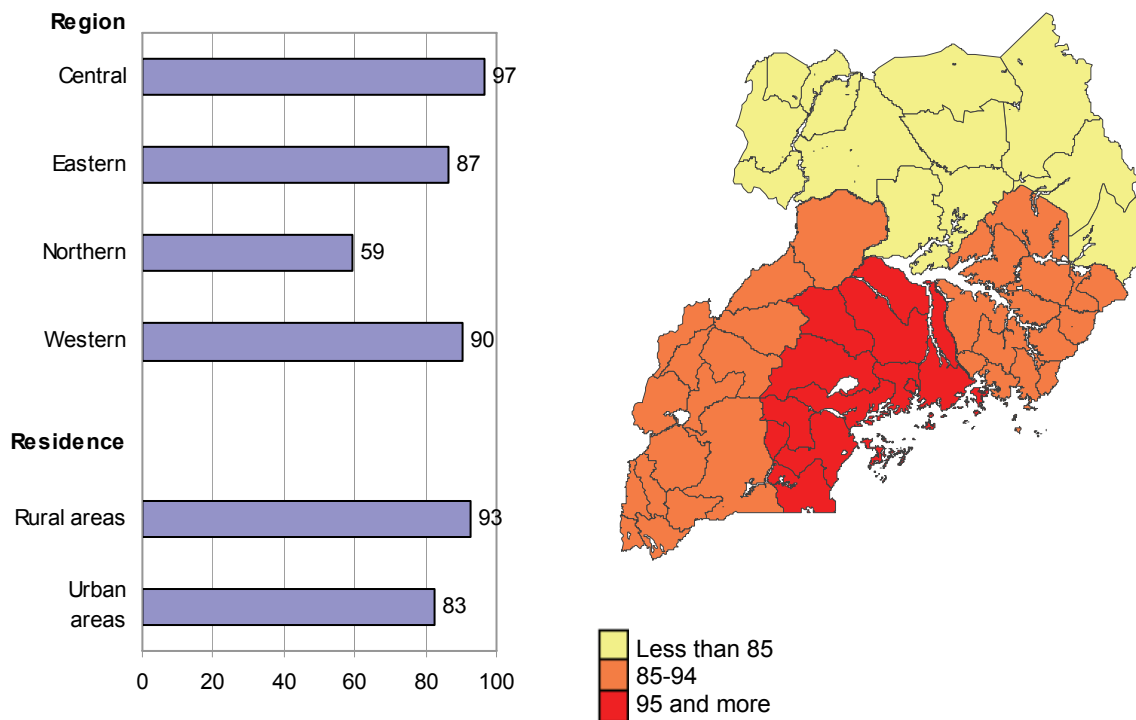
As illustrated by figure 5.14, in 2000, the literacy rate was highest in the Central region and lowest in the Northern region. Literacy rates are higher for men (approximately 83%) than for women (approximately 71%), a fact that is also reflected in figure 5.15. Similarly, the literacy rate in urban areas has been higher than in rural areas, around 90 % and 74 % respectively in 2000. Figure 5.15 shows that the ratio

of literate females to males in rural areas is, a little surprisingly, higher than in the urban areas. With regards to regional differences, there are more literate females in the Central region followed by the West and East and with the Northern region at the bottom.

As for the proxy completion rate, two things, in particular, are worth noting. First, of the five districts with the lowest rates, three (Kotido, Nakapiripirit and Moroto) are in the east, bordering Kenya, while two (Yumbe and Moyo) are in the northwest, bordering Sudan. Second, five districts - four of which are located in the southeast - have rates higher than 100%, which is of course a theoretic impossibility. One explanation for this can be that, since this rate is calculated on the basis of primary leaving examination *registration*, and not *passes*, one student may very well be registered more than once while in the given age group. Individuals aged 18 or above (or under 15, for that matter) registering for this exam may also contribute to pushing the rate above its theoretical limit.

5.3.4. Conclusions

Three aspects are, in particular, worth noting regarding the education sector at this level:

a. The general pattern is that the Central region has the best education sector by far, while the situation is worst in the Northern region. However, the lack of concordance between input and output might indicate that more money is being spent where it is most badly needed, the Northern region being a case in point.

b. Enrolment rates are nearly identical in rural and urban areas. What is interesting is that in this sector, it is the rural areas that are better off in all respects bar one: the literacy rate. Another interesting finding is that the female/male literacy ratio is in fact higher in rural than urban areas, indicating that gender disparities are higher in the cities.

c. Enrolment and literacy rates are higher for boys than for girls. However, more girls than boys are enrolled in primary schools and complete 4th grade, which leads to the assumption that this will change in the not-so-distant future.

5.4. Monitoring steps for the water and sanitation sector by district

5.4.1. Sector allocation

| **Input:** Resource allocation | → | **Output:** Service standard and | → | **Outcome:** Sector status and | → | **Impact:** Poverty reduction |
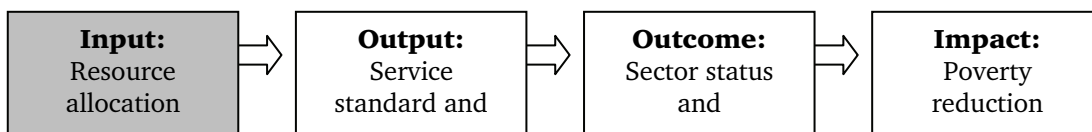
Expenditure data are available only on the national level for water and sanitation sector, therefore, there is no presentation of this indicator.

5.4.2. Service standard and use

| **Input:** Resource allocation | → | **Output:** Service standard and | → | **Outcome:** Sector status and | → | **Impact:** Poverty reduction |
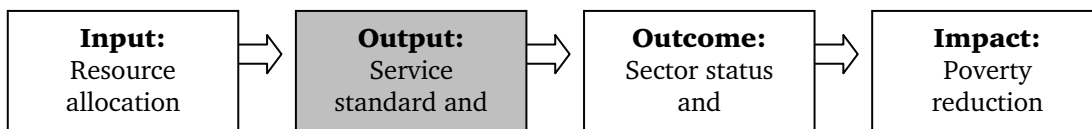
Data available for service standard and use of services in the water and sanitation sector are limited. For access to safe or some sort of sanitation, there are regional data. Access to safe water is available on the regional level for the year 1996 only, as the data from the 2002 Census are yet to be published. We therefore present district level data on rural safe water supply.

Figure 5.16. Sanitation output: Access to safe sanitation (% of households) by region and residence, Uganda, 2000
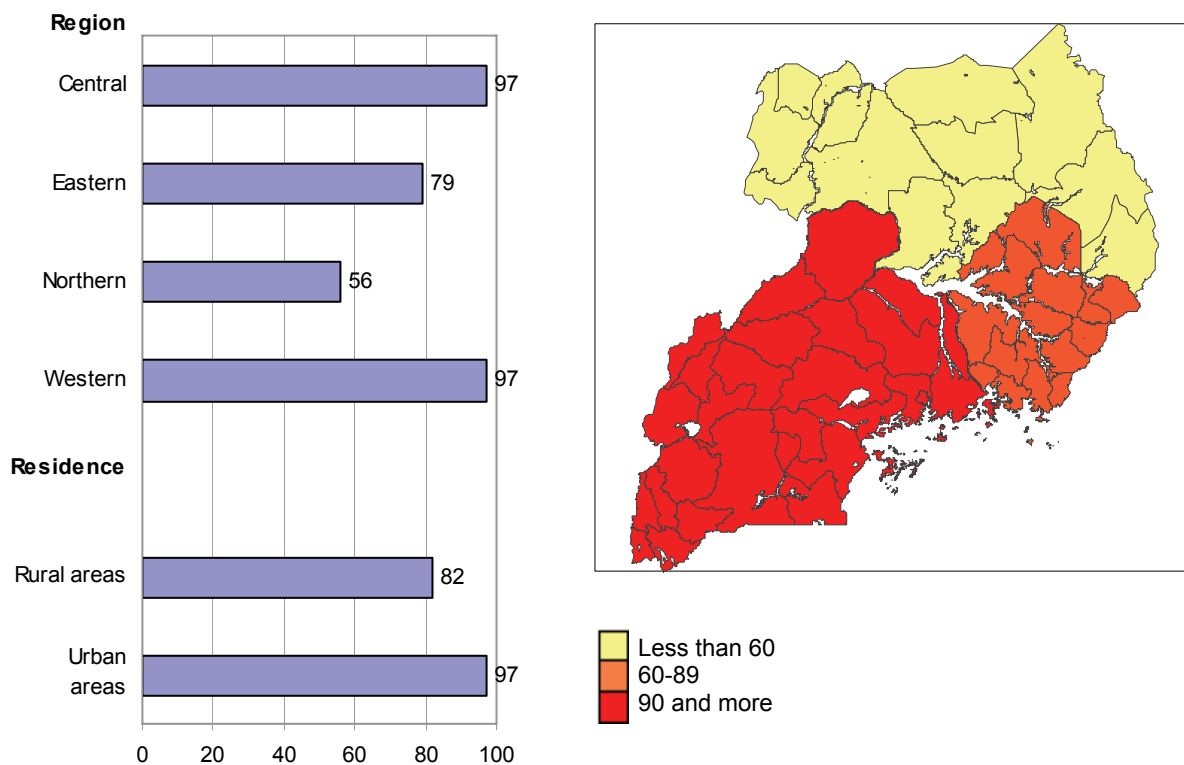
Figure 5.17. Water output: Rural safe water supply (%) by district, Uganda, 2003[1]

District	Value
Adjumani	
Kampala	
Kayunga	96
Rukungiri	90
Kamwenge	85
Kabarole	83
Kabale	83
Mpigi	82
Kiboga	81
Kasese	76
Nebbi	75
Hoima	74
Moroto	73
Kanungu	72
Bushenyi	72
Luwero	71
Gulu	67
Ntungamo	65
Moyo	62
Soroti	62
Kitgum	62
Nakasongola	57
Mukuno	57
Bundibugyo	56
Tororo	55
Masindi	55
Kibaale	54
Kapchorwa	54
Busia	53
Yumbe	53
Kamuli	52
Kaberamaido	52
Lira	50
Kyenjojo	50
Kalangala	49
Kisoro	49
Mbarara	47
Nyakapiripirit	47
Masaka	45
Sironko	45
Kumi	44
Mbale	44
Arua	44
Iganga	44
Jinja	44
Rakai	44
Apac	41
Katakwi	37
Mubende	34
Bugiri	31
Mayuge	31
Pallisa	30
Kotido	25
Sembabule	25
Wakiso	23
Pader	21

Legend:
- No data available
- 0-29
- 30-44
- 45-59
- 60-79
- 80-100

[1] Rural safe water supply is the only recent indicator on water output available on a sub-national level. As only 12% of the population lives in urban areas, these data give an informative picture concerning the vast majority of Ugandans. It is likely that the number is much higher in urban areas: While UNHS reported that the national average for access to safe water was 57% in 2000, the urban-rural gap was found to be as high as 36 percentage points (87 and 51% respectively).

Figure 5.16 shows that *access to safe sanitation* is better in urban than rural areas (97% to 82%). Sorted by region, people in Northern Uganda fared the worst with only a little more than half of the households having access to safe sanitation, compared to around 97% for both the Central and Western regions. Figure 5.17 shows that there are major differences between districts when it comes to rural safe water supply; in the northern district Pader, only 21% of households had access, compared to 96 in Kayunga in the Central region.

5.4.3. Sector outcome

Input: Resource allocation	→	Output: Service standard and	→	Outcome: Sector status and	→	Impact: Poverty reduction
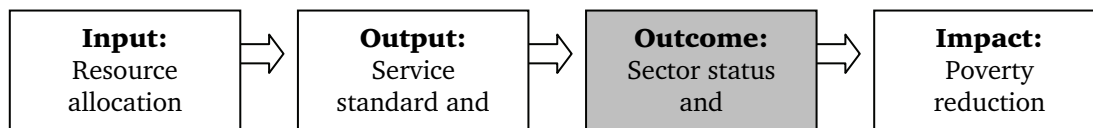
Again, the *prevalence of diarrhoea amongst children less than 5 years of age* has been chosen to present the outcome status for the water and sanitation sector.

Figure 5.18. Water and sanitation outcome: Diarrhoea prevalence (children under 5, %) by region, residence and sex, Uganda, 2000
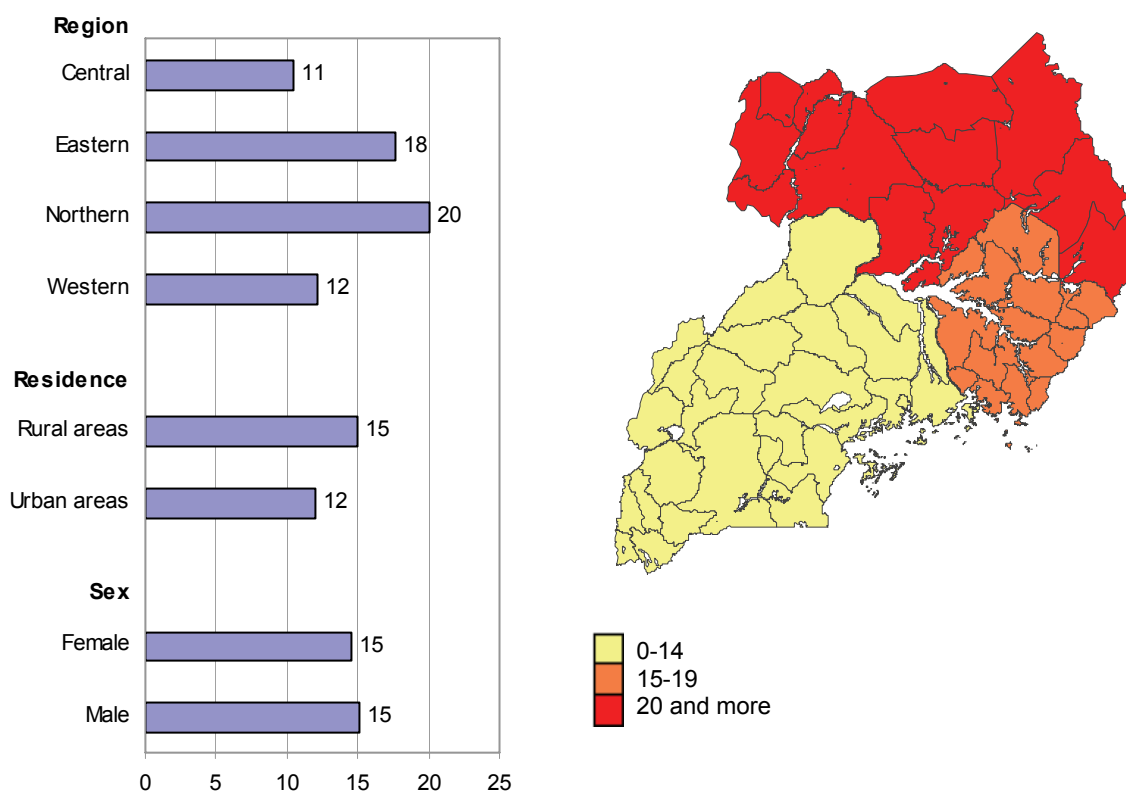
Figure 5.18 shows that there are no sex differences in diarrhoea prevalence among Ugandan children. There are also no big differences in the prevalence of diarrhoea between urban and rural areas, although the rural areas are somewhat higher. Under-five diarrhoea prevalence is highest in the Northern region and lowest in the Central region.

5.2.4. Conclusions

a. There is a considerable divide in what regards access to safe sanitation: While only 56% of the population in the Northern region have access to sanitation, the corresponding figure is 97% in the Central and Western regions. What is more, there seems to be a strong relationship between output and outcome in this sector; the prevalence of diarrhoea being twice as high in the Northern as in the Central region.

b. There is a huge difference between districts and between rural and urban areas in terms of access to safe water. However, we have not found a systematic geographical pattern that these differences follow, in contrast to the previous two sectors.

5.5. Monitoring poverty at the district level

Input: Resource allocation	→	Output: Service standard and	→	Outcome: Sector status and	→	Impact: Poverty reduction
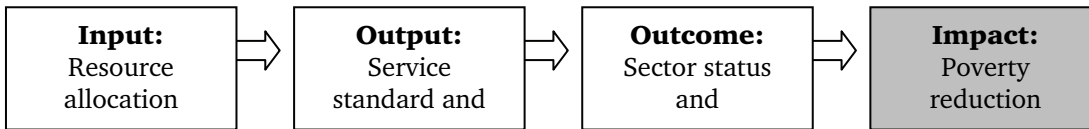
In Uganda, data on poverty are only available for the regional level. The district level data available on poverty is the Human Development Index from UNDP (2000) and the 1991 census numbers on life expectancy at birth. To give a picture of poverty at district level, we will present HDI 2000, as well as data on regional poverty incidence and poverty gap.

Figure 5.19 Impact: Human Development Index by district, Uganda, 2000

District	HDI
Kampala	0,5983
Jinja	0,5346
Wakiso	0,5302
Mpigi	0,5302
Kalangala	0,4991
Masaka	0,499
Luwero	0,4911
Sembabule	0,4818
Kapchorw	0,4802
Hoima	0,4779
Kasese	0,4711
Mukuno	0,47
Kayunga	0,47
Rukungiri	0,4673
Kanungu	0,4673
Sironko	0,4662
Mbale	0,4662
Ntungamo	0,461
Rakai	0,4598
Mubende	0,4581
Nakasong	0,4572
Bushenyi	0,4562
Kabale	0,452
Apac	0,4413
Mbarara	0,4412
Kiboga	0,4406
Kibaale	0,4386
Tororo	0,4276
Busia	0,4268
Mayuge	0,4246
Iganga	0,4246
Kyenjojo	0,4232
Kamweng	0,4232
Kabarole	0,4232
Gulu	0,4209
Bugiri	0,4195
Kamuli	0,4167
Pallisa	0,4158
Masindi	0,4149
Kisoro	0,4109
Lira	0,4053
Soroti	0,402
Kaberamai	0,402
Kumi	0,4017
Yumbe	0,383
Arua	0,383
Katakwi	0,3825
Adjumani	0,378
Bundibugy	0,3641
Nebbi	0,3627
Moyo	0,3609
Pader	0,3529
Kitgum	0,3529
Kotido	0,1946
Nyakapiripi	0,1839
Moroto	0,1839

Legend:
- 0.00-0.299
- 0.300-0.399
- 0.400-0.449
- 0.450-0.499
- 0.500 and more

Figure 5.20. Impact: Incidence of poverty by region and residence, Uganda, 2000
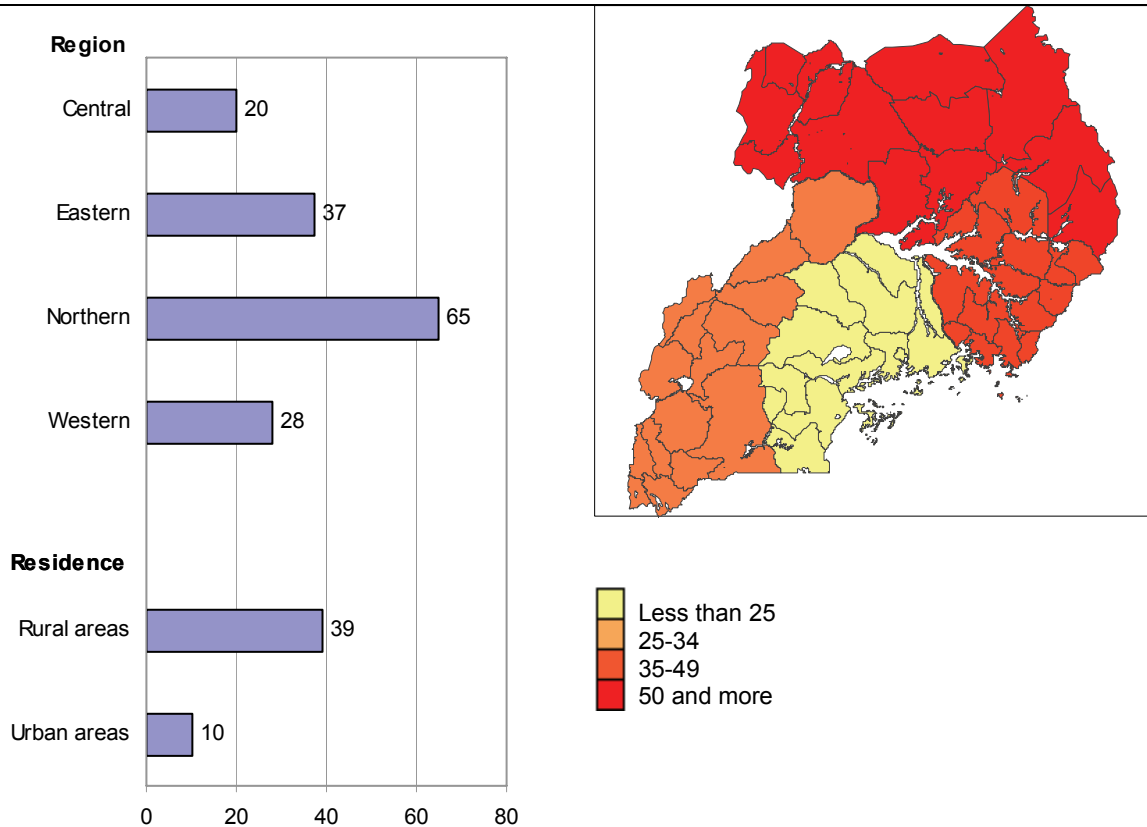
Figure 5.21. Impact: Poverty gap by region and residence, Uganda, 2000
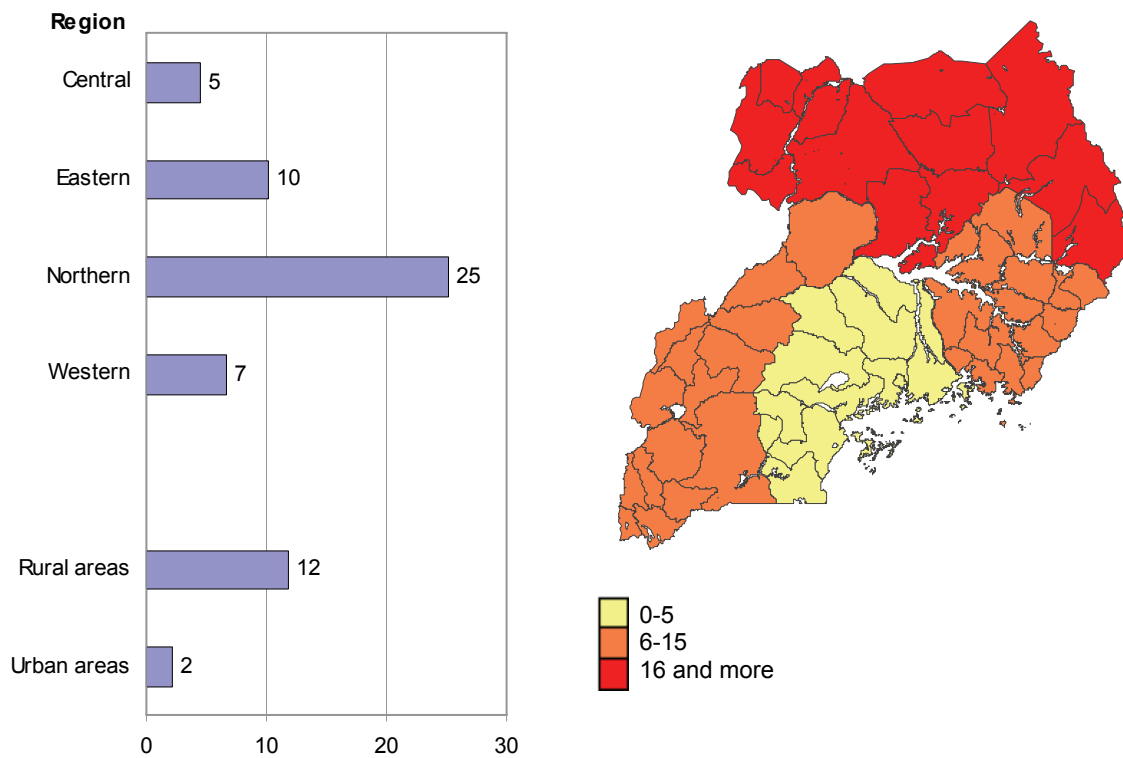
Rural poverty was far more predominant than urban poverty in 2000. The Northern region has the highest poverty incidence followed by the Eastern region. The Central region had the lowest poverty incidence (20.1%). Figure 5.21 shows that where poverty was most prevalent, it was also most severe. The same regional pattern appears when we examine the human development index: here, the 8 top districts are all in the Central region, while the 5 at the bottom end of the scale are situated in the North and North-eastern parts of the country.

Looking at all the three sectors, we can conclude that Uganda is marked by a significant amount of regional inequality. Generally, and this particularly becomes visible on the outcome and impact levels, the Northern region is the poorest and least developed region. There is a rural-urban gap too, the urban areas generally being in a more favorable situation, except for the education sector. Finally, there are a gender differences, but here, the picture is more mixed: Girls tend to be of better health, while boys receive more schooling.

6. Uganda and Sub-Saharan Africa compared

In this section, we will present data from World Development Indicators 2005, produced by the World Bank, for Sub-Saharan Africa and Uganda. Due to quite a number of modifications of international data to ensure cross-country comparability, the values presented in this chapter are not always consistent with data available at the national and sub-national levels. For information purposes we have chosen in some instances to present other (but related) indicators than those used earlier in the report.

6.1. The health sector

The following indicators are used to compare the development within the health sector in Uganda to that in Sub-Saharan Africa:

- *Health expenditure per capita*: As in previous chapters, only this time converted into constant international US$.
- *Health expenditure as % of GDP*
- *Immunisation rate*: The proportion of children between 12 and 23 months who have received one dose of DPT.
- *Under-5 mortality rate* (MDG indicator 13): as in chapter 5.
- *Infant mortality rate* (MDG indicator 14): as before.

Figure 6.1.a. Health input: Health expenditure per capita (constant 2000 international $), Uganda and Sub-Saharan Africa, 1990-2003

Health expenses per capita, Uganda

Health expenses per capita, Sub-Saharan Africa

Year	Uganda	SSA
1990		
1991		
1992		
1993		
1994		
1995		
1996		
1997		
1998	62	99
1999	75	102
2000	82	97
2001	95	99
2002	100	101
2003		
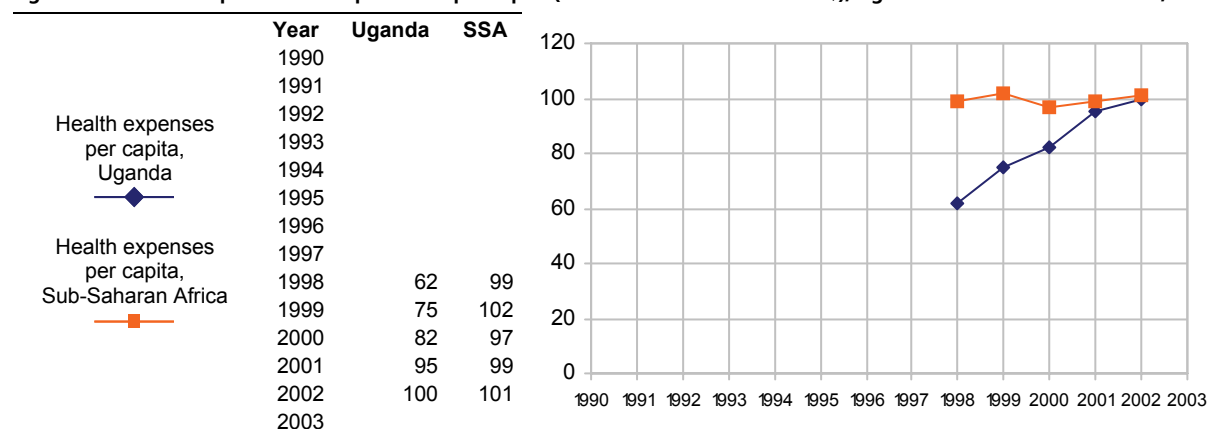
Figure 6.1.b. Health input: Health expenditure as % of GDP, Uganda and Sub-Saharan Africa, 1990-2003

Health expenses, % of GDP, Uganda

Health expenses, % of GDP, Sub-Saharan Africa

Year	Uganda	SSA
1990		
1991		
1992		
1993		
1994		
1995		
1996		
1997		
1998	5.4	6.5
1999	6.2	6.6
2000	6.5	6.3
2001	7.3	6.3
2002	7.4	6.3
2003		
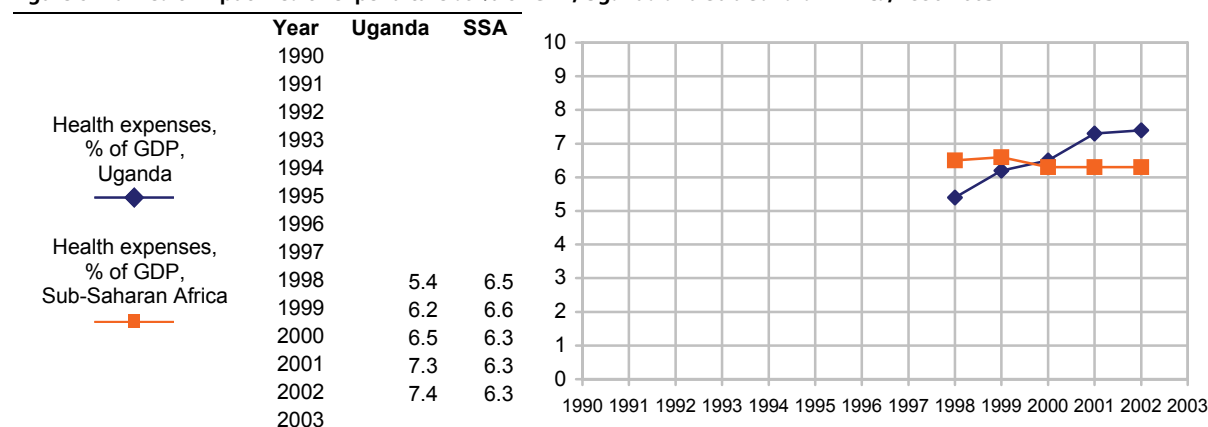
Figure 6.2.   Health output: Immunisation rate, DPT (% of children aged 12-23 months), Uganda and Sub-Saharan Africa, 1990-2003

Year	Uganda	SSA
1990	45	57
1991	49	49
1992	53	49
1993	56	49
1994	60	54
1995	59	53
1996	57	50
1997	56	53
1998	54	47
1999	54	46
2000	53	52
2001	60	52
2002	72	54
2003	81	59

Immunisation rate, Uganda

Immunisation rate, Sub-Saharan Africa
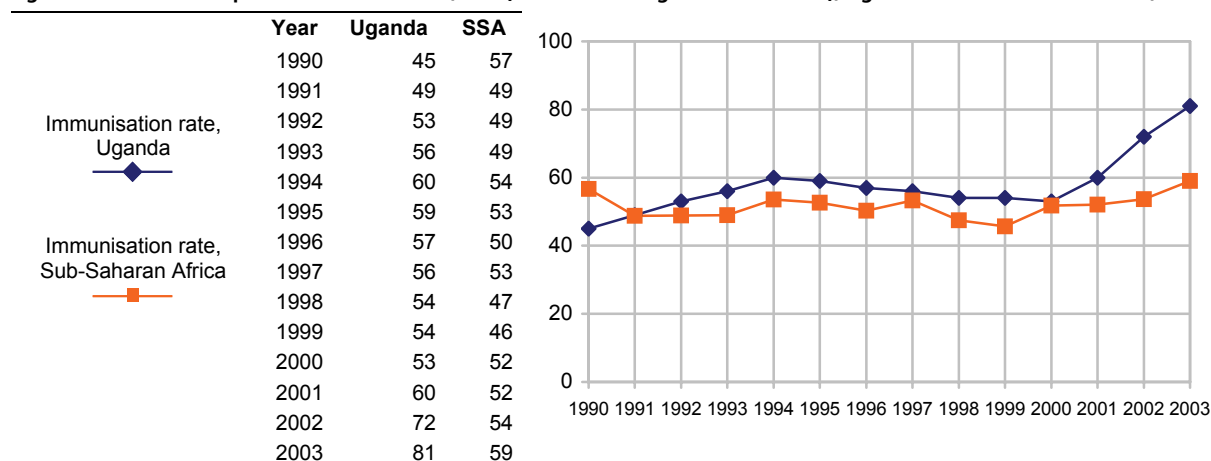
Figure 6.3.   Health outcome: Under-5 mortality rate (per 1.000), Uganda and Sub-Saharan Africa, 1990-2003

Year	Uganda	SSA
1990	160	187
1991		
1992		
1993		
1994		
1995	156	
1996		
1997		
1998		
1999		
2000	145	
2001		
2002		
2003	140	171

Under-5 mortality, Uganda

Under-5 mortality, Sub-Saharan Africa
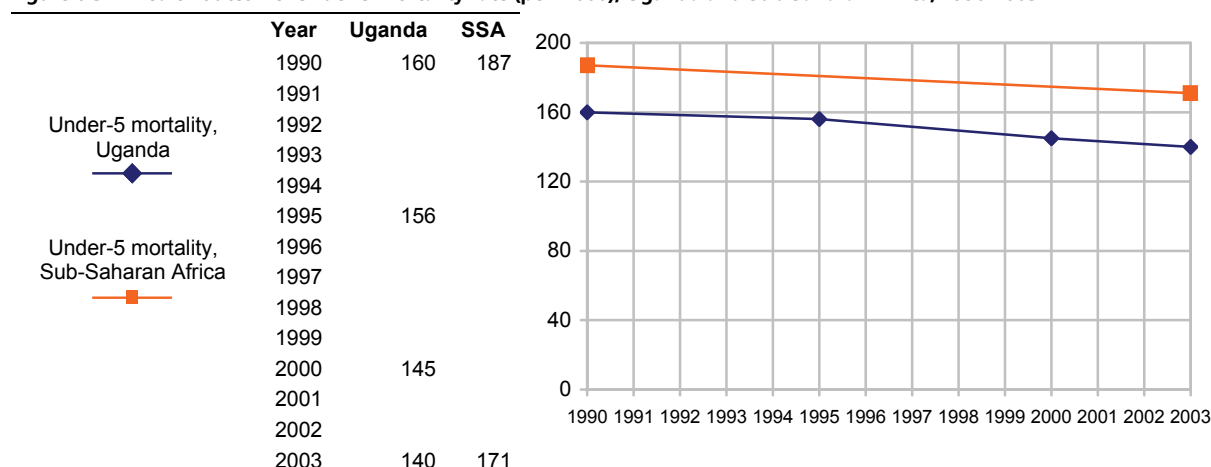
Figure 6.4.   Health outcome: Infant mortality rate (per 1.000 live births), Uganda and Sub-Saharan Africa, 1990-2003

Year	Uganda	SSA
1990	93	110
1991		
1992		
1993		
1994		
1995	92	
1996		
1997		
1998		
1999		
2000	85	
2001		
2002		
2003	81	101

Infant mortality, Uganda

Infant mortality, Sub-Saharan Africa
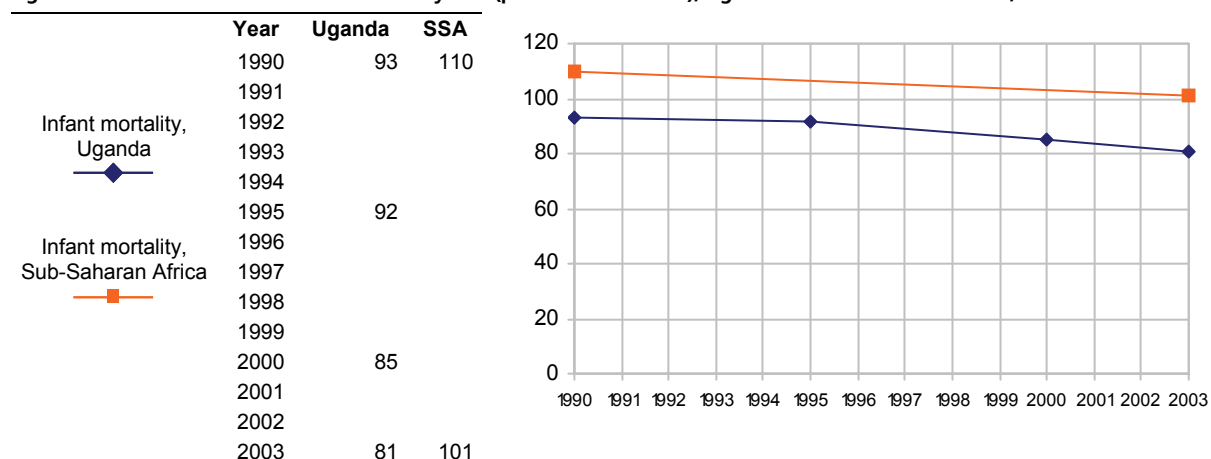
The health sector in Uganda and Sub-Saharan Africa:
Public health expenditures on a per capita basis in Uganda have been much lower than those in Sub-Saharan Africa; with only $62 spent on health per capita in 1998 compared to almost $100 in the entire region. As a share of GDP, however, the picture is more mixed. Today, Uganda's health expenditures are as high as those of Sub-Saharan Africa in real terms; higher, if measured as a share of GDP. In spite of Uganda having lagged behind the region input-wise,

the country has generally produced better output and outcome than what is observed elsewhere in Sub-Saharan Africa.

6.2. The education sector

The following indicators have been chosen in order to compare the education sector in Uganda and Sub-Saharan Africa:

- Public spending on education per capita: as in previous chapters.

- Public spending on education as % of GDP
- Gross school enrolment: Total enrolment in primary education, regardless of age, expressed as a percentage of the official school-age population corresponding to the same level of education in given school year. It is often used as a substitute indicator to net enrolment ratio (NER) when data on enrolment by single years of age are not available.

- Pupil-teacher ratio: as before
- Girl-boy ratio (MDG indicator 9): as before
- Literacy rate, 15-24-year-olds (MDG indicator 8): as before
- Female-male literacy ratio, 15-24-year-olds (MDG indicator 10): as before
-

Figure 6.5.a. Education input: Public spending on education per capita (constant 2000 international $), Uganda and Sub-Saharan Africa, 1990-2003

	Year	Uganda	SSA
Public spending on education per capita, Uganda	1990		
	1991		
	1992		
	1993		
	1994		
	1995		
	1996		
Public spending on per capita, Sub-Saharan Africa	1997		
	1998		52
	1999	30	52
	2000		52
	2001		
	2002		
	2003		
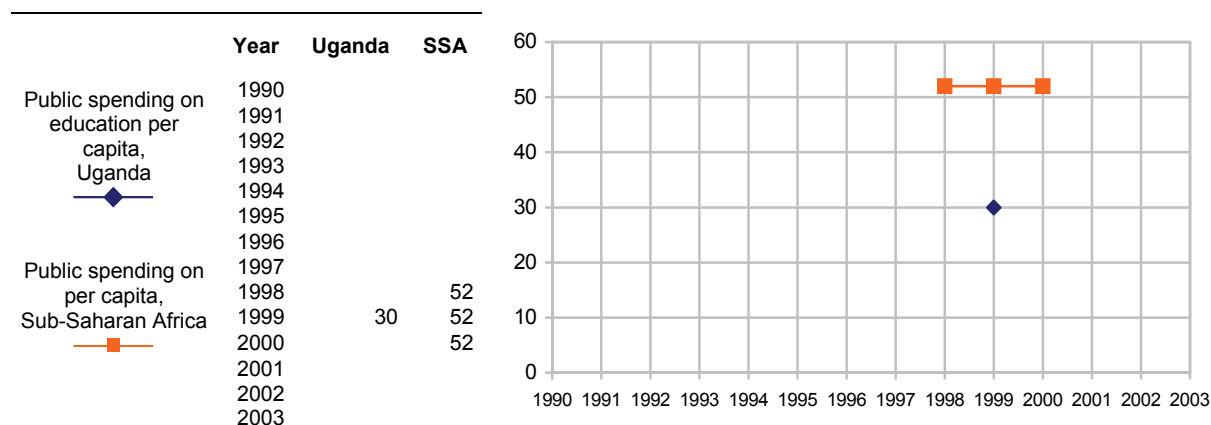
Figure 6.5.b. Education input: Public spending on education (% of GDP), Uganda and Sub-Saharan Africa, 1990-2003

	Year	Uganda	SSA
Public spending on education, Uganda	1990		
	1991		
	1992		
	1993		
	1994		
	1995		
	1996		
Public spending on education, Sub-Saharan Africa	1997		
	1998		3.4
	1999	2.5	3.4
	2000		3.3
	2001		
	2002		
	2003		
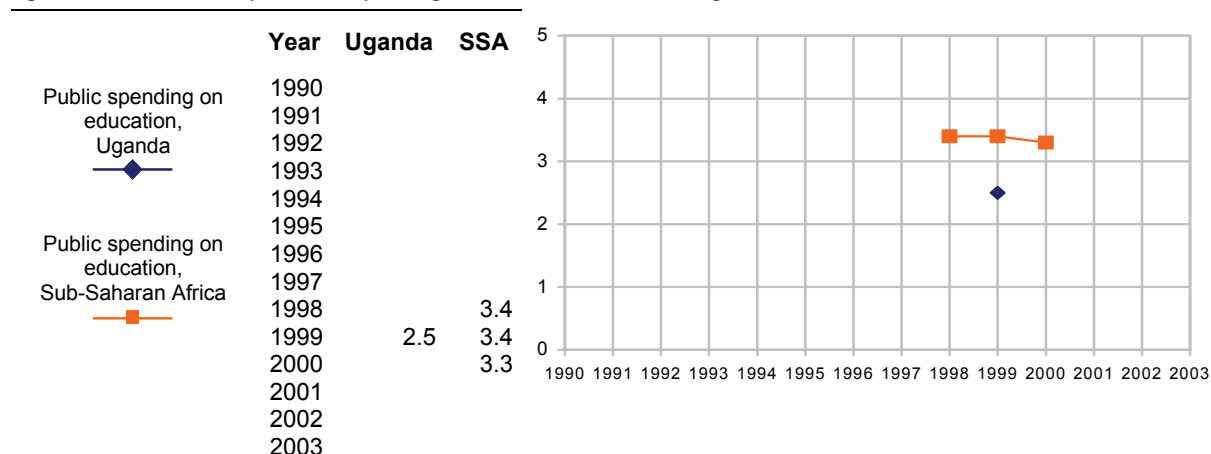
Figure 6.6.. Education output: Gross school enrolment, primary (%), Uganda and Sub-Saharan Africa, 1990-2003

	Year	Uganda	SSA
Gross school enrolment, Uganda	1990	69	73
	1991		
	1992		
	1993		
	1994		
	1995		
Gross school enrolment, Sub-Saharan Africa	1996		
	1997		
	1998	143	78
	1999	132	83
	2000		83
	2001	136	87
	2002	141	95
	2003		
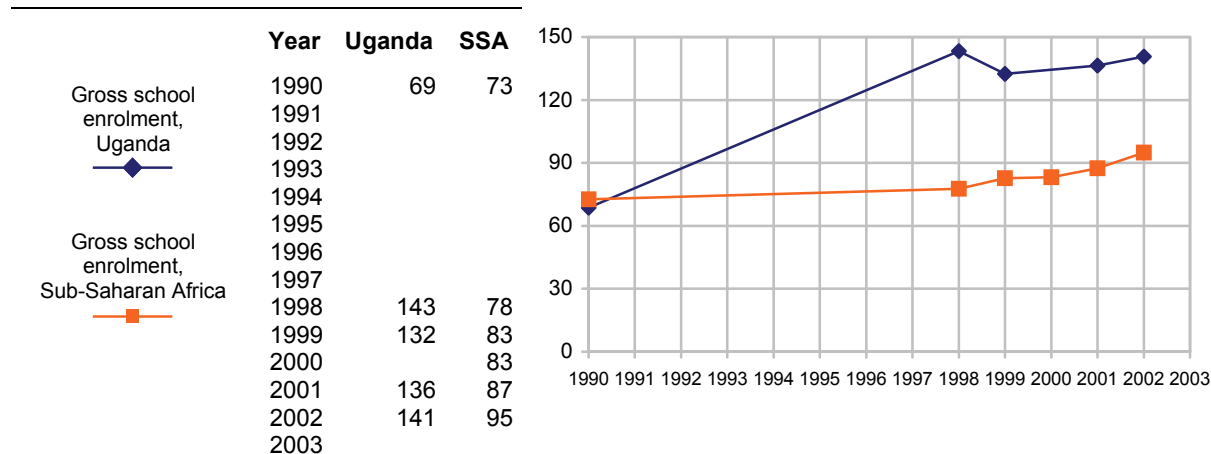
Figure 6.7.   Education output: Pupil-teacher ratio, Uganda and Sub-Saharan Africa, 1990-2003

	Year	Uganda	SSA
Pupil / teacher ratio, Uganda ◆	1990		
	1991		
	1992		
	1993		
	1994		
Pupil / teacher ratio, Sub-Saharan Africa ▬■▬	1995		
	1996		
	1997		
	1998	60	45
	1999	56	45
	2000		45
	2001	54	47
	2002	53	45
	2003		
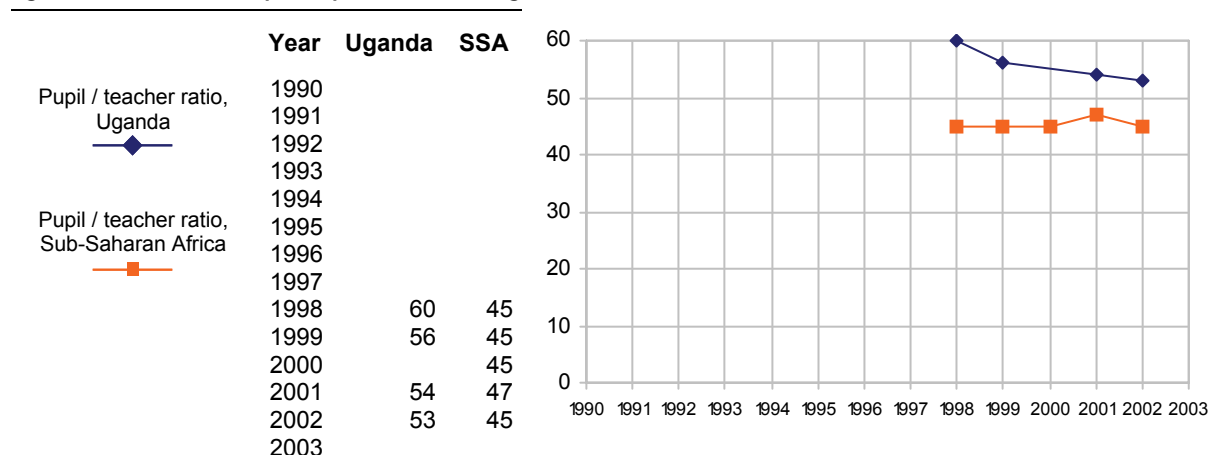
Figure 6.8.   Education output: Girl/boy ratio in primary schools, Uganda and Sub-Saharan Africa, 1990-2003

	Year	Uganda	SSA
Girl/boy ratio in primary schools, Uganda ◆	1990		
	1991		
	1992		
	1993		
	1994		
Girl/boy ratio in primary schools, Sub-Saharan Africa ▬■▬	1995		
	1996		
	1997		
	1998	89	82
	1999	89	85
	2000		85
	2001	96	85
	2002	96	85
	2003		
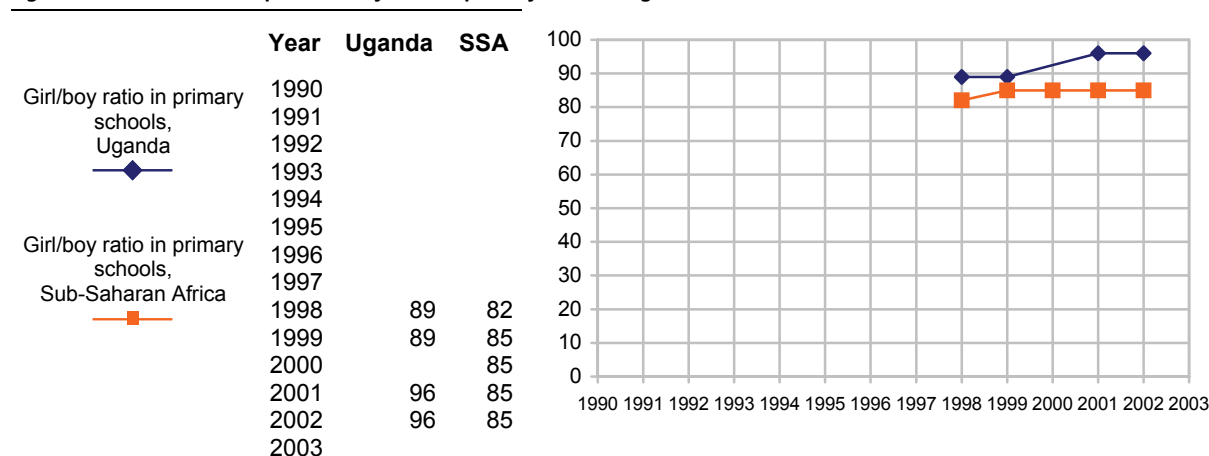
Figure 6.9.   Education outcome: Primary completion rate, Uganda and Sub-Saharan Africa, 1990-2003

	Year	Uganda	SSA
Primary completion rate, Uganda ◆	1990		50
	1991		
	1992		
	1993		
	1994		
Primary completion rate, Sub-Saharan Africa ▬■▬	1995		
	1996		
	1997		
	1998		
	1999		
	2000	58	
	2001	62	
	2002	64	59
	2003	63	
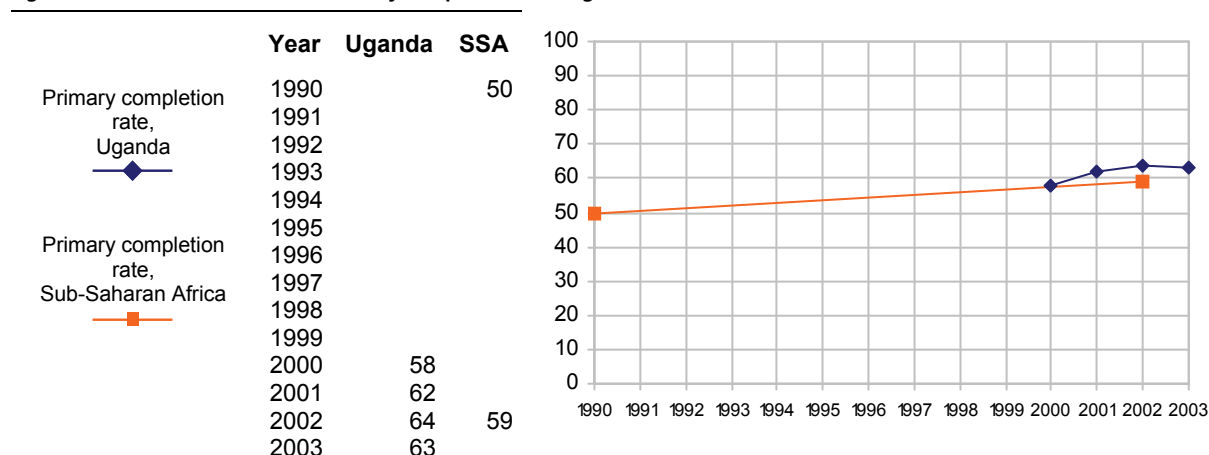
Figure 6.10.a. Education outcome: Literacy rate, 15-24-year-olds (%), Uganda and Sub-Saharan Africa, 1990-2003

Literacy rate,
Uganda
◆

Literacy rate,
Sub-Saharan Africa
■

Year	Uganda	SSA
1990	70	67
1991	71	68
1992	72	69
1993	73	71
1994	74	72
1995	75	73
1996	75	73
1997	76	75
1998	77	76
1999	78	77
2000	79	78
2001	79	80
2002	80	80
2003		
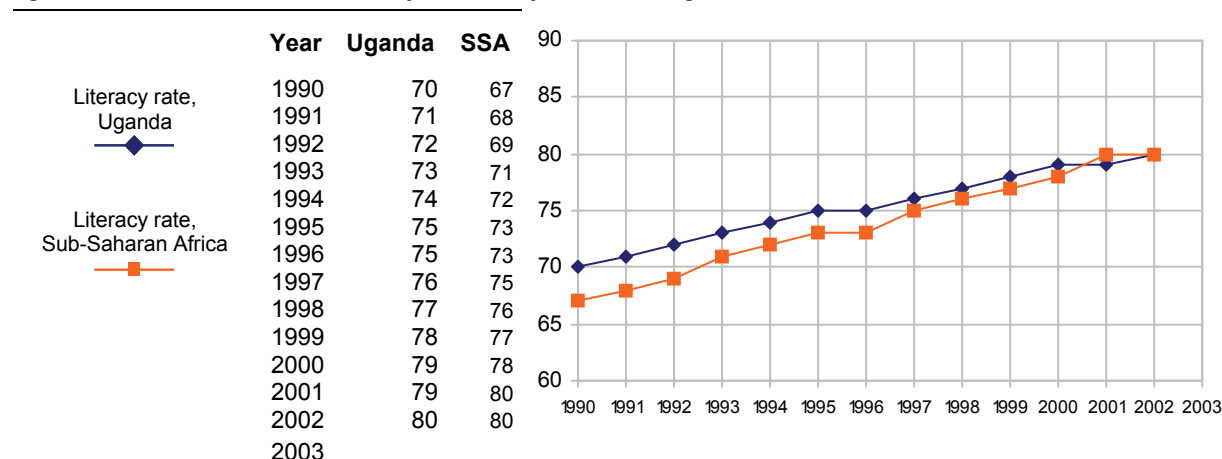
Figure 6.10.b. Education outcome: Female-male literacy ratio, 15-24-year-olds (%), Uganda and Sub-Saharan Africa, 1990-2003

Female-male literacy,
Uganda
◆

Female-male literacy,
Sub-Saharan Africa
■

Year	Uganda	SSA
1990	76	80
1991	77	81
1992	78	82
1993	79	83
1994	80	84
1995	80	85
1996	81	86
1997	82	87
1998	83	88
1999	84	89
2000	84	89
2001	85	90
2002	86	91
2003		
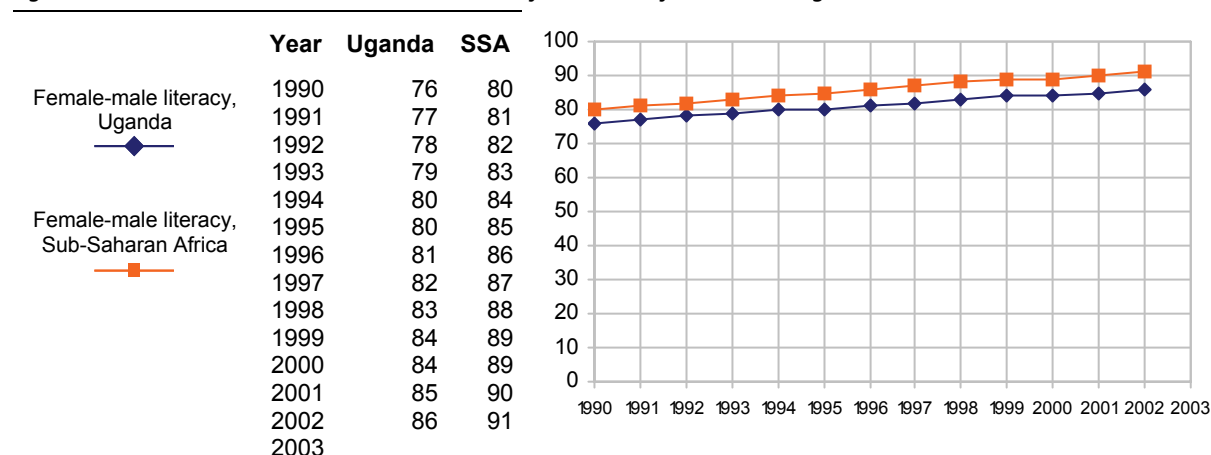
The education sector in Uganda and Sub-Saharan Africa: WDI contains very little data on input in the education sector. From the little data available, though, it appears that Uganda, at least in 1999, spent less on education than other countries in Sub-Saharan Africa. Perhaps surprising, then, that output in terms of enrolment is considerably higher in Uganda than in the region at large. High enrolment rates, however, come at a price, in this instance in the shape of a higher pupil/teacher ratio, which compromises the quality of primary education in Uganda. The girl/boy ratio, on the other hand, is slightly better in Uganda than in Sub-Saharan Africa, a fact that is not yet reflected in

the female-to-male literacy ratio, which has been higher in Sub-Saharan Africa throughout the period in question. The literacy rate has used to be marginally higher in Uganda than in the rest of the region, a difference that has now disappeared completely.

6.3. The water and sanitation sector
Neither input nor outcome indicators are available for Sub-Saharan's water and sanitation sector. Therefore, all we can present in this sector are the scarce data available on *access to improved water source* and *access to improved sanitation facility*, both of which are indicators we have introduced in previous chapters.

Figure 6.11. Water output: Access to improved water source (%), Uganda and Sub-Saharan Africa, 1990-2003

Year	Uganda	SSA
1990	44	49
1991		
1992		
1993		
1994		
1995		
1996		
1997		
1998		
1999		
2000		
2001		
2002	56	58
2003		

Access - water, Uganda

Access - water, Sub-Saharan Africa
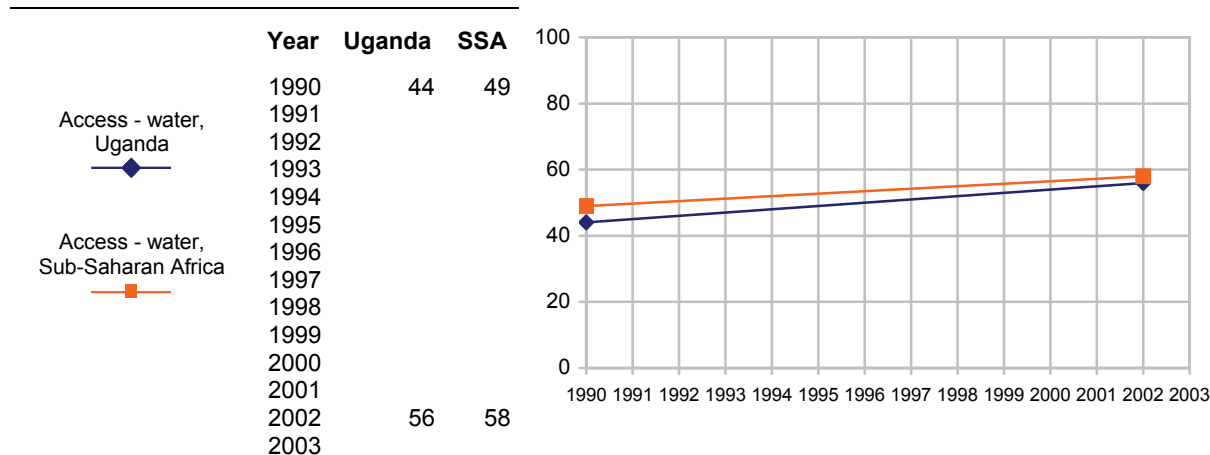
Figure 6.12. Sanitation output: Access to improved sanitation facility (%), Uganda and Sub-Saharan Africa, 1990-2002

Year	Uganda	SSA
1990	43	32
1991		
1992		
1993		
1994		
1995		
1996		
1997		
1998		
1999		
2000		
2001		
2002	41	36
2003		

Access - santiation, Uganda

Access - santiation, Sub-Saharan Africa
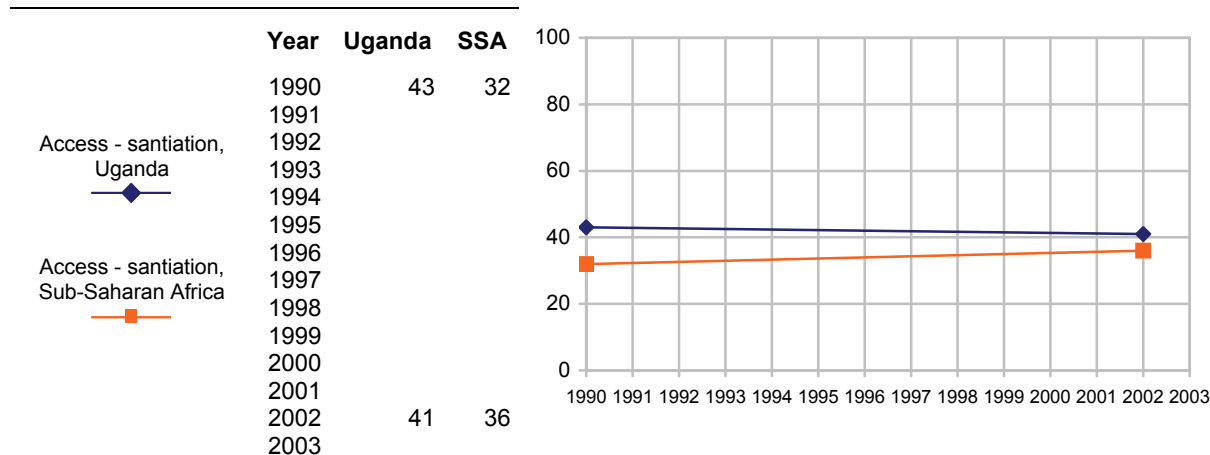
The water and sanitation sector in Uganda and Sub-Saharan Africa:
There is very little data for the water and sanitation sector. Based on available data, Sub-Saharan Africa on the average had better access to improved water compared to Uganda while the situation is the opposite for access to safe sanitation.

6.4. Impact: Monitoring poverty across countries

As stated earlier, poverty incidence based on the World Bank's PPP$1.08 poverty line has not been calculated for Uganda. It is therefore impossible to give a comparison of "pure" income poverty incidence in Uganda and Sub-Saharan Africa. Seeking to remedy this complication, we choose to look at the following indicators:

- *Poverty incidence based on the World Bank's international poverty line*: will be presented for Sub-Saharan Africa only, to give an indication of the general poverty trend in the region.

- *The Human Development Index*: A composite index constructed and calculated annually by the UNDP, aimed at giving a broader and more comprehensive perspective on poverty and development. The HDI is a number between 0 and 1. Sierra Leone and Niger, the two countries with the world's lowest level of human development, typically have a HDI value between 0.27 and 0.3. The global average has been around 0.72 in recent years, and Scandinavian and Western European countries typically have values above 0.93.

- *Life expectancy*: The number of years a newborn baby is expected to live, given the prevailing conditions.

We believe that these three indicators together can serve as a basis, at least, for judging how Uganda's poverty level compares to that of Sub-Saharan Africa.

Figure 6.13. Impact: Poverty incidence, based on international poverty line, Sub-Saharan Africa, 1990-2003

Year	PI-SSA
1990	45
1991	
1992	
1993	44
1994	
1995	
1996	46
1997	
1998	
1999	46
2000	
2001	46
2002	
2003	

PI
Living on less than
PPP$1 a day,
SSA
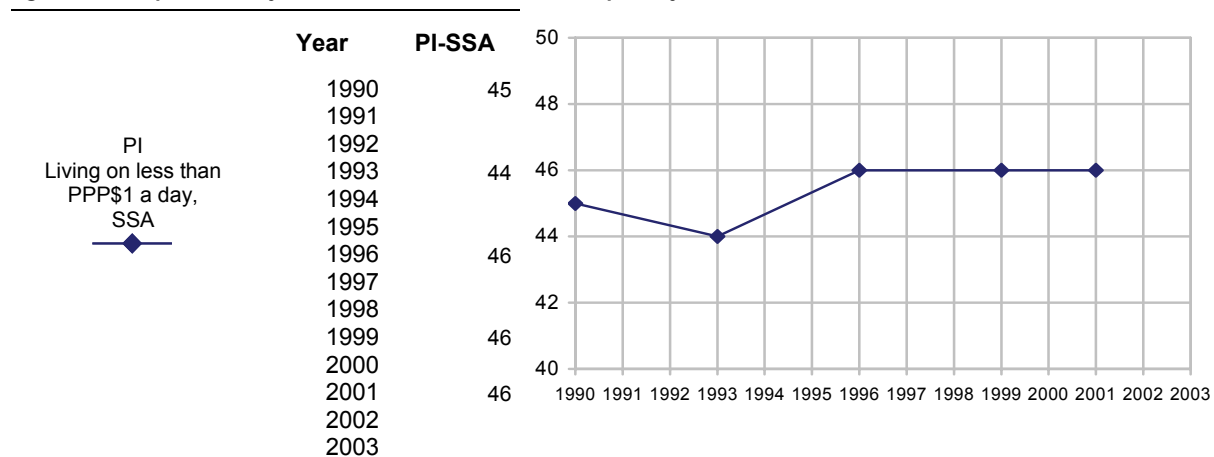
Figure 6.14. Impact: Human Development Index, Uganda and Sub-Saharan Africa, 1990-2003

Year	Uganda	SSA
1990	0.388	
1991		
1992		
1993		
1994		
1995	0.404	
1996		
1997	0.404	0.463
1998	0.409	0.464
1999	0.410	0.467
2000	0.444	0.471
2001	0.489	0.468
2002	0.493	0.465
2003		

HDI
Uganda

HDI
Sub-Saharan Africa
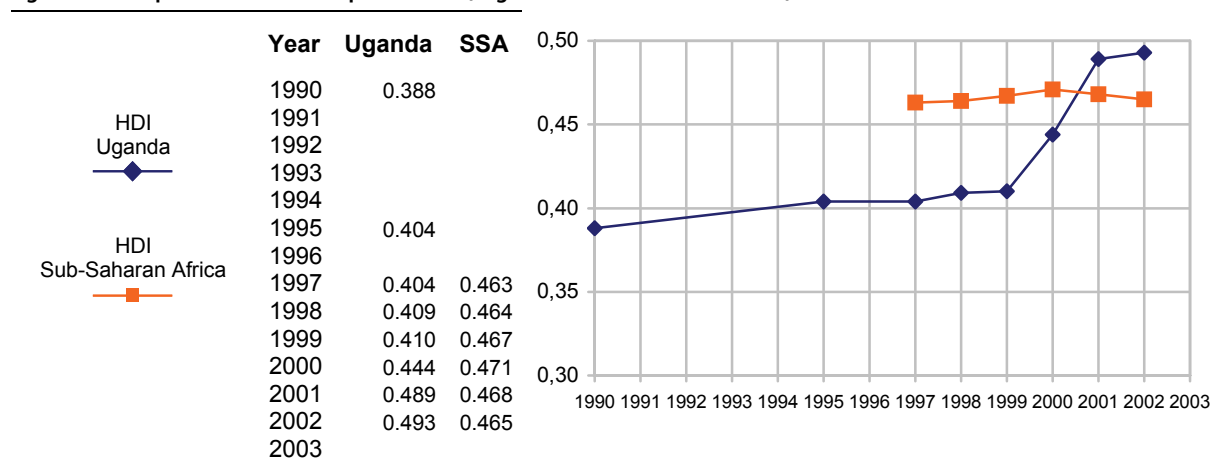
Figure 6.15. Impact: Life expectancy at birth (years), Uganda and Sub-Saharan Africa, 1990-2003

Year	Uganda	SSA
1990	47	50
1991		
1992	46	50
1993		
1994		
1995		
1996		
1997	42	49
1998		
1999	42	
2000		
2001		
2002	43	46
2003	43	46

Life expectancy,
Uganda

Life expectancy,
Sub-Saharan Africa
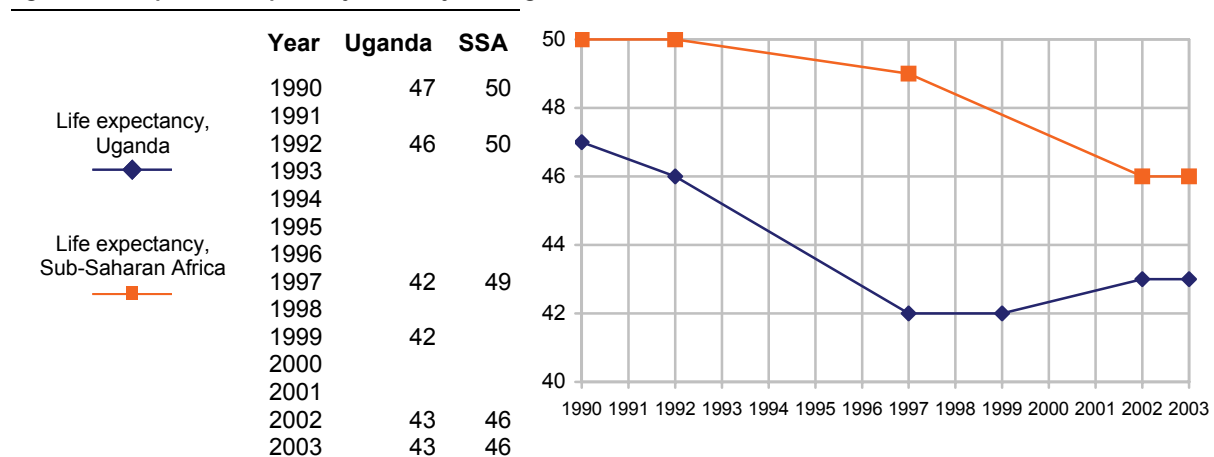
Figure 6.13 tells us that the poverty incidence based on the World Bank poverty line in Sub-Saharan Africa remained practically unchanged during the 90s. Although this level is not comparable to the poverty incidence previously presented for Uganda, it is interesting to note that while poverty seems to have been decreasing in Uganda, this has not been the case

in Sub-Saharan Africa[17]. Up until 2000, Uganda's human development level was lower than that of Sub-Saharan Africa, which has remained fairly stable

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[17] One should bear in mind that methodological choices may fully well influence trends, as well as actual levels, of poverty - and are indeed sometimes made with that purpose in mind. However, the poverty incidence is likely to have been decreasing to some extent in Uganda irrespective of which poverty line one chooses.

throughout the period (figure 6.14). But after two years of substantial improvements between 1999 and 2001, Uganda now has a higher HDI value than the region as a whole. Life expectancy has generally been between 3 and 4 years lower in Uganda than in Sub-Saharan Africa (figure 6.15). The HIV/AIDS epidemic in addition to civil strife, widespread human rights abuses and rampant guerrilla war are factors that contribute to the low life expectancy rate. It is worth noting, however, that while life expectancy in SSA has been falling ever since the beginning of the 90s, the trend in Uganda turned in 1999, decreasing the gap between the two areas. This is most likely related to Uganda's relative success in dealing with the HIV/AIDS epidemic. If this is the case, there might be reason to hope that the country's life expectancy will continue to rise in the coming years.

6.5. The feedback step: Economic development

Figure 6.16. The feedback step: GDP per capita (constant 2000 PPP$), Uganda and Sub-Saharan Africa, 1990-2003

Year	Uganda	SSA
1990	877	1 629
1991	892	1 580
1992	903	1 519
1993	934	1 497
1994	966	1 502
1995	1 046	1 501
1996	1 109	1 516
1997	1 130	1 582
1998	1 152	1 531
1999	1 209	1 545
2000	1 265	1 556
2001	1 305	1 572
2002	1 350	1 591
2003	1 376	1 613

GDP per capita, Uganda

GDP per capita, Sub-Saharan Africa
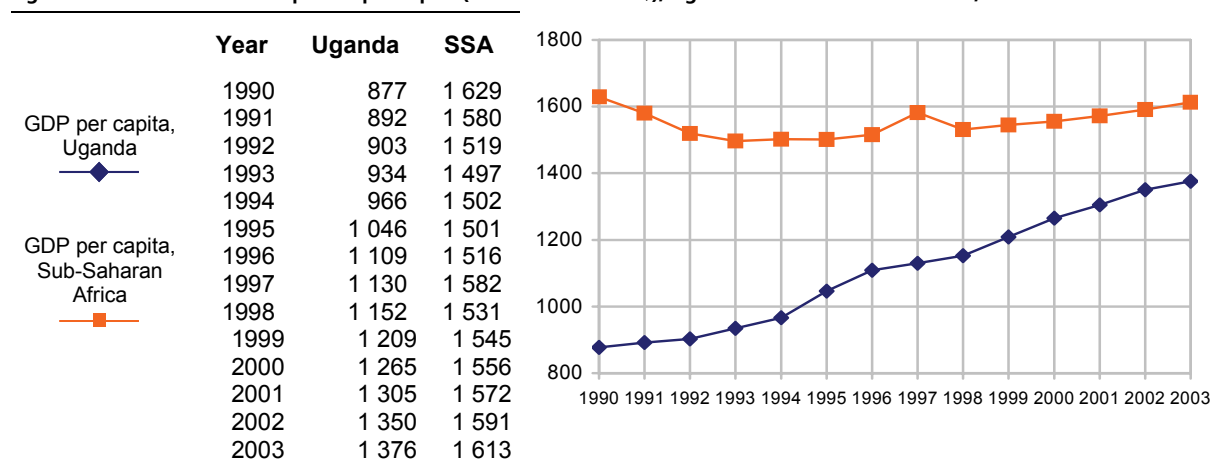
As seen from figure 6.16, Uganda has consistently had a low GDP per capita compared to the situation in the region in general. However, Uganda's economy has been growing over the decade, and the gap is decreasing.

7. Conclusions and recommendations

7.1. Aim of the report

We stress that the objective of this report is *to monitor the process* rather than to conduct an impact evaluation *per se*. The proposed data system, on the other hand, would serve as a sound base for impact evaluation. But in order to conduct such an evaluation, an approach to handle the counterfactual issue is required either by an economy wide model approach or a well-designed *ad hoc* sector analysis. Three main strengths of a systematic monitoring system should be stressed:

- A systematic monitoring system would be able to tell whether the planned policy (or program) impact materialises and whether the magnitude of the impact is as planned and expected. If not, alarm bells should ring and further studies are required.
- A systematic monitoring system would allow for trends to be established and monitored. Analysing trends is the best way in which to discover what impact - type and level - to expect from a given policy decision and/or resource allocation.
- A systematic monitoring system is well designed for dissemination (by paper and electronic means), useful both for policy makers and the public at large.

7.2. Empirical findings

7.2.1. The health sector

a) The national level

In real terms, Uganda saw a substantial increase in its public per capita health expenditures between 1998 and 1999. This increase, however, did not influence the output; the only output variable to have improved being the contraceptive prevalence rate, and this had already been improving for at least 9 years when the increase in input took place. Mortality rates, meanwhile, improved during the first half of the decade, but have since stagnated and even increased slightly. We have found no significant relationship between the different monitoring steps, the potential exception being between outcome and impact, seeing as both mortality and poverty have decreased over the period. This lack of relationship should be a major concern for Uganda's health policy makers, and the

mechanisms at work (or, as it happens, *not* at work) need to be studied further.

b) District/regional level

There were considerable differences between the districts in what concerns the resources allocated to public health, while the gaps were somewhat smaller between the regions. The Northern region received the largest official allocations, yet the area was only third in rank for vaccination rates and birth attendance, and they had the highest mortality rates, the highest number of underweight children and the highest incidence of poverty. This paradoxical situation could be a consequence of a circular logic that is outside the scope of this study: That money is being allocated where it is most badly needed. We have insufficient time series data to judge whether the situation in the Northern region has improved at all over the period. The Central region, on the other hand, had the highest level of skilled birth attendance, the lowest infant mortality and the lowest poverty incidence - confirming our expectation that these variables are, in fact, related. On the other hand, this study found no strong relationship between vaccination coverage and child mortality. There is a wide rural-urban gap; all indicators show that people living in the cities live a healthier life than the rural population. Uncharacteristically for many developing countries, Ugandan girls and women are of better health than their male counterparts.

c) Sub-Saharan Africa

Despite spending considerable less on health on a per capita basis, compared to Sub-Saharan Africa, this study found that Uganda has been doing at least as well as the region in terms of both output and outcome, again underlining our finding that there is not necessarily a direct relationship between public resources and results within this sector.

7.2.2. The education sector

a) The national level

Input in this sector remained fairly stable until 1998, but has since increased substantially. In summary, there have been improvements - if modest ones - on all

monitoring steps in Uganda's education sector. Hence, while the available data does not allow us to conclude that there are direct, significant relationships between the different monitoring steps, contrary to what we found in the health sector, there seems to be no reason to question the effects of resources allocated for the education sector.

b) District/regional level
The general pattern is that the Central region has the best education sector by far, while the situation is worst in the Northern region. In this sector, the rural areas are the ones that are better off in all respects bar one - the literacy rate. Regions that had the highest number of literates had the lowest poverty incidence and vice versa. Similarly, urban areas had the highest number of literates and the lowest poverty incidence. However, although this relationship appears to be quite strong, we cannot make conclusions regarding the direction of causality.

c) Sub-Saharan Africa
WDI provides very little data on input in the education sector. From the scarce data available, though, it appears that Uganda, at least in 1999, spent less on education than other countries in Sub-Saharan Africa. In spite of this, enrolment rates are higher in Uganda than in the region, but otherwise, this study has found only marginal differences between the two areas.

7.2.3. The water and sanitation sector
a) The national level
In Uganda's water and sanitation sector, there have been improvements in terms both of input, output, outcome and impact. In other words, in contrast to the previous two sectors, the water and sanitation sector behaved according to our expectations on all four monitoring steps, the possible expectation being the relationship between input and output, where data gaps make it difficult to draw conclusions.

b) District/regional level
There is a considerable regional divide in what regards access to safe sanitation: While only 56% of the population in the Northern region have access to sanitation, the corresponding figure is 97% in the Central and Western regions. What is more, there seems to be a strong relationship between output and outcome in this sector; the prevalence of diarrhoea being twice as high in the Northern as in the Central region. It is difficult to draw conclusions regarding water access due to lack of data.

c) Sub-Saharan Africa
There is very little data for this sector. Based on available data, Sub-Saharan Africa on the average had better access to improved water compared to Uganda, while the situation is the opposite for access to safe sanitation.

7.2.4. Poverty and economic development
a) The national level
Poverty decreased in Uganda over the period until 2000, while GDP per capita increased throughout the period. However, poverty started to increase again after 2000, despite a sustained GDP per capita increase. From this observation, along with the fact that inequality has increased substantially over the same period, we can conclude that although there seems to be a certain empirical, negative relationship between poverty and economic development, this relationship is neither perfect nor causal; there is no guaranteeing that the benefits of economic growth is distributed equally, if at all, among the poor.

b) District/regional level
Rural poverty was far more predominant than urban poverty in 2000. The Northern region had the highest poverty incidence followed by the Eastern region. The Central region had the lowest poverty incidence. The same regional pattern appears when we examine the human development index: here, the 8 top districts are all in the Central region, while the 5 at the bottom end of the scale are situated in the North and North-eastern parts of the country.

c) Sub-Saharan Africa
Poverty incidence, based on the World Bank poverty line, in Sub-Saharan Africa remained practically unchanged during the 90s. Although this level is not comparable to the poverty incidence previously presented for Uganda, we note that while poverty seems to have been decreasing in Uganda, this has not been the case in Sub-Saharan Africa. In sum, Uganda has been improving - and improving at a faster rate than the region in general - both when it comes to poverty incidence, human development, life expectancy and GDP per capita.

7.3. Recommendations
Finally, we outline five main recommendations:

1) Establishing a database for tracking resource and policy impact
A database for tracking resource and policy impact at the national level, combined with the electronic publication of yearly, condensed reports, will help ensure the coordination of statistical methods within poverty monitoring.

2) Co-ordination of definitions and indicators
The co-ordination of the statistical system - of concepts, definitions, coverage and quality of the Basic Social Policy Data - should be a priority task for UBoS. This also means that the UNHS and the UDHS should, as far as possible, stick to the same definitions of concepts from one survey to the next, and also repeat the same questions according to a rotation schedule. These measures will improve time series comparability.

3) Strengthening of capacity within line ministries
There is a need to strengthen capacity within line ministries in order to develop indicators for performance in all sectors. Improving budget management and reporting system are vital elements in the monitoring efforts, in which UBoS plays a central role.

4) Improving the system of district data compilation
Of special importance is to secure that as much data as possible are available on the district (and not only on the regional) level since this is where planning and execution of government policies is carried out.

5) Compiling data on private expenditures
The private sector contributes substantially to the different social sectors in Uganda. As long as money from private donors is unaccounted for, it is difficult to monitor to what extent input influences output indicators.

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Acronyms and Abbreviations

Acc San   Access to safe sanitation facility
Acc Wat   Access to safe water source
AIDS   Acquired Immune Deficiency syndrome
BCG   Baccilus of Calmette and Guérín vaccine
CMR   Child mortality rate
CPR   Contraceptive prevalence rate
DAC   Development Assistance Committee
DPT   Diptheria, pertusis and tetanus
F/M   Female-to-male literacy ratio
G/B   Girl-to-boy ratio
GER   Gross Enrolment Rate
GDP   Gross domestic product
HDI   Human Development Index
HDR   Human Development Report
HIPC   Heavily Indebted Poor Countries
HIV   Human Immunodeficiency Virus
IDA   International Development Association (Word Bank)
IMF   The International Monetary Fund
IMR   Infant mortality rate
LR   Literacy rate, 15-24-year-olds
MDGs,   Millennium Development Goals
MFPED   Ministry of Finance, Economic Planning and Development
MMR   Maternal mortality ratio
MoES   Ministry of Education and Sports
MoH   Ministry of Health
MWLE   Ministry of Water, Lands and Environment
NER   Net enrolment rate
NGO   Non-Governmental Organisation
NORAD   Norwegian Agency for Development Cooperation
NRA   National Resistance Army
NRM   National Resistance Movement
ODA   Official Development Assistance
OECD   Organisation for Economic Co-operation and Development
PARIS21   Partnership in Statistics for Development in the 21st Century
PASS   Program of Agricultural Statistical System
PEAP   Poverty Eradication Action Program
PG   Poverty gap, based on national poverty line
PI   Poverty incidence, based on national poverty line
PPP$ Purchasing Power Parity $
PRSP   Poverty Reduction Strategy Paper
P/T   Pupil-teacher ratio
SA   Statistical Abstract
SBA   Skilled birth attendance
SOSIT   Social Sector Initiative
SSA   Sub-Saharan Africa
UBoS   Uganda Bureau of Statistics
UDHS   Uganda Demographic and Health Survey
USh   Ugandan Shillings
UNC   Uganda National Congress
UNDP   UN Development Programme
UNHS   Uganda National Household Survey
UPE   Universal Primary Education
VC   Vaccination coverage
WDI   World Development Indicators
WHO   World Health Organisation

Background, Methodology, Data and Caveats

A Background

The report is based upon the approach presented in a general report originally aimed at providing information for Norwegian development cooperation. It was, however, soon realised that the only way to ensure timely and reliable statistics for Norwegian development cooperation is through not only national cooperation but also national ownership combined with institutional cooperation between the South and the North. This report is the second report to be presented in cooperation with the national statistical office.

This project was initiated as a sub-initiative under the NORAD Social Sector Initiative (SOSIT). The objective was to establish a system for basic and summary information for NORAD as a donor and the partner countries as decision makers at several levels:

- Overall national policies affecting resource allocation for social sectors
- Allocation and distribution of resources between and within sectors
- Access to and use of social services
- Outcome and achievements
- Poverty reduction and other end goals
- Feedback to economic, human and social development

To test the feasibility of the approach, two pilot countries were identified, namely Malawi and Uganda. Based on the experience from those two pilot countries, the project may be extended to comprise all of NORAD's five other main cooperating countries; Mozambique, Zambia, Tanzania Bangladesh and Nepal. It is also envisaged that - provided the pilot experience is deemed successful - the information needed to monitor the different policy steps over time should be included as a regular part of the compilation and presentation of statistics by the national statistical agencies.

A clear prerequisite was to follow international standards for collection, processing and dissemination of information. But also, additional required information needs were to be identified. The aim of this report is to identify a set of well-established indicators that are easy to obtain on a regular basis, and that provide the necessary information. Well-established and recommended indicators from international organisations such as the UN, the World Bank and the IMF were reviewed, and a selection of these indicators forms the core of this project.

Originally, three social sectors were included: health, education and water and sanitation. Hence, this project has concentrated on these sectors. However, since the end-goals are very much linked to poverty alleviation, it has been proposed to extend the number of sectors to include rural agricultural smallholders and the urban informal sector, since those two sectors are of great importance when it comes to poverty reduction. The indicators needed to cover those sectors have yet to be agreed upon, but possible indicators have been proposed. However, data covering these two sectors are not easily available in most countries. This also applies to Uganda at present. Hence, those two sectors are not covered in this pilot report.

Given the need to follow the effects of budget allocations, the project proposes that not only indicators on the national level be included, but that data also ought to be broken down into smaller geographical and socio-economic units such as regions, districts, sex and place of residence.

This presentation will include both information over time and information across geographical areas and socio-economic groups. As far as possible, 1990 has been chosen as the baseline year, and data are presented up to the most recent year for which they are available.

Uganda has had a number of initiatives towards the development goals, and the 1997 Poverty Eradication Action Plan (PEAP) is supposed to be a national planning framework to guide detailed medium term sector plans, district plans and the budget process. However, capacity constraints within line ministries have been a serious limitation in sector planning. Part of the PEAP is the monitoring strategy, which involves a large number of institutions like the Poverty Monitoring Unit in MFPED, the Uganda Bureau of Statistics and the Uganda Participatory Poverty Assessment Project. Outlined as part of the monitoring strategy are household surveys to help prepare high quality estimates of trends in poverty, as well as the need for developing indicators for performance in all sectors and the proposed Geographical Information system, which requires the population census to be completed on time. In a

joint staff assessment report of IMF and IDA in 2003, the need for oversight, transparency of budget and for strengthening of budget management were emphasised.

Further details on the Basic Social Policy Data project are documented in: Bjørn K Wold, Ingvar T. Olsen and Stein Opdahl, Basic Social Policy Data, Statistics Norway, 2002.

B Methodology[18]

B.1 Presentation of the model

To fulfil the objective, it is necessary to follow the process step by step, ideally as follows:[19]

Figure 1.1 A Comprehensive Causal Chain

I Macro-policy	II Selected macro-level stat.	III Sector-policy	IV Sector-allo-cation	V Internal sector-allocation	VI Service standard	VII Use of service	VIII Outcome, status	IX Poverty reduction & other end goal impact from health, educ. etc.
Calendar	Indicator	Calendar	Indicator	Indicator	Indicator	Indicator	Indicator	Indicator
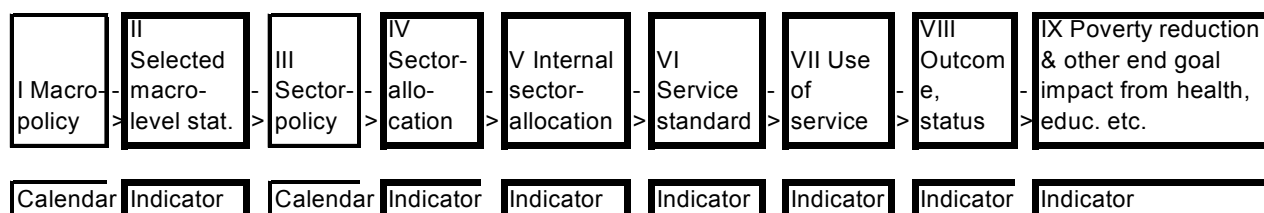
1. *Macro policy*: General policy including macroeconomic policy, custom and foreign trade policy, external economic shocks, war, and civil war. *Event calendar.*
2. *Selected macro level statistics:* External economic conditions (terms of trade, export prices, oil price), internal economic trends (savings, investments, major annual production fluctuations such as in agriculture), public budget and accounts. *Statistics.*
3. *Sector policy*[20]. Regulations, financing systems, organizations, public/ private balance, decentralizing, human resource management. *Event calendar.*
4. *Sector allocation*: Allocation of public and private resources for social sectors. *Statistics.*
5. *Internal sector allocation*: Allocation of resources within each sector by primary, secondary or tertiary service, by geographical divisions: provinces/ districts, and by centrality level: urban/ rural. *Statistics.*
6. *Service standard/ access to service*: Standard of public and private services, disaggregated as above by service level, geographical divisions, and centrality, but also by target groups: by poverty/ income group, by ethnicity, by occupation, by demographic characteristics such as age, gender, type of household and life cycle. *Statistics.*
7. *Use of services*: User frequency of public and private products and service offers, disaggregated as above. *Statistics.*
8. *Outcome/ status*: Achieved status such as health status and literacy status, disaggregated as above.
9. *Poverty reduction and other end goal impact of changes in health, education etc.* Social and economic impact of changes in health, education, water supply, sanitation, social networks, welfare- and other targeted support for special groups.

The second step in this comprehensive list is background information. The first and third steps are event calendar type of information. For presentation purposes, steps four and five as well as six and seven are combined. This allows us to present a simplified chain of impulses and effects in four main steps, as follows:

The report has been structured around an "input-output-outcome-impact" framework, which makes it possible to follow sector allocations via service standard and use, outcome and achievements and finally to poverty reduction and other end-goals, as depicted in the figure below.

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[18] Model and discussion taken from Wold et al. 2004.

[19] Thick lines in 2.2 show the need for statistical indicators, while thin lines show the need for an event calendar of important economic and social events including such as natural catastrophes, external shocks and policy decisions.

[20] Including sector policy implies including an event calendar.

Figure 1.2 A. Simplified Causal Chain or Monitoring Chain
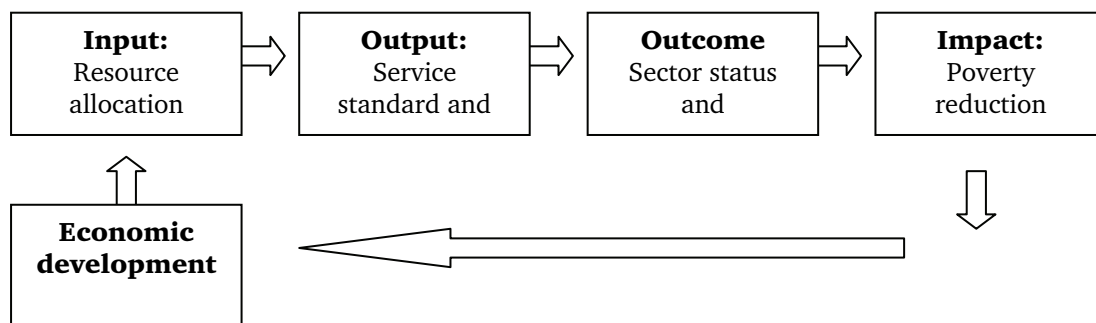
Each of these steps requires a presentation of measures and indicators. For each of the three sectors included in this report, statistical information for each step in the policy chain will be presented. It is important to stress that the objective is *to monitor the process* rather than to conduct an impact evaluation. The data system proposed would serve as a sound base for impact evaluation. But in order to conduct such an evaluation, an approach to handle the counterfactual issue is required either by an economy wide model approach or a well-designed *ad hoc* sector analysis.

2.2. Choice of indicators:

The Millennium Development Goals (MDGs) comprise 8 goals, 18 targets and 48 indicators (UN, 2001a). The 48 indicators and 18 targets presented in appendix 3 represent the following 8 dimensions:

> Goal 1: Eradicate extreme poverty and hunger
> Goal 2: Achieve universal primary education
> Goal 3: Promote gender equality and empower women
> Goal 4: Reduce child mortality
> Goal 5: Improve maternal health
> Goal 6: Combat HIV/AIDS, malaria and other diseases
> Goal 7: Ensure environmental sustainability
> Goal 8: Develop a global partnership for development

The indicators used in this report have been chosen after a consideration of methodological and practical issues. The overarching idea has been to follow the effects of resource allocation via MDG targets and ultimately to poverty reduction and economic development. Therefore, where possible, indicators have been chosen in correspondence with those presented in the Millennium Declaration and the Uganda Poverty Reduction Strategy Paper. In some instances, however, data gaps have made this impossible (for a more detailed discussion, please refer to section 1.5 below, and appendix 4).

C Data

C.1 A general note on availability

Data gaps present a major problem for presenting a full picture of the three sectors in Uganda - this is particularly true for the water and sanitation sector. Some indicators are available for a single year only, while others are not available at all, and hence omitted from the report. In general most data are not available at the district level, but only at national and regional level. These dimensions will be discussed for the individual instances throughout the report.

C.2 Data sources

- *Uganda National Household Surveys*, (UNHS) were carried out in 1992-93, 1993-94, 1994-95, 1995-96, 1997, 1999-2000 and 2002-2003. The sample sizes for the survey have varied over time, but for the last survey field, the sampling size was about 10 000 households, the same as for the 1992/93 survey. The intermediate surveys had a lesser sample size of about 5000 households. Apart from data at the national level, the surveys can give data broken down by sex, place of residence (urban/rural) and statistical region[21].

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[21] Statistical region is not an administrative level, but a technical level defined for statistical purposes between the national level and districts, defined as follows: *Central:* Kalangala, Kampala, Kayunga, Kiboga, Luwero, Masaka, Mpigi, Mubende, Mukuno, Nakasongola, Rakai, Sembabule, Wakiso; *Eastern:* Bugiri, Busia, Iganga, Jinja, Kaberamaido, Kamuli, Kapchorwa, Katakwi, Kumi, Mayuge, Mbale, Pallisa, Sironko, Soroti, Tororo; *Northern:* Adjumani, Apac, Arua, Gulu, Kitgum, Kotido, Lira, Moroto, Moyo, Nyakapiripirit, Nebbi, Pader, Yumbe; *Western:* Bundibugyo, Bushenyi, Hoima, Kabale, Kabarole, Kamwenge, Kanungu, Kasese, Kibaale, Kisoro, Kyenjojo, Masindi, Mbarara, Ntungamo, Rukungiri,

- *Uganda Demographic and Health Survey* (UDHS) was carried out in 1989, 1995 and 2000. Those surveys are normally planned to be carried out with 5-year intervals. The sample size for the 2000-01 survey was about 7 200 women aged 15-49 and about 2000 men aged 15-54. Apart from data at the national level, the surveys can give data broken down by sex, place of residence (urban/rural) and statistical region (statistical region only for the 1995 and 2000 surveys).
- Data on public expenditures for the sectors covered are provided by the *Public Finance Statistics* division at UBoS, based on budget documents from the various ministries. Data on private expenditures, to the extent that they are available, were compiled for the annual Statistical Abstracts from 1996-2004 and data are available from 1997/98-2002/03. Data from earlier years cannot be compiled due to the fact that a new budget system was introduced in 1997/98 allowing for breakdowns of the budget and expenditures by sector.
- Data on education based on administrative registers is provided by the *Ministry of Education*, especially the Educational Census, carried out on an annual basis since 2000. Up to 2002, the Census mainly covered public education, but from 2003 onwards, there are plans to include also private schools on a census basis.
- Data on health based on administrative records are obtained from the Ministry of Health.

D Caveats

It should be noted that this report has a number of limitations, some of which are due to choices regarding methodology and scope, and some of which may hopefully be remedied in future research and data compilation.

Conception of poverty: Impact is measured as income poverty, measuring the economic flow, as the percentage of households living below Uganda's national poverty line (for definition and discussion, see section 4.1.2). It is not within the scope of this study to examine the distribution of assets among the poor, other than to record that while poverty has fallen over the period, inequality has risen (figure 2.2).

Time lag: This report spans across a period of twelve years, in some instances less, due to data gaps. For some relationships (e.g. between investment in health and vaccination coverage), this time frame is probably adequate. For other relationships, however, such as between school enrolment and literacy rates, one can hardly expect to find a relationship within the period - as the 6-year-olds enrolled in 1998 will not yet be in the relevant age group (15-24 years). The report should therefore be read as much as a proposal and model for future analysis, as an analysis of the period it investigates *per se*.

Lack of data: For some of the indicators included in the report, the time series are incomplete. Data on other indicators were found to be suffering from flaws so severe that they were excluded from the report altogether. One example is HIV/AIDS numbers, which of course influence the health sector considerably, although Uganda has often been cited as a "success story" in this respect, being one of the first African countries to reverse the spread of the disease. However, prevalence estimates vary largely. Another example, also in the health sector, is the maternal mortality ratio, which is high in all of Sub-Saharan Africa, Uganda being no exception. Some data are available for the later years, but all international agencies warn about severe underreporting, misclassification and differences in methodology, making it problematic to use the data meaningfully. Private donors contribute substantially to the three sectors, something that has not been taken into account in this report. Therefore total expenditures are underestimated. Some data on private sector Primary Health Care are available from the Catholic Church, but not from other private organisations (e.g. Protestant churches and Moslem organisations).

Coordination of definitions: Different surveys use different definitions and phrase questions differently. One example is the indicator "births attended by skilled personnel", which is defined differently in UDHS and UNHS. Another example is the two terms "safe", "basic" and "improved" water and sanitation, which are both used in the Millennium Development Goals (Goal 7, target 10 uses the terms "safe" and "basic", while "improved" is the term used in indicator 30 and 31). The World Bank's World Development Indicators also use the term "improved". Sometimes, these are merely semantic differences; at other times discrepancies in definitions and methodology make it impossible to adequately make comparisons over time. In this report, we will therefore usually choose the definition for which the best data are available (for a detailed overview of definitions, please refer to appendix 2).

Definitions

A The health sector[22]

Input:

Public health expenditures as per cent of total public expenditure: Recurrent and development public expenditure for health as per cent of the total recurrent and development public expenditure.

Health expenditures per capita: The sum total for recurrent and development public expenditure for health, constant 1995 prices, million Ugandan shillings, divided by the provisional 2001 Census results from the year before.

Output:

Total vaccination coverage: Share of children 12-23 months fully immunised, defined as having received 3 doses of polio, 3 doses of DPT, one dose of BCG and being vaccinated against measles.

Births attended by skilled personnel: Share of births attended by skilled personnel (doctor/nurse/midwife), per cent of live births in the 5 years preceding the survey.

Contraceptive prevalence rate: The percentage of currently married women who are using a modern method of family planning.

Outcome:

Infant mortality rate: The probability of dying between birth and first birthday, expressed in deaths per 1000 live births in the 5 year interval preceding the survey.

Child mortality rate, 12-59 months: The probability of dying between 1st and 5th birthday, expressed in deaths per 1000 1-year-old children in the 5 year interval preceding the survey.

Prevalence of underweight children: The proportion of children under 5 with low weight for age, in per cent.

Under-five mortality rate: The probability of dying between birth and 5th birthday, expressed in deaths per 1000 live births in the 5 years preceding the survey.

B The education sector[23]

Input:

Public education expenditures as per cent of total public expenditure: Recurrent and development public expenditure for education as per cent of the total recurrent and development public expenditure.

Public expenditures to primary education per child: The sum total of recurrent and development public expenditures to education, divided by number of 5-14-year-old children, based on preliminary results from the 2002 Census, constant 1995 USh.

Output:

Net enrolment rate: Percentage of children aged 6-12 enrolled in primary school

Pupil-teacher ratio: The total number of students enrolled in primary school divided by the total number of teachers in the same school.

Ratio of girls to boys at primary level: The number of girls enrolled in primary schools per 100 boys.

Gross Enrolment Rate: The total number of students enrolled in primary school divided by the total number of children at primary school age.

Repeaters: The percentage of pupils who spend more than 1 year in the same class, primary level.

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[22] Definitions taken from DHS
[23] Definitions taken from UBOS/Ministry of Finance.

Access to primary school: Percentage of children who live within 1 kilometre of a primary school.

Outcome:
Proxy completion rates:
a) Gross PLE registration rate, as % of 15-17-year-olds (district level)
b) Gross P5/P1 ratio (national level)

Literacy rate, 15-24-year-olds: Percentage of 15-24-year-olds who can both read and write.

Ratio of literate females to males: Number of literate females per 100 literate males.

C The water and sanitation sector[24]
Input:
Public expenditure to water and sanitation as per cent of total public expenditure: Recurrent and development public expenditure for water and sanitation as per cent of the total recurrent and development public expenditure.

Public expenditure to water and sanitation per capita: The sum total of recurrent and development public expenditures for water and sanitation divided by the provisional 2001 Census results from the year before, converted to constant 1995 USh.

Output:
Access to safe water: Percentage of households with access to safe water source i.e. piped water, protected wells, springs or boreholes.

Access to safe sanitation: Percentage of households with access to safe sanitation.

Outcome:
Prevalence of diarrhoea: Percentage of children under 5 years with diarrhoea in the two weeks preceding the survey.

D Impact indicators[25]
Impact:
Poverty incidence: Estimated percentage of population below the national poverty line. There is no officially approved poverty line in Uganda. Appleton uses 6252 Ugandan shillings (1989 prices) per adult equivalent per month, computed on the basis of price of an average food basked for the poor population and an adult male calorie consumption of 3000 calories per day + estimated consumption of non food items. For further information, see Appleton 1998.

Poverty gap: The average distance to the poverty line for the population below the poverty line. The indicator is computed on the basis of the poverty incidence as presented above.

Human Development Index: A composite index developed by UNDP, measuring different aspects of poverty and development.

Life expectancy at birth: The number of years a newborn child can expect to live.

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[24] Definitions from UNHS.

[25] Definitions from UNHS and Appleton 1999.

The Millennium Development Goals and indicators

	Goals and targets	Indicators
Goal 1	**Eradicate extreme poverty and hunger** *Target 1:* Halve, between 1990 and 2015, the proportion of people whose income is less than $1 a day *Target 2:* Halve, between 1990 and 2015, the proportion of people who suffer from hunger	1: Proportion of population below PPP$1 a day 1a: Poverty headcount ratio (% of population below national poverty line) 2: Poverty gap ratio 3: Share of poorest quintile in national consumption 4: Prevalence of underweight in under-five children 5: Proportion of population below minimum level of dietary energy consumption
Goal 2	**Achieve universal primary education** *Target 3:* Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	6: Net enrolment rate in primary education 7a: Proportion of pupils starting grade 1 who reach grade 5 7b: Primary completion rate 8: Literacy rate of 15 to 24-year-olds
Goal 3	**Promote gender equality and empower women** *Target 4:* Eliminate gender disparity in primary and secondary education preferably by 2005 and in all levels of education no later than 2015	9: Ratio of girls to boys in primary, secondary and tertiary education 10: Ratio of literate women to men ages 15 to 24 11: Share of women in wage employment in the non-agriculture sector 12: Proportion of seats held by women in national parliament
Goal 4	**Reduce child mortality** *Target 5:* Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate	13: Under-five mortality rate 14: Infant mortality rate 15: Proportion of 1-year-old children immunized against measles
Goal 5	**Improve maternal health** *Target 6:* Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio	16: Maternal mortality ratio 17: Proportion of births attended by skilled personnel
Goal 6	**Combat HIV/AIDS, malaria and other diseases** *Target 7:* Have halted by 2015 and begun to reverse the spread of HIV/AIDS *Target 8:* Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases	18: HIV prevalence among pregnant women aged 15 to 24 19: Condom use rate of the contraceptive prevalence rate 19a: Condom use at last high-risk sex 19b: Percentage of 15-24-year-olds with comprehensive correct knowledge of HIV/AIDS 19c: Contraceptive prevalence rate 20: Ratio of school attendance of orphans to school attendance on non-orphans ages 10-14 21: Prevalence and death rates associated with malaria 22: Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures 23: prevalence and death rates associated with tuberculosis 24: Proportion of tuberculosis cases detected and cured under directly observed treatment short course (DOTS)
Goal 7	**Ensure environmental sustainability** *Target 9:* Integrate the principles of sustainable development into country policies and program and reverse the loss of environmental resources	25: Proportion of land area covered by forest 26: ratio of area protected to maintain biological diversity to surface area 27: Energy use (kilograms of oil equivalent) per $PPP1 GDP 28: Carbon dioxide emissions (per capita) and

		consumption of ozone-depleting chlorofluorocarbons (ODP tons) 29: Proportion of population using solid fuels
	Target 10: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation *Target 11:* Have achieved, by 2020, a significant improvement in the lives of at least 100 million slum dwellers	30: Proportion of population with sustainable access to an improved water source, urban and rural 31: Proportion of population with access to improved sanitation, urban and rural 32: Proportion of households with access to secure tenure
Goal 8	**Develop a global partnership for development** *Target 12:* Develop further an open, rule-based, predictable, nondiscriminatory trading and financial system (includes a commitment to good governance, development, and poverty reduction—both nationally and internationally) *Target 13:* Address the special needs of the least developed countries (includes tariff-and quota-free access for exports enhanced program of debt relief for HIPC and cancellation of official bilateral debt, and more generous ODA for countries committed to poverty reduction) *Target 14:* Address the special needs of landlocked countries and small island developing states (through the Program of Action for the Sustainable Development of Small Island Developing States and 22nd General Assembly provisions) Target 15: Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term Target 16: In cooperation with developing countries, develop and implement strategies for decent and productive work for youth Target 17: In cooperation with pharmaceutical companies, provide access to affordable, essential drugs in developing countries Target 18: In cooperation with the private sector, make available the benefits of new technologies, especially information and communications	33: Net ODA total and to the least developed countries, as a percentage of OECD/DAC donors' gross national income 34: Proportion of bilateral, sector-allocable ODA of OECD/DAC donors for basic social services 35: Proportion of bilateral official development assistance ODA of OECD/DAC donors that is united 36: ODA received in landlocked countries as proportion of their gross national incomes 37: ODA received in small island developing states as proportion of their gross national incomes 38: Proportion of total developed country imports (by value and excluding arms) from developing countries and from least developed countries, admitted free of duty 39: Average tariffs imposed by developed countries on agricultural products and textiles and clothing from developing countries 40: Agricultural support estimate for OECD countries as a percentage of their gross domestic product 41: Proportion of ODA provided to help build trade capacity 42: Total number of countries that have reached their HIPC decision points and number that have reached their HIPC completion points (cumulative) 43: Debt relief committed under HIPC initiative 44: Debt services as a percentage of exports of goods and services 45: Unemployment rate of 15-24-year-olds, male, female and total 46: Proportion of population with access to affordable, essential drugs on a sustainable basis 47: Telephone lines and cellular subscribers per 100 population 48a: Personal computers in use per 100 population 48b: Internet users per 100 population

Choice of indicators

The indicators used in this report have been chosen after a consideration of methodological and practical issues. The overarching idea has been to follow the effects of resource allocation via MDG targets and ultimately to poverty reduction and economic development. Therefore, where possible, indicators are chosen in correspondence with those presented in the Millennium Declaration. In some instances, however, data gaps have made this impossible.

A Health indicators[26]
Input:
Expenditure to health as a share of public expenditure: Available for all years
Public expenditure for health per capita. Available for all years

Not included:
Public and private expenditures for health: No available data on private expenditures.
Public and private expenditures for primary health care: Not available
Share of private expenditures of total expenditure for primary health care: Not available
Household expenditure for health

Output:
Total vaccination rate: The data are based on the UDHS and are available for 1989, 1995 and 2000.
Births attended by skilled personnel: This indicator can be obtained both from UNHS and UDHS, but the level is a bit lower in UNHS than in UDHS, probably due to different definitions of skilled personnel between the two surveys. The UDHS data are presented in the text. UNHS data are shown in Annex 3 due to fewer observation points. It should be considered to include this information in future rounds of UNHS to secure time series.
Contraceptive prevalence rate: The data are based on the UDHS and are available for 1989, 1995 and 2000.

Not included:
Access to health facility regardless of type: This indicator can be provided by UNHS, but only for 2000. It should be considered to include this information in future rounds of UNHS to secure time series.
Doctors per 100 000 population: Not available.

Outcome:
Infant mortality rate: The data are based on the UDHS and are available for 1989, 1995 and 2000.
Child mortality rate: The data are based on the UDHS and are available for 1989, 1995 and 2000.
Under-five mortality: The data are based on the UDHS and are available for 1989, 1995 and 2000.
Under-five underweight: The data are based on the UDHS and are available for 1989, 1995 and 2000.

Not included:
Under-5 malaria morbidity
Reported AIDS cases: The data come from the STD/AIDS control programme, which monitors HIV infection using sentinel surveillance sites that are geographically distributed to represent all parts of the country. There are 20 sentinel surveillance sites based in antenatal clinics in hospitals and one STD referral clinic in the country. Hence the data are not necessarily representative for the whole country. Since it is not possible to present those data as a percentage of total population. We have chosen to present them as an index with the reported AIDS cases in 1990 is set equal to 100 for ease of presentation. The data are presented in appendix 5.
HIV/AIDS prevalence: The Uganda Human Development Report 2002 gives the estimated proportion of the population living with HIV/AIDS for 1999 and 2001.Since only 2 years are available, the data are presented in appendix 5.
TB-prevalence per 100 000 population: In collaboration with the National TB/Leprosy Programme, the STD/AIDS Control Programme collects tuberculosis morbidity data using passive reporting methodologies. Reporting is health facility based, with health workers reporting TB cases based on clinical signs and symptom,. radiological confirmation and laboratory based AAFB ZN staining and microscopy. The data are presented in appendix 5.
Maternal mortality ratio: Data are available for 1989, 1995 and 2000, but numbers are highly unreliable due to gross under- and misreporting. The data are presented in appendix 5.

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[26] Definitions taken from DHS

Height-for-age is a measure of linear growth: Children who are more than two standard deviations below the median of the NCHS reference population are considered short for their age or "stunted", and those who are below three standard deviations (-3 SD) from the median of the reference population are considered severely stunted. Stunting is a condition that reflects failure to receive adequate food intake over a long period and is also affected by repeated episode of illness. Height-for-age thus represents a measure of the long-term effects of under nutrition in a population and does not vary appreciably according to recent diet. Hence it is not affected by the season in which data collection took place.

The weight-for-height index describes current nutritional status. Children who are below –2 SD from the median of the reference population are considered "wasted" or too thin for their height and children whose weight-for-height is below –3 SD of the reference median are considered severely wasted. Wasting represents the failure to receive adequate nutrition in the period immediately preceding the survey and may be the result of recent episodes of illness. Severe wasting is closely linked to mortality risk and may reflect acute shortage of food.

B Education indicators
Input:
Total public expenditure on education per capita: Available for all years.
Public expenditure to education as a share of total public expenditures: Available for all years.

Not included:
Private expenditure for education : has not been possible to identify.
Household expenditure for education

Output:
Net enrolment rate: available from UNHS, as well as from the MoE. But when calculating the net enrolment rate on the basis of MoE data. the figure regularly is greater than 100, which is not logically possible. This is most probably due to difficulties in assessing the age of students. as well using age specific population projections. Those data will not be included.
Pupil/teacher ratio: Available on national level for all the years to be covered, as well as on district level in 2001 and 2003.
Girl/boy ratio in primary schools: Data available on national level for all years between 1996 and 2002, as well as on regional level for 2001.
Access to primary school: data are only available from 1995/96 and 1999/2000, therefore only included on the district level. It is strongly recommended that this indicator be included on a regular basis in future survey rounds.

Not included:
Student/textbook ratio for grade 4-7, and number of students per classroom: *based on the Educational Census with district figures available.*
Drop-out rate: based on the Educational census and only available for 2000 and 2001.
School teachers who are certified to teach according to national standards: *The data are available only for 2000 and 2001, and only on national level.*

Outcome:
Literacy rate: Available for most years
Female/ male literacy rate: Available for most years
Proxy completion rates: could be computed for all years from 1996 onwards on the national level, and for 2002 on the district level.

Not included:
Completion of 4th grade: Figures are available from various sources, but are highly discrepant, due to differences in methodology.

C Water and sanitation indicators

Input:
Public expenditures to water and sanitation: *Private expenditures are not easily available hence only public expenditure is presented. Expenditures are presented as per capita expenditures in constant prices. Data are available only from 1998 onwards.*
Share of public expenditure for water and sanitation as a share of total government expenditure: *Data are available only from 1998 onwards.*

Output:
Access to safe water: *Data only available for 1996, 2000 and 2002. It is strongly advised that this indicator be included on a regular basis in future surveys.*
 Access to safe sanitation: *Data available on a regular basis over the period covered.*

Not included:
Percentage of households with access to safe water within 3 km: *The data source is UNHS, and the data are available for 1996, 1997 and 2000.*

Outcome:
Prevalence of diarrhoea in under-five children: This indicator can be obtained both from the UDHS and the UNHS. Since the latter data source offer more observation points, the results from this survey are used.

Not included:
Prevalence of diarrhoea, irrespective of age: This indicator is obtained from the UNHS, but only for 1999. It is recommended that this indicator be included on a regular basis in future surveys

D Impact indicators (all sectors)
Impact:
Poverty incidence based on national poverty line: The information is available from 1993 onwards.
Poverty gap, based on a national poverty line: The indicator is computed on the basis of the poverty incidence as presented above.
GDP per capita: This indicator is based on the GDP total for the country, divided by total population, and is available for all years on the national level.
Life expectancy at birth: This is the number of years a newborn person can be expected to live, given that the same mortality pattern prevails. We have only been able to find numbers from the 1991 census and from the World Bank. Therefore, this indicator is only presented in chapter 6.
Human development index: This index has also been developed by UNDP and is available for most countries for most years required. Also available on district level for 2001.

Not included:
Incidence of extreme poverty: This indicator is defined as the proportion of the population that live on less than PPP$ 1 a day. This information is not available for Uganda.
Extreme poverty gap: This indicator is based on the proportion of the population that live on less than PPP$ 1 a day. This information is not available for Uganda.
Proportion of population below minimum level of dietary energy consumption: The minimum energy consumption is defined as 3000 calories per adult equivalent. This information is available for Uganda from the UNHS.
Poorest fifth's share of national consumption: This information is available for Uganda from the UNHS.
Gender development index: This index has been developed by UNDP and is available for most countries and for all years. The data are presented in appendix 5.

National level data

A. The health sector

Table A.1. Health sector input

Year	Public expenditures on health (million USh) (MFDEP)	Public expenditures on health per capita (constant 1995 USh) (MFDEP)	Share of public expenditure on health (%) (MFDEP)
1990	6 053	2 890	4
1991	9 161	2 904	5
1992	15 916	3 186	5
1993	18 993	3 320	4
1994	24 875	3 387	5
1995	26 216	3 739	4
1996	26 619	2 858	4
1997	40 477	3 525	6
1998	37 563	3 682	5
1999	40 938	6 850	4
2000	52 480	7 476	5
2001	60 300	6 748	5
2002	80 128	7 618	5
2003	11 1648		5

Table A.2. Health sector output

Year	Total vaccination coverage (DHS)	BCG vaccination coverage (DHS)	DPT vaccination coverage (DHS)	Measles vaccination coverage (DHS)	Births attended by skilled personnel (DHS)	Births attended by skilled personnel (UNHS)	Contraceptive prevalence rate (DHS)
1989	48	82			38		3
1990							
1991							
1992							
1993							
1994							
1995	47	84	61	60	38		7
1996							
1997						33	
1998							
1999							
2000	37	79	46	57	39	36	18
2001							
2002							
2003							

Table A.3. Health sector outcome

Year	Infant mortality rate (DHS)	Child mortality rate, 12-59 months (DHS)	<5 mortality rate (DHS)	Prevalence of underweight children <5 (%) (DHS)	Maternal mortality ratio (DHS/MoH)	Reported AIDS cases (STD/AIDS control programme)	Percentage living with HIV/AIDS (UNDP/HDR)	TB cases per 100 000 (STD/AIDS control programme)	Total fertility rate, 15-49-year-olds (DHS)
1989	98	87	177	23					7.4
1990						100			
1991						155		110	
1992						96		116	
1993					600[27]	70		117	
1994						74		140	
1995	81	72	147	26	527	33		129	6.9
1996						46		129	
1997						30		129	
1998						21		122	
1999						17	5.73	133	
2000	88	69	152	23	505	35		152	
2001						30	3.91	153	6.9
2002									
2003									

B. The education sector

Table B.1. Education sector input

Year	Public spending on education (million USh) (MoES)	Public spending on education er capita (constant 1995 USh) (MoES)	Share of public spending on education(%) (MoES)
1990	18 911	2 657	14
1991	24 446	2 608	13
1992	45 644	3 097	14
1993	50 607	3 131	12
1994	55 986	3 078	10
1995	68 474	3 377	11
1996	57 776	2 596	9
1997	74 693	3 042	11
1998	82 484	3 268	10
1999	136 832	4 968	12
2000	172 315	5 829	15
2001	161 194	5 264	12
2002	181 440	5 808	11
2003	162 901		

Table B.2. Education sector output

Year	Pupil/Teacher ratio – Primary Education (MoES)	Access to primary school (within 1km, %) (UNHS/UboS)	Net enrolment rate in primary education (%) UNHS/UboS))	Repeaters. primary education (%) (MoES)	Ratio of girls to boys in primary education (SA 2004)
1990	28				
1991	32				
1992	27		61		
1993	27		67		
1994	31		66		
1995	35	39	67		
1996	62				86
1997	51		84		87
1998	60				90
1999	57	40			90
2000	59		84	9.68	93
2001	54		87	9.50	96
2002	53				98
2003	52		86		

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[27] Source: MoH (estimate)

Table B.3. Education sector outcome

Year	Proxy completion ratio, net (MoES)	Proxy completion ratio, gross (MoES)	Literacy rate, 15-24-year-olds (UNHS/UboS)	Female-to-male literacy ratio (UNHS/UboS)
1990				
1991				
1992			75	83
1993			76	84
1994				
1995			72	82
1996		41		
1997		21	74	86
1998		33		
1999		41		
2000	46	44		
2001	51	49	77	82
2002	51	49		
2003	51	50		

C. The water and sanitation sector

Table C.1.Water and sanitation sector input

Year	Public expenditure on water and sanitation per capita (USh) (MFPED)	Share of public expenditure on water and sanitation (%) (MFPED)
1990		
1991		
1992		
1993		
1994		
1995		
1996		
1997		
1998	45	0.1
1999	51	0.1
2000	827	1.6
2001	1 149	2.1
2002	1 453	2.2
2003	1 528	2.3

Table C.2.Water and sanitation sector output

Year	Access to safe water (% of households) (UNHS)	Access to safe sanitation (% of households) (UNHS)
1990		
1991		
1992		77
1993		
1994		
1995		84
1996	50	
1997		81
1998		
1999		
2000	57	
2001		82
2002	68	
2003		87

Table C.3.Water and sanitation sector outcome

Year	Prevalence of diarrhoea, children <5 (DHS)	Prevalence of diarrhoea, children <5 (UNHS)
1989	24	
1990		
1991		
1992		
1993		
1994		
1995		24
1996		
1997		
1998		
1999		
2000	20	20
2001		
2002		
2003		

D. Poverty data

Table D.1. Impact

Year	Poverty incidence (based on national poverty line) (UboS)	Poverty gap (based on national poverty line) (UboS)	Life expectancy (1991 census)	Gender Development Index (UNDP)	Human Development Index (UNDP)	GDP per capita (PPP$) (SA)
1990					0.388	807
1991			48			820
1992				0.316		830
1993	55	20		0.318		858
1994	51	17		0.318		888
1995	50	16		0.331	0.404	961
1996	50	16				1 020
1997	44	14		0.397	0.404	1 039
1998				0.401	0.409	1 059
1999				0.428	0.410	1 112
2000	34	10		0.437	0.444	1 164
2001				0.483	0.489	1 190
2002	38	11		0.487	0.493	1 229
2003						

District/regional level data

E. the health sector

Table E.1. Health sector input

District/Region	Public expenditure on health (Million Ush) (SA)	Public expenditure on health per capita (Ush) (SA)
Central	9 739	1 457
Kalangala	219	5 975
Kampala	1 557	1 288
Kayunga	120	405
Kiboga	246	1 063
Luwero	997	2 102
Masaka	1 500	1 954
Mpigi	1 783	4 300
Mubende	892	1 263
Mukuno	558	691
Nakasongola	163	1 298
Rakai	1 181	2 504
Sembabule	163	888
Wakiso	359	375
Eastern	7 838	1 334
Bugiri	352	826
Busia	362	1 586
Iganga	892	1 246
Jinja	1 408	3 401
Kaberamaido		
Kamuli	653	918
Kapchorwa	412	2 128
Katakwi	419	1 365
Kumi	329	848
Mayuge		
Mbale	1 036	1 437
Pallisa	769	1 472
Sironko		
Soroti	487	1 309
Tororo	719	1 285
Northern	8 728	1 697
Adjumani	221	1 096
Apac	472	697
Arua	1 173	1 372
Gulu	1 393	2 973
Kitgum	684	2391
Kotido	627	1 052
Lira	1127	1 487
Moroto	1 272	7 458
Moyo	891	4 456
Nakapiripirit		
Nebbi	756	1745
Pader	113	385
Yumbe		
Western	9 587	1 494
Bundibugyo	149	701
Bushenyi	1 326	1 833
Hoima	498	1 426
Kabale	847	1 796
Kabarole	1 258	3 503
Kamwenge		
Kanungu		
Kasese	700	1 313
Kibaale	679	1 642
Kisoro	431	1 965
Kyenjojo		
Masindi	493	1 049
Mbarara	1 564	1 436
Ntungamo	1 329	3 435
Rukungiri	313	1 013

Table E.2. Health sector output

Year	Total vaccination coverage 12-23 months (DHS)			BCG coverage, 12-23 months (DHS)			Measles coverage (DHS)		
	1989	1995	2000	1993	1996	2000	1993	1996	2000
Uganda	48	47	37	82	83	78	69	64	63
Sex									
Male	50	48	36						
Female	45	47	37						
Residence									
Urban areas	76	56	42	90	94	90	73	77	69
Rural areas	45	46	36	81	82	77	69	62	62
Region									
Central	49	53	29	81	87		67	78	
Eastern	32	34	38	82	84		65	64	
Northern		35	33	82	84		73	78	
Western	46	65	46	84	92		73	86	
West Nile	29								
South West	57								

Table E.2. cont'd Health sector output

Year	DPT 3 coverage, under-5 (DHS)			DPT 3 coverage, 12-23 months (DHS)			Births attended by skilled personnel (DHS)			Births attended by skilled personnel (UNHS)	
	1993	1996	2000	1993	1996	2000	1989	1995	2000	1997	2000
Uganda	75 [28]	69	67	98	84	79	38	38	39	33	36
Sex											
Male	50	48	36	98	85	80					
Female	45	47	37	98	82	78					
Residence											
Urban areas	81	85	79	98	94	92	80	79	81	48	60
Rural areas	74	66	66	98	82	77	34	32	34	31	33
Region											
Central	74 [29]	87	29	98	86	71	52	60	59	49	48
Eastern	74	81	38	97	81	84	48	41	40	30	35
Northern	77	86	33		83	78		23	27	33	29
Western	76	94	46	100	85	81	21	24	23	19	27
West Nile				98			19				
South West				100			17				

Table E.3.a: Health sector outcome

Year	Infant mortality rate (DHS)			Under-5 mortality rate (DHS)			Under-5 underweight prevalence (DHS)		
	1989	1995	2000	1989	1995	2000	1989	1995	2000
Uganda	106	86	89	188	156	157	23	26	23
Sex									
Male		87	93		162	164	23	27	24
Female		85	85		151	149	23	24	21
Residence									
Urban areas	103	74	55	164	134	101	13	15	12
Rural areas	107	88	94	191	159	163	24	27	24
Region									
Central	99	77	72	187	141	135	21	21	20
Eastern	118	98	89	207	176	147	21	27	22
Northern		99.3	105.9		190.0	178.0		31.6	25.0
Western	121	75	98	179	131	176.3	23	24	24
West Nile	122			211					
South West	96			172					
Luwero Triangle	98			174					
Kampala	108								

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[28] DPT 1

[29] Regional data cover DPT 1

Table E.3.b Health sector outcome

Region/District	Infant mortality rate (1991 Census)
Central	105
Kalangala	98
Kampala	80
Kayunga	
Kiboga	138
Luwero	117
Masaka	107
Mpigi	94
Mubende	119
Mukuno	102
Nakasongola	
Rakai	119
Sembabule	
Wakiso	
Eastern	122
Bugiri	
Busia	
Iganga	125
Jinja	97
Kaberamaido	
Kamuli	118
Kapchorwa	104
Katakwi	
Kumi	122
Mayuge	
Mbale	129
Pallisa	124
Sironko	
Soroti	116
Tororo	138
Northern	141
Adjumani	
Apac	114
Arua	137
Gulu	172
Kitgum	165
Kotido	145
Lira	127
Moroto	147
Moyo	143
Nakapiripirit	
Nebbi	139
Pader	
Yumbe	
Western	125
Bundibugyo	150
Bushenyi	122
Hoima	91
Kabale	114
Kabarole	136
Kamwenge	
Kanungu	
Kasese	103
Kibaale	122
Kisoro	105
Kyenjojo	
Masindi	118
Mbarara	145
Ntungamo	
Rukungiri	122

F. The education sector

Table F.1. Education sector input

District/Region	Public expenditure on education (Million Ush) 2001 (MFDEP/UboS)	Public expenditure on education USh per capita 2001 (MFDEP/UboS)	Public expenditure on education USh per 5-14-year-old child 2001 (MFDEP/UboS)
Uganda (total)	335 929	15 178	48 108
Central government	125 444		
Recurrent	90 078		
Development	35 366		
Local government	210 486		
Central	56 046	8 385	28 231
Kalangala	1 042	28 421	134 199
Kampala	9 917	8 205	18 924
Kayunga	113	380	1 649
Kiboga	1 920	8 286	32 500
Luwero	4 797	10 106	36 403
Masaka	7 057	9 191	29 819
Mpigi	9 696	23 378	82 345
Mubende	3 889	5 507	19 192
Mukuno	8 485	10 502	37 000
Nakasongola	2 598	20 731	83 350
Rakai	5 132	10 878	39 049
Sembabule	1 073	5 828	20 957
Wakiso	328	342	1 509
Eastern	56 819	9 671	26 772
Bugiri	2 880	6 753	9
Busia	2 864	12 552	49 371
Iganga	7 181	10 025	37 379
Jinja	3 936	9 508	21 070
Kaberamaido			
Kamuli	6 168	8 662	23 211
Kapchorwa	2 373	12 263	46 165
Katakwi	3 089	10 060	43 963
Kumi	2 544	6 556	24 400
.Mayuge			
Mbale	9 380	13 011	38 059
Pallisa	5 687	10 890	21 776
Sironko			
Soroti	5 780	15 539	63019
Tororo	4 937	8 824	99 743
Northern	41 423	8 052	24 174
Adjumani	1 684	8 360	3 954
Apac	5 989	8 856	30 382
Arua	7 899	9 238	35 332
Gulu	4 999	10 672	32 844
Kitgum	5 266	18 403	70 451
Kotido	1 822	3 056	7 922
Lira	7 495	9 891	14 463
Moroto	1 809	10 609	34 333
Moyo	1 451	7 260	26 775
Nakapiripirit		-	
Nebbi	2 852	6 579	26 044
Pader	157	536	2 269
Yumbe		-	
Western	57 113	8 900	6 959
Bundibugyo	1 900	8 924	35 592
Bushenyi	7 690	10 630	34 192
Hoima	3 380	9 679	28 299
Kabale	6 193	13 126	30 983
Kabarole	7 253	20 193	8 731
Kamwenge		-	
Kanungu		-	
Kasese	3 954	7 419	24 194
Kibaale	3 580	8 661	25 475
Kisoro	2 311	10 533	38 350
Kyenjojo		-	
Masindi	3 921	8 346	33 794
Mbarara	7 655	7 029	23 940
Ntungamo	4 027	10 411	39 852
Rukungiri	5 249	17 004	54 143

Table F.2. Education sector output

Region/district	Pupil/teacher ratio 2003 (SA 2004)	Repeaters (%) 2001 (MoES)	Dropout rate (%) 2001 (MoES)	Net enrolment rate (%) 2002 (UNHS)	Girl/boy ratio (girls per 100 boys) 1999 (UNHS)	Access to primary school within 1 km (%) 1999 (UNHS)
Uganda	52	9.5	4.7	86		
Sex						
Male			4.7	85		
Female			4.8	87		
Residence						
Rural				85	97	49
Urban				91	83	40
Central				85	92	37
Kalangala	40	6.9	1.9			
Kampala	29	4.1	3.5			
Kayunga	54	8.5	5.3			
Kiboga	49	8.6	5.1			
Luwero	46	6.7	3.9			
Masaka	44	5.8	3.3			
Mpigi	51	7.3	3.1			
Mubende	51	7.6	3.1			
Mukuno	40	8.2	4.4			
Nakasongola	50	12.5	5.3			
Rakai	38	8.8	3.7			
Sembabule	51	6.3	5.1			
Wakiso	34	5.8	3.3			
Eastern				90	100	52
Bugiri	55	9.0	3.7			
Busia	61	14.5	6.1			
Iganga		8.3	3.3			
Jinja	52	7.3	3.8			
Kaberamaido	56					
Kamuli	61	4.7	3.3			
Kapchorwa	47	5.1	3.1			
Katakwi	53	18.4	7.9			
Kumi	58	16.6	4.0			
Mayuge	57	7.2	3.9			
Mbale	58	8.7	4.6			
Pallisa	63	10.5	3.3			
Sironko	60	9.3	4.3			
Soroti	60	13.4	4.5			
Tororo	62	8.6	4.1			
Northern				77	104	23
Adjumani	54	15.9	7.1			
Apac	70	10.6	4.3			
Arua	60	16.1	10.6			
Gulu	60	9.0	5.3			
Kitgum	68	12.9	6.8			
Kotido	75	9.3	6.1			
Lira	56	5.7	4.8			
Moroto	45	11.1	12.2			
Moyo	51	16.8	8.3			
Nakapiripirit	69					
Nebbi	70	17.5	9.4			
Pader	80	9.3	5.4			
Yumbe	63	10.0	5.3			
Western				87	79	41
Bundibugyo	49	5.8	7.8			
Bushenyi	55	10.4	3.6			
Hoima	51	10.7	4.4			
Kabale	43	10.9	7.3			
Kabarole	51	7.0	5.9			
Kamwenge	52	7.6	5.8			
Kanungu	46					
Kasese	55	5.2	2.9			
Kibaale	51	7.0	4.3			
Kisoro	52	6.7	5.6			
Kyenjojo	61	7.4	5.6			
Masindi	53	13.3	4.9			
Mbarara	46	7.8	3.3			
Ntungamo	54	13.2	2.8			
Rukungiri	45	6.5	3.7			

Table F.3.a Education sector outcome

District	Completion of 7th grade (%) 2002 (SA 2004)
Central	
Kalangala	36
Kampala	70
Kayunga	89
Kiboga	74
Luwero	88
Masaka	76
Mpigi	101
Mubende	78
Mukono	90
Nakasongola	71
Rakai	72
Sembabule	62
Wakiso	98
Eastern	
Bugiri	70
Busia	70
Iganga	104
Jinja	84
Kaberamaido	96
Kamuli	85
Kapchorwa	113
Katakwi	55
Kumi	79
Mayuge	71
Mbale	102
Pallisa	72
Sironko	121
Soroti	73
Tororo	77
Northern	
Adjumani	51
Apac	86
Arua	67
Gulu	69
Kitgum	67
Kotido	5
Lira	72
Moroto	10
Moyo	35
Nakapiripirit	7
Nebbi	50
Pader	64
Yumbe	33
Western	
Bundibugyo	55
Bushenyi	79
Hoima	57
Kabale	79
Kabarole	57
Kamwenge	58
Kanungu	62
Kasese	75
Kibale	74
Kisoro	61
Kyenjojo	59
Masindi	51
Mbarara	79
Ntungamo	72
Rukungiri	73

Table F.3.b Education sector outcome

	Literacy rates, 15-24-year-olds (%) (UNHS/UBoS)					Female-to-male literacy ratio, 15-24-year-olds (UNHS/UBoS)				
	1992	1993	1995	1997	2000	1992	1993	1995	1997	2000
Uganda	75	76	72	74	77	83	84	82	86	82
Sex										
Male	82	83	79	80	83					
Female	68	70	65	69	71					
Residence										
Urban areas	90	89	87	89	90	80	82	79	82	83
Rural areas	72	73	69	71	74	96	92	97	97	93
Region										
Central	85	84	84	86	86	99	99	101	98	97
Eastern	74	71	66	67	77	82	74	74	87	87
Northern	65	66	68	69	58	59	60	68	66	60
Western	72	75	68	71	80	81	86	83	83	91

G. The water and education sector

Table G.1. Water and sanitation output

	Access to safe water source (%) (UNHS)		Access to safe sanitation facility (%) (UNHS)			
	1996	2000	1992	1995	1997	2000
Uganda	50	57	77	83	81	85
Residence						
Urban areas	88	87	94	96	76	97
Rural areas	43	51	74	81	82	82
Region						
Central	40					
Eastern	54		91	94	92	97
Northern	51		72	71	71	79
Western	47		48	95	72	56

Table G.2. Water and sanitation outcome

	Diarrhoea prevalence, under-five children, 2 weeks preceding the survey (%) (UNHS)			Diarrhoea prevalence, 2 weeks preceding the survey (%) (UNHS)		
	1992	1993	1995	1997	2000	1999
Uganda	23	21	16	17	15	1.4
Sex						
Male	21	20		18	15	
Female	24	22		16	15	0.6
Residence						0.7
Urban areas			13	16	12	
Rural areas			17	17	15	
Region						1.5
Central	23	21	12	12	11	0.9
Eastern	29	24	20	26	18	
Northern	20	19	23	20	20	
Western	17	20	13	12	12	0.6

H. Monitoring poverty

Table H.1.a Impact

	HDI 2000 (UNDP)
Uganda	0.444
Central	
Kalangala	0.499
Kampala	0.593
Kayunga	0.470
Kiboga	0.441
Luwero	0.491
Masaka	0.499
Mpigi	0.530
Mubende	0.458
Mukono	0.470
Nakasongola	0.457
Rakai	0.460
Sembabule	0.482
Wakiso	0.530
Eastern	
Bugiri	0.420
Busia	0.427
Iganga	0.425
Jinja	0.535
Kaberamaido	0.402
Kamuli	0.417
Kapchorwa	0.480
Katakwi	0.383
Kumi	0.402
Mayuge	0.427
Mbale	0.462
Pallisa	0.416
Sironko	0.466
Soroti	0.402
Tororo	0.428
Northern	
Adjumani	0.378
Apac	0.441
Arua	0.383
Gulu	0.423
Kitgum	0.353
Kotido	0.195
Lira	0.405
Moroto	0.184
Moyo	0.361
Nakapiripirit	0.184
Nebbi	0.363
Pader	0.353
Yumbe	0.383
Western	
Bundibugyo	0.364
Bushenyi	0.456
Hoima	0.478
Kabale	0.452
Kabarole	0.423
Kamwenge	0.423
Kanungu	0.467
Kasese	0.471
Kibaale	0.439
Kisoro	0.411
Kyenjojo	0.423
Masindi	0.415
Mbarara	0.441
Ntungamo	0.461
Rukungiri	0.467

Table H.1.b Impact

	Poverty incidence (%) (UNHS/UboS)							Poverty gap (%) (UNHS/UboS)						
	1993	1994	1995	1996	1997	2000	2002	1993	1994	1995	1996	1997	2000	2002
Uganda	55	51	50	50	44	34	38	20	17	16	16	14	10	11
Residence														
Urban areas	28	21	22	20	17	10		8	6	6	6	4	2	
Rural areas	61	56	54	54	49	39		22	19	18	18	15	12	
Region														
Central	46	35	30	30	28	20		15	10	8	8	8	5	
Eastern	59	58	65	58	54	37		22	20	23	21	18	10	
Northern	72	69	64	70	60	65		29	25	22	25	21	25	
Western	53	54	51	46	43	28		19	17	15	15	11	7	

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